THÈSE DE DOCTORAT D'AIX-MARSEILLE UNIVERSITÉ

École Doctorale n^o372
École d'Économie d'Aix-Marseille
Spécialité : Sciences Économiques

Soutenue publiquement à Marseille le 16 Décembre 2021 par:

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Les Grandes Écoles au 20ème siècle, le champ des élites françaises :

reproduction sociale, dynasties, réseaux

Grandes Écoles in the 20th century, the field of the French elites: social reproduction, dynasties, networks

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Contents

Note to the reader

The three chapters of this thesis are self-contained research articles and can be read separately. They are preceded by a general introduction, which explains my research agenda and the main research questions I address.

The work presented in this manuscript has been realized in accordance with the principles of honesty, integrity, and responsibility inherent to the research mission. The research work and the writing of this manuscript have been carried out in compliance with both the French national charter for Research Integrity and the Aix-Marseille University charter on the fight against plagiarism. This work has not been submitted previously either in this country or in another country in the same or in a similar version to any other examination body.

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Abstract of the dissertation

Constituted by three self-contained chapters, this dissertation investigates, from a historical perspective, the central role of the most prestigious *Grandes Écoles* for the constitution and the perpetuation of the French elites. To that end, we collected and constructed an original dataset on 374,719 graduates registered between 1886 and 2015 in 12 schools.

The first chapter qualifies the admission process to these *Grandes Écoles* for cohorts born between 1891 and 1995. Families from ancient aristocratic lineage are continually more likely to be admitted, and Parisian-born individuals are increasingly over-represented in the schools. Descendants of *Grandes Écoles*' graduates are also considerably advantaged in the admission process, over several generations, even more so in the school where their ancestors studied. Moreover, we show that the level of intergenerational reproduction is remarkably stable for all cohorts born since 1916.

The second chapter examines the entry of the *Grandes Écoles*' graduates born between 1931 and 1975 on the specific labor market for elite occupations, namely politicians with national-level mandates and board members of French firms. We first confirm that the *Grandes Écoles* are crucial in the training of such elites. More importantly, we demonstrate the presence of dynasties, as children of the political and business elites have higher chances than their peer graduates to embrace similar careers. Political dynasties are particularly sizeable, although progressively declining for cohorts born after World War 2. We also show that these dynasties shape the composition of the French elite, as dynastical board members tend to be less educated than first-generation directors, and as members of the elite manage to propel their offspring much younger to key business and political positions.

Finally, the third chapter explores the interactions between the political and business elites in the attribution, by politicians to business leaders, of the *Légion d'honneur*, the most prominent state award in France. Awards constitute news shocks and allow to conduct an event study in the days following their announcement. We reveal a positive stock market reaction for the firms of the awardees. Graduation of politicians and businesspersons in a same *Grande École* cohort serves as a signal of political connections. Thus, it appears that only newly disclosed information on connections is priced by financial markets.

This dissertation thereby documents the pervasive and long-lasting influence of the *Grandes Écoles* on the structuring of the French elites. First, the schools' admission process is characterized by a substantial intergenerational reproduction, which perpetuates over generations. Second, even among their graduates, careers remain determined by social origins. Finally, alumni networks that root early in the life course have a durable influence on social outcomes, for instance through higher chances to receive a prestigious state award from a school peer.

Key words: *Grandes Écoles*, French elites, intergenerational mobility, social reproduction, political and business elites, *Légion d'honneur*.

Résumé en français

Constituée de trois chapitres autonomes, cette thèse étudie, dans une perspective historique, le rôle central des Grandes Écoles les plus prestigieuses dans la constitution et la stabilité des élites françaises. Pour ce faire, nous avons collecté et construit une base de données originale couvrant 374 719 diplômés admis entre 1886 et 2015 dans 12 écoles.

Le premier chapitre qualifie le processus d'admission à ces Grandes Écoles pour les cohortes nées entre 1891 et 1995. Les familles d'ascendance aristocratique sont continuellement sur-représentées parmi les étudiants, de même que les individus nés à Paris pour qui l'avantage augmente pour les cohortes les plus récentes. Les enfants des diplômés des Grandes Écoles ont aussi considérablement plus de chances d'être eux-mêmes admis dans ces écoles, et ce sur plusieurs générations, tout particulièrement dans les mêmes établissements que leurs ancêtres. Par ailleurs, nous montrons que le niveau de reproduction intergénérationnelle est stable pour toutes les cohortes nées depuis 1916.

Le second chapitre examine l'entrée des diplômés des Grandes Écoles nés entre 1931 et 1975 sur le marché du travail des professions d'élite, à savoir en tant que personnalité politique avec un mandat national ou comme membre de conseil d'administration d'une entreprise française. Nous confirmons dans un premier temps que les Grandes Écoles constituent la voie royale vers l'élite. Surtout, ce travail met en évidence la présence de dynasties, dès lors que les enfants des élites politique et économique ont davantage de chances que leurs pairs diplômés de mener des carrières dans ces professions d'élite. Les dynasties politiques sont particulièrement importantes, bien qu'en recul progressif pour les cohortes nées après la seconde guerre mondiale. Par ailleurs, nous montrons que ces dynasties façonnent la composition des élites françaises, puisque les membres dynastiques de conseils d'administration ont un moindre niveau d'éducation que ceux de première génération, et que les membres de l'élite parviennent à propulser leurs enfants bien plus jeunes vers l'exercice de ces fonctions prestigieuses.

Enfin, le troisième chapitre explore les interactions entre élites politique et économique via l'attribution par les politiciens aux dirigeants d'entreprises de la légion d'honneur, la plus éminente distinction d'État en France. Les décorations constituent un choc informationnel, ce qui permet de mener une étude d'évènement dans les jours suivant leur officialisation. Nous mettons en évidence une réaction positive des marchés boursiers pour les entreprises des récipiendaires. La formation des personnalités politiques et économiques la même année dans une même Grande École est utilisée comme un signal de connexion politique. Il apparaît ainsi que seules les connexions nouvellement révélées sont valorisées par les marchés financiers.

En définitive, cette thèse documente l'influence généralisée et durable des Grandes Écoles sur la structuration des élites françaises. En effet, l'admission dans ces écoles est caractérisée par une importante reproduction intergénérationnelle, qui se perpétue sur plusieurs générations. En outre, même parmi les admis, les carrières demeurent influencées par l'origine sociale. Enfin, les réseaux de diplômés exercent une influence durable sur la réussite sociale, par exemple avec une probabilité plus élevée de recevoir la légion d'honneur de la part d'un collègue de promotion.

Mots-clés : Grandes Écoles, élites françaises, mobilité intergénérationnelle, reproduction sociale, élites politique et économique, Légion d'honneur.

Remerciements

Une thèse n'est pas simplement trois articles rassemblés en 300 pages. C'est un cheminement, personnel et professionnel, jalonné de nombreuses étapes, et enrichi par des rencontres qui en font une expérience unique. J'ai donc une pensée pour toutes celles et tous ceux qui m'ont accompagné sur ce chemin.

Tout d'abord, je souhaite remercier Alain Trannoy, mon directeur de thèse, qui m'a accordé sa confiance, a toujours fait preuve d'une grande bienveillance et m'a offert la liberté d'explorer mes propres idées de recherche. Alain, dont la curiosité intellectuelle est source d'inspiration, m'a transmis son goût de penser hors des sentiers battus.

Cette thèse doit aussi beaucoup à Marc Sangnier et à Renaud Coulomb, coauteurs du troisième chapitre. La recherche est résolument plus engageante lorsqu'elle se fait en équipe. Marc et Renaud m'ont transmis beaucoup de savoirs pratiques, indispensables au métier de chercheur, et à la recherche empirique en particulier, tout cela avec une bonne humeur qui rend nos échanges simples, agréables et sincères. La contribution de Marc à ma thèse est multiple, lui qui a aussi été directeur du programme doctoral et enseignant responsable du premier TD que j'ai enseigné. Il a été disponible et de précieux conseil lorsque je l'ai sollicité. Je l'en remercie chaleureusement.

Je suis profondément reconnaissant envers les membres de mon jury de thèse : Baptiste Coulmont, Arnaud Lefranc, Akiko Suwa-Einsenmann et Louis-André Vallet. Leurs lectures attentives et leurs commentaires précis de mes travaux m'ont permis d'améliorer ce manuscrit et constituent une source très précieuse de progrès futurs. Je remercie Louis-André et Arnaud d'avoir suivi l'avancée de mon travail dès les débuts de ma thèse. Les articles qui constituent cette thèse ont aussi grandement bénéficié, à l'occasion de séminaires, conférences et dialogues plus informels, d'échanges avec d'autres chercheurs, que je remercie tous.

Cette thèse s'appuie aussi sur d'importantes collectes de données. Merci à toutes les personnes qui m'ont aidé dans cette démarche. Leurs noms sont cités en section H de l'introduction générale.

Si la thèse n'est pas un long fleuve tranquille, la mienne a eu la chance de s'écouler dans un « lit » particulièrement accueillant. Sans trop écluser la métaphore fluviale, je tiens à remercier profondément l'ensemble des personnes qui y ont contribué à l'École d'Économie d'Aix-Marseille. J'ai une pensée particulière pour Carine Nourry. Avoir pu

travailler pendant ces années dans une atmosphère à la fois studieuse et conviviale fut une vraie chance. Je remercie particulièrement Nicolas, Sebastian et Renaud pour leurs conseils attentifs. Yves, tu es l'incarnation des qualités humaines qui rendent la vie belle. Merci à Bernadette, dont la gentillesse n'a d'égale que sa disponibilité. Aziza, chaque rencontre fut vraiment un plaisir, il en faudra donc d'autres. Marine, mon premier est une boisson chaude, mon second hydrate mon premier, et mon troisième tape la main en signe d'accord. Greg, Laurence, Élisabeth, Corinne, Agnès, merci à vous aussi, ainsi qu'à tous les enseignants-chercheurs et personnels administratifs de l'unité.

Un peu à l'image d'un bateau dans la houle, le sort d'un doctorant est de voir différentes marées de collègues se succéder, de nouvelles vagues remplaçant les anciennes. Mais chaque embrun a laissé sa marque, plus ou moins appuyée, sur ma traversée. J'ai une pensée pour tous les doctorants que j'ai croisés. Je pense notamment à la gentillesse exaltée de Laura, à l'enthousiasme solaire de Lara, à la sérénité et la philosophie légendaire d'Alby, à la barbe et au swag de Tanguy, à la moustache et au swag de Kevin, ainsi qu'à nos innombrables workshops bières et rap, à l'engagement communicatif de Florian, à l'affectueux polémiste Adrien, à la rieuse Julieta, à la féministe Estefanía, à Suzanna la combattante, à la chaleureuse Kenza, au calme et sportif Élie, à la virevoltante Sarah, à l'élégante Laurène, au Marseillais refoulé Fabien, ou encore à Anwesha, Edwin ou Lisa, ainsi qu'à tous les autres. J'ai aussi une pensée pour Gaëtan : notre complicité sportive aura connu un petit coup de frein en 2020-2021, mais il paraît qu'en charriant des poussettes ça comptera double. Ewen, Pierre et Hélène, vous avez aussi bien contribué aux charmes des lieux. Enfin, Morgan, mon frère de backslash mais surtout de cœur, ton arrivée en trombe dans ma vie est belle, évidente et précieuse. Tu fais partie de la famille et c'est pour la vie.

Au cours de ma thèse, j'ai aussi fréquenté deux ans le laboratoire d'économie de SciencesPo. Puisque la crise sanitaire y a sensiblement limité mes venues, je remercie Alaïs d'avoir assuré la navette logistique Paris-Marseille. Je remercie aussi beaucoup Sophie et Elisa pour leur chaleureux accueil, ainsi que tous les doctorants pour ces moments agréables et stimulants dans « Les combles ».

J'en profite pour remercier aussi l'ensemble des étudiants à qui j'ai eu le loisir d'enseigner la microéconomie et l'économie publique pendant ma thèse. Nos interactions ont permis d'aborder les questions économiques avec un regard différent, donnant lieu à de riches discussions. Ils ne savent probablement pas à quel point ce fut un réel plaisir pour moi.

Pour ne rien gâcher, l'AMSE m'a fait accoster à Marseille, qui a constitué un merveilleux port d'attache. J'ai des pensées colorées pour mes colocs de la Villa Saint-Jacques : Nadim, Max, Marion, Alby, Ruth. Nous y avons construit de belles amitiés. J'ai beaucoup de souvenirs dans ces lieux, d'une époque où ni la distanciation sociale, ni la fin de thèse n'entravaient l'organisation de soirées. Pêle-mêle, merci à super Dadouche, à la Cité de l'agriculture, aux Sardines triathlon. Merci aussi à Ju et Alex : de Chambé au Lac de Sainte-Croix, de l'Ironman 70.3 d'Aix à la Gineste, vous avez été des partenaires

de belles échapées. Marion, tu es une si belle et riche personne. Vivre ensemble, avec le sentiment d'être en famille, c'était simple et beau. Bravo pour tout ce que tu construis. Clément, j'aime tellement qui tu es, plein d'un humour rusé, talentueux, soucieux des autres et de leurs gosiers. Tu es comme un bon vin, quand on le boit de suite, on se régale, mais quand on le reboit un peu plus tard, c'est encore mieux. Max, Marion, les habibis : vous êtes plus doux que la plus douce des cornes de gazelles. Nonmax, allez je t'emboucane : merci d'avoir inspiré cette thèse ! Mathou, bravo pour toutes ces histoires merveilleusement contées. Nos escapades déconfinées ont mis du miel dans nos cœurs. Elsa, force à toi, tu es une grande génie de l'âme humaine. Benoît, merci pour ta grande générosité. Camille et Benoît, si un jour on assiste à une projection du FID, ce sera pour mieux boire des coups après. Sachou, PJ, Ella et André, vous êtes aussi des petits sucres. Merci à la Zo d'avoir baptisé ma base de données, « *la databens* », et de m'avoir nourri au Gabriel Coulet et aux cartes postales enchantées. Merci aux moins Marseillais : Arthur, Juju, Thib, Thom Thom, Simon, la Go, toute la *Göttigen family*, et bien d'autres âmes charitables encore. J'ai aussi une pensée affectueuse pour Céline et pour Johanna, qui m'ont fait grandir et progresser.

Je conclus ces remerciements en évoquant ma famille. J'ai une immense pensée pour ma mère, à qui l'aboutissement de cette thèse doit beaucoup. Je remercie aussi mon père. En m'offrant mon premier stage pour redessiner ses bureaux, à l'âge de 9 ans, il m'a mis le pied à l'étrier. L'intérêt de mes parents pour l'économie et les statistiques n'est pas étranger à mon parcours. J'embrasse mes frères Arnaud, Victor et Léon. Arnaud, nous avons construit une belle relation fraternelle et solidaire, c'est un pilier pour la vie. Je remercie Bob d'avoir tenu sa promesse, et je compte bien profiter encore de ces doux moments partagés. Mireille, merci pour ta petite chambre d'appoint et nos dîners tardifs qui accompagnaient mes venues à SciencesPo à l'automne 2019. C'était un grand plaisir de te retrouver chaque semaine. Je remercie aussi Marc et Laurence pour leur accueil chaleureux et pour les festins à l'abris des platanes. Alice, Claire, Chantal, vos épaules ont été extrêmement précieuses ! Claire, merci aussi pour cet été breton qui m'a permis une douce fin de thèse.

Enfin, à l'heure de faire le bilan, calmement, j'ai bien conscience de la chance infinie d'avoir partagé toutes ces aventures avec quelqu'un de si naturellement diamantaire. Loulou, merci d'avoir été à la fois mon soutien infaillible et mon étoile vers l'avenir. Merci pour ta patience, pour tout ce que tu m'apportes, pour ton regard intelligent, bienveillant et sensible sur le monde qui nous entoure, et surtout pour tout ce que l'on construit ensemble. J'ai passionnément aimé le tome 1. Je suis déjà conquis par le début du 2.

Noa, toute la suite s'écrira avec toi. Rien ne me remplit plus de joie.

Grandes Écoles in the 20th century, the field of the French elites: social reproduction, dynasties, networks

À ma mère, Dominique Allain

General Introduction

"La vie est belle le destin s'en écarte
Personne ne joue avec les mêmes cartes
Le berceau lève le voile, multiples sont les routes qu'il dévoile
Tant pis on n'est pas nés sous la même étoile"

IAM (1997), *Nés sous la même étoile*[1]

Attention to the top 1% of the socio-economic distribution is at the heart of the public debates, as attested by the leading slogan "We are the 99%" of the *Occupy Wall Street* movement. In the academic circle, Simon Kuznets initiated this focus (see Kuznets and Jenks, 1953) and Piketty (2003) revived the interest with an application to France, followed by Piketty and Saez (2003) for the United States, and Atkinson and Piketty (2007) for a comparative international study. The topic reached international recognition with Piketty (2014)'s *Capital in the Twenty-First Century*. Exploiting fiscal data mostly for developed countries, these authors show that economic resources are highly polarized. Throughout the 20$^{\text{th}}$ century, the top 1% of the income distribution concentrated between 10 and 25% of resources in the United States, and between 8 and 20% in France (Alvaredo et al., 2013), with rising inequalities over the past four decades. This bred an increasing distrust in political institutions (Citrin and Stoker, 2018), which crystallized in distinctive events such as the "No-referendum" to the European constitution in 2005, Brexit in 2016, or the Yellow Vest movement in 2018-2019 in France. Yet, as I will further develop, the classical school of the elite theory depicts a world substantially shaped by a governing minority.[2] The French President Emmanuel Macron endorses this view through his exalted

[1] This is the chorus of one of the hits from *L'école du micro d'argent* by Marseilles' band IAM, the top-selling French rap music album of all times. It translates as such: "Life is beautiful, fate drifts away from it; No one draws the same hand; The cradle lifts the veil, numerous are the roads it unveils; Too bad, we weren't born under the same star."

[2] Whereas the three chapters of this dissertation use plural pronouns, as *we*, even though only the third chapter is co-written, I use singular pronouns in this general introduction to present my research.

rhetoric on the benefits instigated by the *premiers de cordées*, a metaphor comparing exemplary economic agents to lead rock climbers. From a purely academic perspective, the importance of the bottom and of the top of the socio-economic distributions has long been established. For instance, Jäntti et al. (2006) or Becker et al. (2018) show that average estimates of intergenerational mobility are highly driven by the tails, with more intergenerational persistence among the poorest and the richest.

The research presented in this thesis relates to intergenerational mobility, with a particular attention to the very top of the educational distribution. I consider stratification and inequality in power, prestige, and status—in the tradition of Max Weber (1921)—, and not inequality in material resources. Constituted by three self-contained chapters, the dissertation investigates, from a historical perspective and with an explicit consideration for interdisciplinarity, the central role of the most prestigious *Grandes Écoles* for the constitution and the perpetuation of the French elites. In France, access to the heights of the social hierarchy is highly conditioned by education in one of the few leading *Grandes Écoles* (Delefortrie-Soubeyroux, 1961; Suleiman, 1978; Bauer and Bertin-Mourot, 1987; Bourdieu, 1989; Barsoux and Lawrence, 1991; Vion et al., 2014). These are top level higher education institutions, of relatively small size but of long history. The first chapter qualifies the admission process to these *Grandes Écoles* for cohorts born between 1891 and 1995. The second chapter examines the entry of the *Grandes Écoles*' graduates born between 1931 and 1975 on the specific labor market for elite occupations, namely politicians with national-level mandates and board members of French firms. Finally, the third chapter explores the interactions between the political and business elites, and particularly the value of Alumni networks in the attribution, by politicians to business leaders, of the *Légion d'honneur*, the most prominent state award in France. To undertake this work, I collected an original dataset on 374,719 students from 12 *Grandes Écoles*, admitted between 1886 and 2015.

The purpose of this general introduction is to provide a framework for the research presented in the dissertation, to explicit the main concepts that infused and influenced my research agenda, and to connect my three chapters. Section A examines the notion of elite. Section B discusses family, as a fundamental institution for intergenerational transmission. Section C introduces a few theoretical elements on the interactions of education and the labor markets. Section D presents the research on intergenerational mobility. Section E covers normative principles of justice and introduces the consideration for self-responsibility, which structures the literature on equality of opportunity. Section F challenges the myth of meritocracy, while section G advocates that society may favor equality of outcomes. Finally, section H explains selected features characterizing my research design, and section I outlines the content of the three chapters.

A Elites: an elusive concept

> "All societies are governed by elites and every society has some means of producing its elites. But few societies have succeeded in institutionalizing their elite-forming mechanism to quite the degree that France has."
>
> Ezra Suleiman (1978)

Elitism and many other derivations from the term *elite* are nowadays commonly used with a negative connotation, which outlines their ambivalent perception. Elites are sometimes admired, esteemed and praised, or, sometimes blamed, criticized and denigrated. Scholars specialized on elites echo this ambivalence: if many perceive their necessity, their flaws were widely exposed.

The notion of 'elite(s)' is a relatively recent construct, as historians have long favored classifications more rigorously or even legally defined, like the aristocracy or the *bourgeoisie* (Rioux, 1983). The definition of elite emerged in sociology, as a response to the Marxist view that what shapes history is the proletariat. Conversely, Pareto declared that "the history of mankind is the graveyard of aristocracy". Indeed, we owe to the Italians Vilfredo Pareto (1916), Gaetano Mosca (1896) and Robert Michels (1911) the first conceptualizations of elites. For this classical school of the elite theory, there is no possible egalitarian world. They have a *naturalist* conception of elites, as being necessary. Any social organization implies and requires a social asymmetry, and each society will always be governed by an oligarchy, which concentrates economic resources, power, and prestige.

For Pareto, elites are the ones at the top of each specific branch of activity, be it in chess playing, politics, or crime, to mention some of his best-known examples. Success establishes the status, as we recognize elites through their ability to be acknowledged and endorsed as such. Mosca (1896) viewed elites as a ruling and organized minority, with a propensity to reproduce hereditarily, even when legal safeguards are supposed to guaranty its openness. He opposed a structured elite to an unorganized majority. Michels (1911) conceptualized the "iron law of oligarchy", which claims that supremacy, once established, entrenches its control, undermining equality principles. Michels observes that any type of organizational structure eventually transforms into an oligarchy. Often qualified as elitist, Schumpeter (1942) also warned on the propensity of the elite for social closure and expressed disapproval of mediocre elites (Piano, 2017).

Over the course of the 20th century, educational systems became increasingly critical in selecting and defining members of the elite. According to Charles Wright Mills (1956), a discernible military, economic, and political elite is recruited in a quasi-hereditary manner among graduates from Ivy League institutions, such as Harvard, Princeton, and Yale. Although he usually refutes the term 'elite' and refers to the 'dominant class', Pierre Bourdieu (1989) also examines this central function of education institutions, where the belief

of "belonging to one world" is inculcated. Indeed, an important dimension for the recognition and establishment of the elite concerns its legitimacy, as power cannot be exerted arbitrarily. There is reciprocity between what constitutes elites and what is the source of their legitimacy. Historically, legitimacy arose from blood. Bourdieu and Passeron (1970) argue that it switched towards schooling legitimacy. "Schooling transforms those who inherit into those that merit", they write. Indeed, I further discuss in section C the ubiquity of schooling credentials for the identification of deserving individuals.

Elites are generally restricted to those that may exercise power, particularly economic and political leaders, which are the focus of chapters 2 and 3 of this dissertation. But the delineation of the elite in a society varies across countries (Mangset, 2015). Indeed, what sectors or fields are considered eminent enough to be included are time- and context-varying.[3] For instance, artists have progressively gained membership to the elite since the 19th century (Heinich, 1993). By contrast, if famous athletes are nowadays superstars, often more celebrated worldwide than most Heads of states, they are usually not considered to belong to such an elite.

A related question is whether there is a unity of the elite, or a plurality of elites that coexist in society. Researchers such as Mosca, Marx or Mills developed a view of a relatively unified elite. Yet, a unified elite is not necessarily uniform. The *functionalist* stream, in the Paretian tradition, argues that there is no homogeneous elite group, but that elites arise at the top of the hierarchy of each specific sector, so that the most able would occupy the most important positions (Parsons, 1940). Bourdieu (1979) describes elites from distinctive "fields" (economic, intellectual, artistic, etc.) who struggle for the recognition of their dominant form of capital (cultural or economic), materializing in a comprehensive "field of power".[4] In his theoretical developments, Pierre Bourdieu builds on the Weberian approach of status and institutes culture as a cornerstone for socialization. In this framework, a strong channel of unification for the elite is therefore a common socialization. Indeed, within or outside the elite, sub-networks form over common tastes and cultural attributes, such as being clothed as expected (Milner, 2004).[5] As for the elite, cohesion and structural links, notably between business and political leaders, were documented for instance by Birnbaum et al. (1978), who studied the French case, or Bühlmann et al. (2012), who analyzed it for Switzerland. Such socialization develops a sentiment of belonging to a common entity or to share a destiny.

[3] The definition of the elite remains somewhat elusive and is generally context-dependent, and to some extent even study-dependent in research. This led some historians to argue that the concept is vein and useless in practical terms (Vovelle, 1974).

[4] The title of this dissertation includes a nod to the bourdieusian concept of fields.

[5] This was also an important dimension in the work of Veblen (1899) on conspicuous consumption, which is valued only for the symbolic distinction with respect to those who cannot access such consumption.

Consequently, the three chapters of this dissertation adopt the definition of elites by Mills (1956) in which shared educational and social backgrounds institutes a unified elite, seamlessly working hand in hand across different sectors. The main argument of Mills is that alumni highly socialize in the fraternities of Ivy League colleges, which are social clubs, with single-sex membership and acute selection processes. Elite-specific curricula exist in different countries, for instance in Argentina (Ziegler, 2017), or the United Kingdom (Reeves et al., 2017), while other countries have a more unified education structure, like Germany (Hartmann, 2000), where the training of members of the elite is less concentrated. The three chapters of this thesis analyze the *Grandes Écoles*, where graduates share a few years of their life alongside their peers in cohorts of small size. Previously exploited in research in economics, for instance by Kramarz and Thesmar (2013), the strong bond, which roots from common graduation in a *Grande École* is even, for a few graduates, structured within the *grands corps* (see Suleiman 1978, for a study of these official civil servant groups, which serve as placement offices). Hence, the long-term influence of *Grandes Écoles*' alumni networks are the focus of the third chapter.

Finally, the essential question is the way the elite circulates, especially across generations.[6] Vilfredo Pareto formulated an influential theory on this dynamic. His primary assumption was that people are born and raised with unequal abilities. Yet, Pareto was aware that some insufficiently gifted individuals can reach governing positions. Therefore, he was a fervent advocate of social mobility and of impartiality in the recruitment of elites. He foresaw that a deficient regeneration of elites would cause efficiency costs and he concluded that the replacement of elites was ineluctable. Indeed, a lack of upward mobility at the bottom means that potential talents may remain under-developed. At the opposite end, the lack of downward mobility may translate into a mediocre elite with persistent rents for a few individuals, irrespectively of their ability. Machiavel (1531) criticized such a closed system, which produces a homogeneous group, disconnected from the rest of society.

The renewal or persistence of elites is not only a natural and spontaneous process. Resistance for the preservation of interests can be exerted actively: see for instance Boltanski and Chiapello (1999) for managerial circles, or Pasquali (2021) in the context of the *Grandes Écoles*. Persistence notably emerges from an inclination of individuals towards homophily (Suleiman 1978, François 2010, for applications to France), as well as nepotism (Gagliarducci and Manacorda, 2020). A first dimension of preservation occurs within the family through homogamy and marital sorting (Mare, 1991; Bouchet-Valat, 2014). Con-

[6] Pierre Bourdieu argues in Bourdieu and Wacquant (1993) that "in the advanced societies, where diverse forms of power coexist, one cannot study the 'ruling class', the 'elite', the 'dominant' (whatever we may want to call them) without elucidating the conditions under which they reproduce themselves insofar as the very structure of the space of power they occupy is inseparable from its dynamics, from the mechanisms which produce and perpetuate it."

servative alliance schemes have indeed structured and organized marriages for centuries (Elias, 1985). Thus, the family serves as a pivotal institution for the entrenchment of socio-economic advantages or disadvantages.

B The family: core institution of transmission

> "The most valuable of all capital is that invested in human beings; and of that capital the most precious part is the result of the care and influence of the mother."
>
> Alfred Marshall (1890)

The family was institutionalized in a wide range of societies across history and space. In many contexts, it implies co-residence and that a defined set of elders have a responsibility as well as a legal authority over children. It is the most widespread social organization that organizes the dependency of the youngsters. Transmission within families is an ancient process and is not improvised but highly structured by custom, tradition and even law.[7]

Interestingly, one of the pioneer works on the anthropology and economics of the family was *The Origin of the Family, Private Property, and the State* by Friedrich Engels (1884). He argued that the preservation and transmission of private property is at the origin of the organization of the family, notably referring to arranged marriages. An influential model on parental investment was developed by Becker and Tomes (1986), *Human Capital and the Rise and Fall of Families*, in which the welfare of children is valued and included in the household's utility, with the idea of altruism towards children. More than solely caring, families implement strategies to supervise the evolution of their children, their networks, their activities, and their schooling, as conceptualized in the term "parentocracy" (Brown, 1990).

The influence of families on children's development is a multi-step process (DiPrete and Eirich, 2006) that even starts before birth. *In utero* and early medical outcomes are socio-economically determined and are associated with health outcomes across the life course (Barker, 1994).[8] Notably, birthweight constitutes an indicator of future diseases, but also of educational attainment and income (Behrman and Rosenzweig, 2004; Royer, 2009). Besides, Feinstein (2003) shows that even before 2 years old, social origin has a substantial influence on developed skills for language or locomotor activity, and that

[7] Historical examples are multiple and concern as well the top of the social hierarchy (such as primogeniture), or the exclusion of women from inheritance in some societies. In France, the legislation on *héritiers réservataires* implies for example that children cannot be entirely disinherited.

[8] For instance, using an earthquake in Chile as a natural experiment, Torche (2018) shows that exposure to prenatal stress impacts cognitive ability in childhood, but only for children from families of low socio-economic status, more impacted by the natural disaster.

the gap between children of different origins keeps widening as they get older.[9] Indeed, Bernardi (2014) develops the concept of *compensatory advantage*, which considers that "an early disadvantage is likely to persist or grow larger over time for those from disadvantaged families, while it is likely to be attenuated for those who come from more advantaged families".

Connected to the early discrepancies in children's development, an enduring question regards the "nature versus nurture" debate. In 1896, Gaetano Mosca mentioned the possibility that dynasties reflect inborn inequalities in ability and will, although skeptically. Scholars tried to separate genetic endowment from education and environment. The effect of "nature" as compared to "nurture" was for instance measured by comparing the intergenerational mobility for adoptees and non-adoptees, suggesting that "nature" plays a role (see for example Sacerdote, 2002).[10] But the nature-nurture sharp dichotomy was argued to be obsolete, although it is still mobilized by some researchers. Indeed, Rutter (2006) shows that both are substantially intertwined, to such an extent that dividing their effects in an additive manner would be out of reach and irrelevant.

In practice, nurture occurs in line with the model of Becker and Tomes (1986), as parents use their time as an input for their children's development. The *Enquête éducation et famille* 2002-2003 shows for instance that French parents spend 19 hours per month to do homework assignment with their children in elementary school (Gouyon, 2004). Highly educated parents invest much more of their time for this support (Guryan et al., 2008), and this involvement provides significant results, as Todd and Wolpin (2007) find that current and past "home inputs" increase youngsters' test scores. The socio-economic and cultural contexts matter for the effect of such investments through spillovers that affect non-cognitive skills (Anger, 2012) and may lead to poverty traps in unfavorable environments (Steven, 2006).

Indeed, several mechanisms govern the transmission within families. Bowles and Gintis (1976, 2002) notably try to decompose them, looking at intergenerational earnings elasticities in the United States. Transmission occurs through human capital transfer, the transfer of cultural values and social norms (Bisin and Verdier, 2001), financial means that favor a better learning environment, the financing of education, as well as direct financial transfers. Families but also informal networks (often bred through family ties)

[9] Complement studies include Cunha and Heckman (2009), who review the literature on early childhood investments and the divergence of children development at a young age, even before schooling. Duru-Bellat (2003) also focuses on social inequalities already arising in nursery schools and on the widening gap across educational levels. Besides, Currie and Almond (2011) review the long-term effect of childhood's environment on socio-economic outcomes.

[10] However, it is complicated to argue that adoptees and non-adoptees do not differ in anything else than biological traits, as being often more likely to suffer racial discrimination appears as one of the many limits of this methodology. Additionally, O'Connor et al. (2000) showed that privation before adoption had long-term consequences.

also work as a kind of insurance towards adverse events (Di Tella and MacCulloch, 2002). Informational discrepancies—for instance with respect to educational strategies (Guyon and Huillery, 2021)—but also access to valuable networks (Kramarz and Skans, 2014; Dustmann et al., 2016), or even inequalities in genetic endowments (Plomin et al., 1997; Sacerdote, 2002) are among the additional mechanisms. Section 2.2 (chapter 2) discusses these channels more extensively, to explain the persistence of dynasties.

It has been acknowledged for a long time that the familial influence constitutes an obstacle to equality of opportunity, whose principles we define in section E of this general introduction. Indeed, Fishkin (1983) establishes a trilemma, an incompatibility between merit, equality of life chances, and family autonomy.[11] Influent scholars also argued that the family sometimes conflicts with the development of society. As reported by Bertrand and Schoar (2006), Max Weber (1904) states that "strong culturally predetermined family values may place restraints on the development of capitalist economic activities, which require a more individualistic form of entrepreneurship and the absence of nepotism". Fukuyama (1995) also claims that the emphasis and priority given to trusting familial circles is usually associated with distrusting those outside the family, interfering with the authority of collective institutions. Alesina and Giuliano (2014) made a similar demonstration by concluding that "strong family ties are negatively correlated with generalized trust".

Rawls (1971) asked, as a thought-experiment, if "the family [was] to be abolished" then. That is, for instance, if a "generalized well-run orphanage" would not be preferred to favor the worst-off (Munoz-Darde, 1999). The reciprocal question is whether the institution of the family is too sacred to be sacrificed for the sake of more equality. Or, even, if the benefits from the family are not higher than its inconveniences? A general stand is that guarantying familial liberty to raise one's own children as intended is both legitimate and efficient. Swift (2004) argues that even the strongest egalitarians do not ordinarily oppose "bedtime stories", "stimulating conversation at meal times" or similar familial interactions, which widen the gaps in children's development. In addition, Munoz-Darde (1999) argues that a state-organized and collective education of children would treat them most probably "as mere means for a collective purpose", denying individuality "in such a way that children could not develop their moral powers". In comparison, families would treat them with affection and "intimate relationships", "as ends in themselves, [...] as the special person they are, [...] constituting a force of individuation" (Munoz-Darde, 1999, borrowing the idea to Russell, 1929). There is therefore an efficiency argument underlying the legitimacy of the familial institution, as her conclusive argument is that

[11] *Merit* is defined as positions being distributed according to qualifications, *equality of life chances* as similar occupational prospects for given capacities, and *family autonomy* as no interference in familial relations except for guarantying the essential prerequisites.

"greater evils would (possibly) be created by forcing its disappearance".

Some degree of intervention in the familial circle is however enforced. For instance, in France, parents need to prove that their child is learning the common program and building expected know-hows if they want to home-school. Laws on the prohibition of child labor were also implemented worldwide. Indeed, as the complete dependency of children makes them vulnerable, their protection lies in the balance between the state and the family and in their reciprocal control. If the abolition of family as an institution could be regarded as rather extreme, it is however essential to understand and acknowledge the degree to which it shapes individuals' destinies throughout the life course, and even so before birth.

C Education and labor markets

> "Education, beyond all other devices of human origin is the great equalizer of the conditions of men, the balance-wheel of the social machinery."
>
> Horace Mann (1848)

In 1848, Horace Mann pinpointed the central role of education for the distribution of social positions when he qualified it as the "great equalizer". Social scientists have a long tradition of examining its central importance, from pioneer work by Sorokin (1927), to Blau and Duncan (1967), Bourdieu and Passeron (1970), and Breen and Müller (2020), among others. Several theoretical developments have structured the way we collectively think about education and its interaction with labor market outcomes. A distinction is often made between three types of theories: education as skills enhancing, as a positional good, or as a legitimizer of social inclusion and exclusion (Van de Werfhorst, 2011).[12]

The first one considers education as a mean to enhance skills and productivity. It is mainly built on the human capital theory, initiated by Mincer (1958), Schultz (1962) and Becker (1964). It models education as an investment for employability, inducing costs such as forgone earnings, but maximizing discounted lifetime earnings. It was however criticized, notably by Breen and Goldthorpe (1997) for assuming excessive rationality in choices, and for undermining the exogenous hierarchical structure of labor markets (Goldthorpe, 2014).

The second category claims that education is a positional good that serves to rank individuals. This theoretical development analyzes the interaction of job seekers and

[12] An illustrative presentation of this decomposition was proposed by Stevens et al. (2008): "sociologists have conceived higher education systems as sieves for regulating the mobility processes underlying the allocation of privileged positions in the society, incubators for the development of competent social actors, and temples for the legitimation of official knowledge."

employers, with a focus on asymmetry of information. Screening theory (Spence, 1973; Stiglitz, 1975) considers the partial blindness of employers in their hiring process, as information on the productivity of a candidate is mostly private. Educational credentials are therefore mustered not so much as a proof of applicable skills, but rather to screen underlying information on productive traits, such as trainability or sense of discipline. Signaling (Spence, 1973) is the complement theory from the perspective of job market seekers. Here, education is viewed less as a mean to learn applicable skills, to invest on one's own human capital, but rather to signal one's productivity to employers. Indeed, the massification of higher education over the past decades has increased the strategical signaling content of diplomas, as shown by Brown et al. (2016) for the French and British cases. From this perspective, education appears as a positional good. In his job competition theory, Thurow (1975, 1983) materializes this phenomenon with two queues, one for vacancies, and one for applicants, ordered by educational attainment. The position in the queue serves for sorting individuals, and is based on both preexisting characteristics, as well as abilities acquired during schooling.[13]

Murphy (1988) referred to the third stream of analysis as social closure through education.[14] It relies on the observation that credentials became increasingly necessary for the access to specific social positions. While requiring specific educational degrees would suggest a reduction of discretionary appointments, the conception of the tenants of the social closure theory is that education serves to control the access to rewarding positions, hence monopolized by the elites (Weber, 1921; Bourdieu, 1989).[15] Brown (1995) states that it is a systemic, institutionalized fact, and not simply the individual initiative of a few employers. In the French context of the *Grandes Écoles*, Bauer and Bertin-Mourot (1995) describe a "tyranny of the initial diploma". Admission processes to the best universities may also be elaborated in alignment with the qualities of an influential minority.[16] This is at least the argument made by Karabel (2005) in his study of selection procedures at Harvard, Yale, and Princeton, as well as by Pasquali (2021) for the case of the *Grandes Écoles*. Both analyses span from the end of the 19$^{\text{th}}$ century to the recent decades.

[13] Besides, Thurow (1975, 1983) claims that most usable skills are acquired on-the-job. Education highly matters for initial jobs at the beginning of careers but is much less informative for future jobs, for which professional experience is considered a much better indicator of productivity.

[14] This corresponds to sponsored mobility. Turner (1960) developed a framework dedicated to upward mobility, where two opposite ideal-typical norms confront one another. The contest norm rewards the "aspirants' own effort" with "fair play", i.e. "all the players compete on an equal footing". The sponsored mobility "favors a controlled selection process" in which the "recruits are chosen by the established elite [...] like entry into a private club".

[15] Max Weber (1921) notably states: "When we hear from all sides the demand for an introduction of regular curricula and special examinations, the reason behind it is, of course, not a suddenly awakened 'thirst for education' but the desire for restricting the supply for these positions and their monopolization by the owners of educational certificates" (English edition, 1968, Bedminster Press).

[16] In the United States, it was even shown that alumni increase their donations to universities in the years preceding the age of application of their children, with a possible expectation of higher admission chances (Meer and Rosen, 2009).

A logical consequence for the advocates of this approach is that although the selection process did evolve, the winners of the competition are the same social groups (Grindle, 2012). Bourdieu (1989) emphasizes that this is only a statistical result, as the least able of advantaged children will fail to match the requirements for the access to advantageous socio-economic outcomes. However, in chapter 2, I document that privileged families manage to bypass—to some extent—these academic credentials, especially for the access to positions in the business elite. It suggests that these educational titles are neither a required nor a sufficient condition for the access to the top of the social hierarchy.

D Intergenerational mobility

> "The purpose of this paper is to analyze the determinants of unequal opportunities, sometimes called 'intergenerational mobility', or, as in the title of our paper, 'the rise and fall of families'."
>
> Gary Becker and Nigel Tomes (1986)

Among other determinants, the fact that families try to favor the educational and professional achievement of their offspring implies that socio-economic outcomes within families are correlated over generations. Solon (1999), Black and Devereux (2011) and Solon (2018) provide reviews of the literature on intergenerational mobility. The main principle is to measure the correlation of an outcome for individuals in a given generation to an outcome (often similar) for their ancestors. Opposed to "absolute mobility", the most standard understanding of intergenerational mobility refers to "relative mobility", in which the parents-children association in outcomes is net of "structural mobility", i.e. structural changes in the society regarding these outcomes. For instance, relative occupational mobility accounts for the shift from agriculture to industrial economies, and then to tertiary sector positions. Therefore, relative mobility is a zero-sum game: if there are upwardly mobile individuals, there must necessary be others experiencing downward mobility. In sociology, the literature often focused on social class, occupational status, or educational attainment, while economists mainly studied earnings through intergenerational elasticities. Because some outcomes suffer from lifecycle biases—for instance, being unemployed may be a transitory shock, and earnings widely vary along careers—, researchers developed corrective techniques such as permanent income (Zimmerman, 1992; Solon, 1992). Some characteristics, such as education in an elite school, are much less subject to such biases.

The aforementioned model by Becker and Tomes (1986) is the initial framework upon which the economic theory relies for intergenerational income mobility. Solon (2004) extended the model by adding public contributions to parental investment. He shows that the progressivity of governmental funding of education reduces intergenerational

transmission. Indeed, education plays a central role in intergenerational mobility (refer to Breen and Müller, 2020, for a review). The tripartite relationship between Origins, Education and Destination—with destination often defined as occupational attainment—was conceptualized by the "OED triangle". In this framework, social origin influences the level and quality of education, which translates to the labor market through returns to education. However, there may remain a residual direct effect of social origin on destination, not mediated by education.

The Origin–Education association, also called educational inequality, therefore constitutes a first channel of intergenerational mobility. A socio-economic gradient in offspring's educational attainment was largely documented across countries and time, although it decreased over the last decades (Breen and Müller, 2020). The first chapter of this thesis relates to the Origin–Education association, by studying relative admission rates to the *Grandes Écoles* of descendants of the French nobility, of Parisians, and of children of graduates. As for the direct Origin–Destination association, it was shown to be limited (Blau and Duncan, 1967) but also to depend on educational levels (Bernardi and Ballarino, 2016). The association is high for those with secondary education, and quite weak among college graduates but it reinforces among those with a graduate degree, which "questions the meritocratic nature of highly skilled labor markets" (Torche, 2015). The second chapter of the dissertation relates to the direct Origin–Destination association by investigating the contrasted careers' prospects of graduates from the *Grandes Écoles*, depending on the membership of their father to the business or political elite. Finally, the third chapter connects to the relation Education–Destination, by investigating how networks that root and arise during common curricula in the *Grandes Écoles* connect the political and business elites and affect their interactions.

While some researchers try to understand the mechanisms underlying intergenerational mobility, the principal objective of the literature is to describe an association of socio-economic outcomes across generations. A valuable feature of the research in economics is the frequent attempt to identify causality. Yet, intergenerational mobility and equality of opportunity literatures usually do not imply any causal demonstration (some causal studies and methods are however presented in Black and Devereux, 2011). Indeed, endogeneity due to omitted variables is constitutive of their design because circumstances cannot be fully accounted for. Causal inference is very useful in the design of policies, but measures of inequalities are a first requirement to identify the need for corrective policies. With that respect, Florencia Torche (2015) provides the following advice: "description has a central place in the study of mobility, but given the challenges of establishing causal relationships from observational data when multiple variables are included and mediation is assumed, it is probably prudent to focus the descriptive effort on the bivariate intergenerational association". This is the stand I take in the thesis, especially in the first chapter.

Another consideration in the literature regards the multigenerational perspective. Two antagonist views are often opposed. Becker and Tomes (1986) claim that "practically all the advantages or disadvantages of ancestors tend to disappear in only three generations", while Clark et al. (2014) argue that regression to the mean "is a slow process, taking many hundreds of years for families who are initially far above or below the mean". Solon (2018) offers an instructive review of multigenerational mobility. He exposes that most of the early literature since the 1960s found no significant association of socio-economic outcomes with grand-parental determinants. Yet, more recent findings turned the consensus. Notably, Adermon et al. (2018) or Adermon et al. (2021) find a positive association, even when parental outcomes are included as cofactors.

E Justice, responsibility, and equality of opportunity

> "If my algorithm is generally accepted as a reasonable one, then the political debate over what equality of opportunity requires can be reduced from one over social policy to a more fundamental debate about the proper realm of individual accountability."
>
> John Roemer (1998)

The equality of opportunity framework is a compelling theory of justice, in which we distinguish between what individuals do not have control over, and what they can be considered responsible for.[17] But where does the limit stand between social determinism and responsibility, and what equality is ethically desirable? Scholars have a long tradition of debating this philosophical question.[18]

The normative question on "equality of what"

Konow (2001) affirms that theories of justice are based on three main principles. The Efficiency principle deals with "the absolute size of allocations". The Accountability principle regards the "relative size of allocations across individuals". The Needs principle requires "to meet each individual's basic requirements for life". People balance these three competing ethics to formulate their conception of justice: "just deserts, need and incentives for productivity".

In the social-choice literature, the classical welfarist approach evaluates policies and

[17] A parallel may be done with research in sociology, less formalized, on "ascribed" characteristics on which people have no influence against "achieved" ones, that arise at least partly from one's actions, as originally described by Linton (1936).

[18] Konow (2001) states: "What is remarkable, and perhaps unique, about justice is that, despite the strong sentiments and vigorous actions it incites, no consensus has emerged about what it is."

allocations on the basis of final outcomes. Egalitarianism in its primary form defends equality of outcomes. However, it was criticized for not holding individuals accountable for what is under their control. Rawls (1971) therefore introduced responsibility in the egalitarian philosophy.[19] As socio-economic background and natural talents forge through a birth lottery, they are deemed morally arbitrary. Thus, John Rawls states that society should ensure the access to "primary goods" (including liberty, income, etc.), as only when they are available, individuals may be held responsible for their welfare. Dworkin (1981a,b) responds by putting the emphasis on preferences. He argues that welfare is possibly not the right metric, as, in his view, there is no reason for society to value that someone with expensive tastes receives more.[20] Sen (1980) also challenges Rawls' stance as being ineptly concerned by a bundle of primary goods, while the important question is what "functionings" they provide to individuals, e.g. being healthy or safe, experiencing self-respect, etc. Sen defends an equal possibility to access these functionings but advocates for the respect of preferences in the way individuals decide to muster them.

We understand that what is to be equalized–called the *equalisandum*–is not consensual. A summary borrowed to Roemer (1993) enumerates that John Rawls recommends "primary goods", Ronald Dworkin "resources" ("defined in a comprehensive way to include various talents and handicaps"), Amartya Sen "capabilities to function", Richard Arneson "opportunity for welfare", and Gerald Cohen "access to advantage". Yet, these scholars share a common concern towards opportunities rather than outcomes. This philosophical literature structured the conception of equality of opportunity: a society in which irrelevant characteristics—such as gender—do not influence socio-economic opportunities. Luck egalitarianism goes one step further by asserting that inequalities are unjust whenever they arise from factors beyond individuals' control, which are morally arbitrary, be it socio-economic background, natural ability or even luck.

The Roemerian framework of equality of opportunity

The main principle of the equality of opportunity literature is to divide the origin of individuals' outcomes between variables beyond individuals' control (*circumstances*) and variables characterizing individuals' responsibility (*effort*). There are two corresponding ethical principles: the compensation principle, requiring that inequalities arising from circumstances should be compensated, and the reward principle, which states that higher

[19] To define distributive principles with impartiality and escape subjectivity, he made use of a thought experiment developed by Vickrey (1945) and Harsanyi (1953), which he coined as a "veil of ignorance". In that experiment, initial endowments that influence social positions are randomly distributed and are therefore a direct consequence of (good or bad) luck. People are not aware of their position in society. This allows participants to impartially conceptualize their views on justice.

[20] In addition, Dworkin argues that, even under the veil of ignorance, individuals should be allowed to insure against bad luck in the birth lottery, in order to respect preferences on risk aversion.

efforts should be rewarded with better outcomes. These two principles relate to two distinctive approaches. Connected to the compensation principle, *ex-ante* equality of opportunity requires that opportunity sets do not depend on the circumstances faced by individuals. The child of a baccalaureate holder and the child of a *Grande École* graduate must have the same opportunities to be admitted to a *Grande École*. *Ex-post* equality of opportunity relates to the reward principle and requires that individuals exerting the same effort benefit from the same outcome. Equally hard-working individuals must have the same opportunities to be admitted to a *Grande École*.

Roemer (1993, 1998) developed an influential model to study equality of opportunity in any outcome of interest. Individuals in a society are partitioned into a finite number of types. Each *type* shares a set of *circumstances*, which are all environmental and possibly biological factors over which individuals have no control, but which affect the outcome of interest. Individual outcomes are modeled as an interaction of the type, the level of effort, and social policies. Effort is viewed as under individuals' responsibility. Yet, opposing the libertarian view that choice is uncaused, i.e. that responsibility is independent of a person's condition, Roemer argues that effort is constrained by circumstances. Practically, this implies that the distribution of effort differs across types and is dependent on the social policies in place. This is a modelling in line with an abundant literature in sociology on social determinism, pioneered by Emile Durkheim. It combines determinism and responsibility, a combination known as "compatibilism", namely a philosophical stand that determinism and free will are compatible.

To circumvent the interlocking of effort and circumstances and to properly account for the latter, Roemer constructs the accountable effort (or *volition*) based on the quantile of the individual in the effort distribution within his type.[21] This coincides to rewarding the *degree* of effort (among those sharing the same circumstances) rather than the brute amount of effort. Efforts, although multidimensional, are simplified in a one-dimensional measure. In the view of Roemer, social policies should aim to minimize the influence of circumstances on outcomes, as well as to still reward effort.

[21] As an illustration, imagine there are three very simple types, the first one consisting in being born in a family in which no ancestor graduated from a *Grande École*, nor occupied an elite occupation, a second type in which ancestors graduated from a *Grande École* but were not members of the occupational elite, and a third type in which ancestors combined both advantages. If society considers that the number of years of schooling is to a certain degree under one's control, it may measure effort. Yet, the number of years of schooling is influenced by family origin. Therefore, Roemer ranks individuals according to their number of years of schooling within each of the three types. The level of effort is defined through the rank within one's own type.

Challenging the Roemerian framework: is equality of opportunity tangible?

Roemer's framework is powerful, especially due to its practical applicability for policy design. Yet, it encompasses several pitfalls. A first aspect that remains disputable is that even the rank of effort within a type is *a priori* influenced by circumstances and by their association to social outcomes. Some disadvantaged individuals may prefer to withdraw from the game or at least to exert less effort, because they are sensitive to inequality of opportunity, and they know that their circumstances sharply reduce their opportunities.[22] From that perspective, determinism weakens free will. There is no reason to think that the distribution of sensitivity to unequal opportunities is homogeneous within a type.[23] Therefore, the rank in the exerted effort, among members of a same type, depends on socio-economic conditions, which are beyond one's control. Likewise, an individual with moderate wage ambition in an advantaged type may decide to exert a lower degree of effort only because he knows that his type would compensate for it.

Moreover, adjustment may be costly and subject to frictions. Conceptualizing education as a multi-step cumulative process, that encompasses long-term formed aspirations, individuals will only slowly adjust their degree of *effort* to a reduction of inequality of opportunity. Another issue is that someone's rank within his type is outside of his control because it depends on the accountable effort of others within the type. Without changing his effort level, changes from others within one's type affect his ranking. This hinders the validity of the Roemerian model for the dynamics of choices. Formally, Roemer's framework does imply that the shapes of the effort distributions of different types are alike, with differences in means only. Risse (2002) argues that this conflicts with compatibilism and constitutes a flaw, as "freedom of the will and determinism are inconsistent".

The framework also implies that policy choices influence the level of effort, as acknowledged by Roemer (1993), although it is hardly arguable that it is under one's control. Roemer is aware of such limitations but argues that he offers reasonable solutions to circumvent the lack of accurate interpersonally comparable measures of accountable effort. In an answer to Risse's critique, Roemer (2003) pleads that there is a residual free-will that is net of determinism, a residual effort net of circumstances, but that "if one believes that the differences between the circumstances of individuals are always more important than their similarities, then each individual should be classed as the unique member of a

[22] Using once more the example of the access to a *Grande École*, it is hard to argue that the distribution of effort of a descendent of a noble family with a 2% probability of admission, a Parisian with about 3% chances, or the child of a graduate with more than 10% admission rate is rank-comparable to the one of ordinary individuals with about one out of 500 chances to be admitted.

[23] Akbaş et al. (2019) dichotomize the origin of income inequality between the accessibility of opportunity sets (procedural justice) and the capacity to influence one's own faith (agency). The former relates to ex-ante equality of opportunity, and the latter to ex-post equality of opportunity. They show that inequality is accepted only when both are respected.

type, and equality of opportunity (on my view) would collapse into equality of outcome".[24]

Additionally, when an insufficient number of circumstances are included (which is systematically the case in empirical works), the measure of Roemerian effort is biased (Ramos and Van de Gaer, 2016). Roemer (1998) considers that a lot should be compensated for, but what individuals truly have or do not have under their control is highly debatable.[25] What about luck, and not so much "brute luck" but rather "option luck" as called by Dworkin (1981a,b), namely, the fact that an individual takes risky decisions. Roemer's response is that this is for society to decide, but this is fundamentally a political argument. Roemer argues that if we already identify inequality of opportunities for a limited set of circumstances, adding new circumstances only increases measures of inequality of opportunity and we may then consider estimates as a lower bound. Therefore, there is already an objective for social policies to reduce such inequality, and further inequalities may be tackled afterwards when more complete inclusion of adequate circumstances is reached.

Kanbur and Wagstaff (2016) object this view. To them, relevant circumstances are not sufficiently abundant in available datasets and estimates of inequality of opportunity are such a lower bound that their actual estimation is not relevant in the policy debate. In their view, this limitation in defining what people have or do not have under their control, what is fair or unfair inequality, weakens the usefulness of equality of opportunity, up to making it irrelevant (or even dangerous) for policymaking.[26] Indeed, the level of what is publicly referred to as illegitimate inequality may be highly under-estimated. As it remains impossible to fully account for all relevant circumstances, one may keep in mind that rewarding empirically measured effort always encompasses a certain degree of residual inequality of opportunity.

A complementary debate in the literature relates to the respect of preferences. Fleurbaey and Maniquet (2011) argue that a society should respect the principle of natural

[24] Likewise, the role of luck as mentioned above may matter. Roemer (2003) argues that "if one believes that idiosyncratic luck is the overwhelming determinant of outcomes, then one might well advocate equality of outcomes as the desirable kind of equality".

[25] Coming back to the discussion on the involvement of families, Barry (2005) claims that parental effort should not be compensated. As for Roemer (2004), he thinks that "the provision of social connections, the formation of beliefs and skills in children through family culture and investment, [and] genetic transmission of ability" should be compensated, while "the formation of preferences and aspirations in children" should not. As one may read from Lefranc et al. (2009) or Lefranc (2018), in an intergenerational setting, the effort of one generation may however be analyzed as the circumstance of the next one.

[26] A topical example is how children's health has been decomposed in De Barros et al. (2009) between legitimate and illegitimate inequality. Measuring legitimate inequality in children's health is the illustration of empirical absurdities, which may be generated from hardly defendable principles of justice. Indeed, not everything is in the scope on which to apply the equality of opportunity framework. But the scope is nebulous. For instance, Roemer (2003) argues that it would not appear intuitive to many people that we should compensate for the small height of a basketball player aspirants in not pursuing a professional career. Yet, it is hardly defendable that this stands under his control.

reward, which implies a similar treatment of individuals within each type. The idea is to compensate fully circumstances and then allow for differences to emerge. This would respect preferences or "will", as advocated by Fleurbaey (2008). It is again dubious, though, that preferences are not socially and intergenerationally formed, and thus to a great extent influenced by circumstances. For instance, scholars identified the intergenerational transmission of political views and partisanship (Piketty, 1995; Jennings et al., 2009), risk aversion (De Paola, 2013; Dohmen et al., 2012), or aspirations (Guyon and Huillery, 2021). This is not fortuitous, as Fernández-Villaverde et al. (2014) model for instance the intense efforts of parents to influence the preferences of their daughters regarding premarital chastity. In a sense, preferences are also substantially endogenously formed and "influenced unfairly by socialization" (Arneson, 1999).

As a conclusion, defining how to equalize opportunities is in practice a very appealing but complicated philosophical, political, and empirical matter. Its limitations may incite to favor equality of outcome, although this would be unsatisfying not to be able to hold people accountable.[27] Indeed, many scholars (from Aristotle to Rawls) and most societies across history have considered necessary to partly reward effort, be it for moral or incentivization motives.[28]

Does intergenerational mobility read as equality of opportunity?

Measures of intergenerational immobility are very often associated to inequality of opportunity, be it in the media, in public debates or, even, in academic circles. Torche (2015) argues that measures of intergenerational mobility "provide information about inequality of opportunity in society", a stand also taken by Becker and Tomes (1986) or Piketty (2020). Roemer (1998) himself concedes that effort should be accounted for, unless if "the correlation between effort and circumstances is viewed as a circumstance". I suggested that the level and degree of effort are at least partly endogenously formed and recalled that this is also the case of preferences and aspirations. I also discussed in section B the extensive influence of the socio-economic environment on life outcomes, especially at a very early age. Therefore, attempts to circumscribe responsibility appear to be an elusive empirical choice, a mere speculation or, sometimes, a political stand. Torche

[27] An attempt to reconcile equality of outcomes and equality of opportunities was made in the generalized theory of equality of opportunity, which allows to combine the desire for equality of opportunity and inequality aversion. In addition to targeting equality of opportunity, social policies may include a parameter of inequality aversion (see a discussion in Roemer and Trannoy, 2016). However, this does not solve the drawbacks of the equality of opportunity framework.

[28] In the fifth book of *Nicomachean Ethics*, Aristotle discusses distributive justice, stating that "justice in the form of reciprocity maintains the bond: reciprocity, that is, on the basis of proportion, not on the basis of equality". Aristotle provides examples of trades between a doctor, a farmer, or a shoemaker, stating that their social positions differ and that to everyone should be given the value corresponding to their virtues.

(2015) agrees when she declares the "distinction between endowments and socioeconomic constraints [to be] blurry to the point of being immaterial".

Nonetheless, Swift (2004) claims that there is no normative ground to argue that different statistical chances say anything about opportunity chances, as we cannot truly observe the opportunity set. His basic argument is that we do not know if everyone aspires to achieve, for instance, an admission to a *Grande École*.[29] This is obviously true, but we cannot either discard the possibility of such aspiration and we are not able to properly measure efforts.

Therefore, my estimates of distinctive admission rates to the *Grandes Écoles* depending on circumstances (chapter 1) and of different chances to access an elite position (chapter 2) constitute inequality of outcome, should be interpreted as social reproduction, and may be interpreted as inequality of opportunity. Indeed, they are measures of intergenerational mobility. And even if we do not measure effort, if we acknowledge that aspirations are endogenous, they also constitute proofs of the absence of *ex-ante* equality of opportunity, as different circumstances result in different outcomes.

F The myth of meritocracy

> "All the citizens, being equal in its eyes, are equally admissible to all public dignities, places, and employments, according to their capacity and without distinction other than that of their virtues and of their talents."
>
> *Declaration of the Rights of Man and of the Citizen*, 1789.

According to the article VI of the *Declaration of the Rights of Man and of the Citizen* from 1789, individuals' virtues ought to be rewarded. The British sociologist Michael Young (1958) coined the term "meritocracy" in a dystopic novel in which individuals are stuck in social positions with the rise of a hermetic and hereditary elite. Those non-deserving were sharply condemned for their failures, while the "deserving" confiscated all power by the virtue of their supposed "merit". Young himself was startled by the positive connotation that his neologism nevertheless rapidly acquired.

Indeed, meritocracy became a constitutional principle of modern societies and gained support in societies (Roemer, 1998) and in politics.[30] People are indeed more concerned by

[29] He states that "even if we assume that sociologists correctly rank occupations [...], we still have to allow that some people may, non-adaptively, prefer 'worse' positions to 'better' ones. [...] Familiar processes of acculturation and socialization will surely lead to some immobility [...]. Some children want to be like their parents and some parents want their children to be like them. It would be at least controversial to regard [it as a] failure of social justice."

[30] In his Presidential reelection speech in 2012, Barack Obama stated: "I believe we can keep the promise of our founders, the idea that if you're willing to work hard, it doesn't matter who you are or

the fairness of inequality than they are by its level (Starmans et al., 2017) or by efficiency considerations (Almås et al., 2020). Although the level and scope of support is time- and context-dependent (Isaksson and Lindskog, 2009), principles of social justice are globally endorsed by most societies in developed countries (OECD, 2018). But meritocratic ideals are not systematically shared by society (Cappelen et al., 2007). In France, Tenret (2011) shows that, in 1999, only a small minority of French citizens perceived that the number of years of education should be considered as a just ground for reward.

Yet, the meritocratic ideal has a pervasive influence on how we regard life outcomes, especially for successful and unsuccessful individuals. Clark et al. (2014) state that we have a "fascination with rags-to-riches stories", providing examples of biographies of several public figures such as Charles Dickens. This grounds the ideal of the "American Dream", a sort of national ethos, which endorses the view that the United States are a land of opportunities, where the figure of the self-made man is glorified, with the conviction that everyone can reach the highest success. In France, the paradigm was institutionalized with the expression "pure product of the meritocratic republic" (*pur produit de la méritocratie républicaine*), qualifying those who succeed through upward mobility. Renaud Dorandeu, former director of the *École nationale d'administration* confirmed that this narrative translates into a capacity for self-esteem and auto-consecration at the top of the social hierarchy.[31] At the bottom of the social hierarchy, the counterpart of the meritocratic argument is that those in unfavorable positions are deemed to have deserved their destiny, as foreseen by Michael Young. Nicole Desmau (2019) reports an argument from Pierre Rosanvallon stating that the notion of merit itself takes its roots in theology, through the catholic quest for salvation thanks to charity. Nicole Desmau states that "merit, initially, is the reason why God rewards the good guys and punish the bad guys".

Sincere promoters of the meritocracy provided efficiency arguments, such as Sen (1980), who argues that a meritocratic allocation of positions is better for productivity and economic growth than distortions due to social classes, concluding that "meritocracy now is a means to the end of economic productivity". But the paradigm got criticized, for example by Piketty (2014) who writes about the "meritocratic extremism", or, in the United States, by Michael Sandel (2020) in *The tyranny of merit*, claiming that the

where you come from or what you look like or where you love. It doesn't matter whether you're black or white or Hispanic or Asian or Native American or young or old or rich or poor, able, disabled, gay or straight, you can make it here in America if you're willing to try." The French Presidential candidate Nicolas Sarkozy stated in January 2007: "I oppose egalitarianism, state handouts, evening out; I support merit, just reward of individual efforts and social promotion."

[31] Dorandeu (1994) states (my own translation): "Republican elitism, social elitism, the terms are repeated without duplicating each other. They explicitly refer to the capacity for self-consecration demonstrated by a certain number of individuals or groups. To forget that elites, beyond the individuals who embody them and the social groups that defend them, also function on the basis of belief, both in relation to themselves and to the outside world, would be to forget what Schumpeter firmly emphasized when he spoke of the necessary closure of social classes."

meritocratic ideal and its "hubris" is "corrosive" because it disregards the extensive documentation of social reproduction, dynasties, and unequal opportunities. However, intense efforts are pursued to cultivate the meritocratic rhetoric. Karabel (2005) claims that what constitutes merit is fluid and depends on the relative power of interest groups. Pasquali (2021) offers a comprehensive documentation of how the meritocratic narrative is the construct of an active commitment from defenders of the *Grandes Écoles* in France for the past 150 years.

In *The myth of education-based meritocracy*, Goldthorpe (2003) discusses the definition of an education-based meritocracy, building on the OED triangle defined above. It would be a society in which education hardly depends on social origin, and socio-economic positions are mainly determined by educational attainment, implying that there is also no direct effect from social origin on socio-economic outcomes. He concludes to a myth. Through a transnational comparative study, Bernardi and Ballarino (2016) also declare that "the idea of a meritocratic society is largely a fiction". Therefore, Piketty (2020) promotes the "importance of examining this type of politico-ideological discourse [on meritocracy] to systematical empirical evaluation". By documenting that graduation from a *Grande École* has been socially determined to a substantial degree for the past century and that even among their graduates, careers depend on the paternal occupation, this dissertation contributes to a demystification of the meritocratic narrative.

G Equality of outcomes

> "I take the widespread popular reaction to [Piketty (2014)'s] *Capital* as an indication that many people agree that the present level of inequality is intolerable, and not justified by the common good."
>
> Tony Atkinson (2014)

Although current levels of income inequality are not a historical singularity, they arise from a sensible increase over the last four decades. In 2018, the top 1% of the income distribution concentrates 25 times more income than the bottom 50% in Europe, 46 times more in China, 80 in the United States and up to 160 times higher income in the Middle-East (Piketty, 2020). The children of this top 1% in the United States have 77 times more chances than those with parents in the bottom quintile to enroll at 12 institutions including the Ivy League colleges (Chetty et al., 2020). The first chapter of this dissertation shows that, in France, those born in Paris monopolize half of the admissions to the most prestigious *Grandes Écoles*, and that children of graduates from the *École nationale d'administration* (*ENA*) born between 1971 and 1995 had 330 times more chances than the rest of the population to also study at this elite school. Both the level and the transmission of inequalities are particularly high.

Atkinson (2014) completes his reaction to the reception of Piketty (2014) by stating that "even if there were competitive equality of opportunity, the reward structure is too unequal and [...] *ex post* inequality needs to be reduced". Dubet (2010) deplores that the ideal of equality of opportunity supplanted the ideal of equality of positions, or equality of conditions, namely a society in which living conditions are more alike.[32] Dubet defends that endorsing equality of outcome is probably the best way to improve equality of opportunities. His critical argument is the paradoxical observation that when societies favor equalizing opportunities, inequalities in outcome widen. This also led Torche (2015) to conclude that "a potent way to equalize intergenerational opportunity is to equalize economic well-being across families". Hence, Payne (2017) infers that equality of opportunity serves as a "red herring", a false lead. Indeed, in a multigenerational perspective, the level of inequalities resulting from intergenerational reproduction depends on both the degree of transmission and the level of inequality in the parental generation.[33] This implies that equalizing outcomes yields a double dividend, one for the current generation, as well as a multigenerational equalization.

Inequalities revolve around balancing two opposing principles: concerns about incentivization and reward on the one hand, and concerns about disparities in resources, including the respect of basic needs, on the other hand. The first argument regards Pareto-efficiency, worrying that individuals will not exploit their abilities and exert optimal productive efforts if they do not receive greater-than-average rewards (Cohen, 1995). That may hold, even if we cannot know whether the reward is fair. The second argument, about pure inequality, relates to the quote that initiates this section by Tony Atkinson: many people reject high inequalities because they consider them morally insufferable.

H My research design

> "The social sciences play an indispensable role in public debate and democratic dialogue. [...] I am convinced that some of today's democratic disarray stems from the fact that, insofar as the civic and political sphere is concerned, economics has cut itself free from the other social sciences."
>
> Thomas Piketty (2020)

[32] Complementary to the previously quoted political speeches, in a December 4 2013 Presidential speech, Barack Obama declared: "While we don't promise equal outcomes, we have strived to deliver equal opportunity—the idea that success doesn't depend on being born into wealth or privilege, it depends on effort and merit."

[33] Refer to Lefranc (2018) for a formalization through the distinction between the intergenerational elasticity and the intergenerational correlation of earnings. This intuition was also sometimes interpreted from the Great Gatsby Curve, which relates inequality to intergenerational mobility across countries. However, "mobility trends within countries are only weakly—if at all—related to changes in inequality" (Torche, 2015).

Science and politics as a vocation

I should refer to the well-known opposition of vocations depicted by Weber (1919a,b) between "science as a vocation" and "politics as a vocation". Synthetically, Max Weber describes a tension for the scientist, as even a concrete and empirical reality is approached through the lens of specific values. Yet, he argues that a researcher should target a "link to the value" and not "value judgements". This, in Weber's words, implies that one must "absolutely make the distinction [...] between observation of empirical facts [...] and one's own evaluative stance as a scientist, which makes a judgement of these facts". Indeed, Weber does not criticize value judgements per se, as he argues that they even nourish and open fields and topics of research.

I try to follow these principles throughout this dissertation. My research agenda is inspired by my own judgements, but I focus on empirical facts, and qualify my findings in the light of previous research in social science.

Interdisciplinarity

This thesis, written for a PhD in economics, encompasses an interdisciplinary approach and is first and foremost a dissertation in social science. My research stands at the (sometimes tenuous) frontier between economics and sociology. Interdisciplinarity is at the heart of my conception of research and has been an active intent of my PhD work. This materialized in the readings and sources exploited—from sociologists, economists, historians, and other social scientists—, in the conferences I participated to, or, even, in the gathering in my PhD jury of three economists and two sociologists. I fully share the diagnosis from Grusky and Weeden (2016)—taking the example of intergenerational mobility research—according to which crossing disciplinary boundaries help researchers ask the right questions about inequality.

Exploiting surnames

An influential springboard, for the course of my doctoral studies was the reading in 2015 of the book *The Son Also Rises, Surnames and the history of social mobility*. Gregory Clark and his coauthors (2014) identify lineages through surnames to depict intergenerational mobility over long historical timeframes in a variety of societies including Sweden, the United States, England, India, China, or Chile. As Clark writes in the incipit of the preface, "this book will be controversial". While some provocative claims, interspersing the book are uncontrolled—notably on a law of mobility that would be stable across societies and eras, or on the assumed role of genetics—, I was fascinated by the original and powerful results that the use of surnames allowed, especially the historical perspective that it enabled to adopt. One of the main difficulties to study

long-term intergenerational mobility is the scarcity of multigenerational datasets (Solon, 2018). The use of surnames in social science—as a tool to link generations with one another—opens substantial research opportunities. Researchers simply need successive cross-sectional nominative data and the distribution of surnames in the population to build a multigenerational dataset.

The rich informational content of surnames is not a contemporary discovery. Historians, demographers or economists have a long experience with nominative sources. About 150 years ago, Watson and Galton (1875) were interested in surnames attrition, which was linked to a decline of aristocratic families.[34] Stone (1971) explains how such data portray the social links and interactions of important historical figures. Longley et al. (2007) study social integration through the evolution of the spatial repartition of surnames in Middlesbrough and Cleveland. Güell et al. (2007, 2015) worked on Catalonian data and were the first to use surnames to measure intergenerational social mobility. They were followed by Collado et al. (2012), Clark et al. (2014), or Barone and Mocetti (2020).

The law of mobility stable across time and space portrayed by Gregory Clark was crumbly and has indeed been debunked. Torche and Corvalan (2018) support that this is rather due to a focus on the elite and that Clark's results are group-estimates, thereby not comparable to individual ones. Güell et al. (2018) further formalize the demonstration of a distinction between individual and group measures. Clark's claim that the true mobility levels are of a higher magnitude than previous findings is further challenged by Chetty et al. (2014), who report group-average surname regressions and find results more in line with the rest of the literature. Clark also stated that the law arises from surnames proxying the underlying social status of individuals, which would be better than a unidimensional measure such as earnings. He claimed that using multiple indicators of status would yield higher estimates of mobility, an affirmation that was also undermined by the empirical work of Vosters (2018), using data from the American Panel Study of Income Dynamics. Indeed, she finds only a marginal increase of estimates of intergenerational persistence, a result also confirmed with Swedish data (Vosters and Nybom, 2017). If the controversial claims of Clark were devitalized, the international recognition of his results appear flawless and intact, and his research remains influential on the understanding of intergenerational persistence at the top of the social hierarchy.

In the thesis, I adopt a historical perspective and investigate long-term trends thanks to the use of original nominative data. Moreover, I develop a new methodology for the use of surnames in social science. I combine information on characteristics at the surname-level in the ancestor generations and the frequency of surnames in the general population,

[34] Interestingly, Francis Galton is also known for having introduced the notion—central to intergenerational mobility—of regression towards the mean in his study of the intergenerational correlation of height.

and I construct the probability of a given outcome for a father, a grandfather or even a great-grandfather. In chapter 1, I construct the probability that the ancestor studied in a *Grande École*, as well as the probability to be born in a given geographical area. In chapter 2, I construct the probability for a father to be a member of the political or the business elite. This allows to include in the analysis the whole population rather than to restrict samples only to rare surnames, as many studies do, including Clark et al. (2014).

Collecting and matching original datasets

The thesis is also characterized by a deliberate effort in collecting new data and matching different sources together. This allows to examine original research questions, as well as bring new light to long-studied considerations.[35]

The most important data upon which my work relies is the nominative data on graduates from the French *Grandes Écoles*. I collected registers from 12 schools on students admitted over the period 1886-2015. This contains 395,294 curricula, followed by 374,719 students, namely 0.4% of the French population over the period. The data was collected from a variety of institutions, most of which are mentioned in footnote 35. The 12 schools are among the most prestigious, offering the best careers' opportunities to their graduates (Suleiman, 1978; Bourdieu, 1989). The list includes four schools of administration and research: *Sciences Po Paris*, the *École Nationale d'Administration* (*ENA*), the *École Normale Supérieure* (*ENS Ulm*), and the *École Normale Supérieure de Cachan* (*ENS Cachan*). I cover five public engineering schools: *ESPCI Paris*, *École Polytechnique*, *École des Ponts et Chaussées*, *Télécom Paris* and *École des Mines de Paris*. My sample also contains three of the most prestigious business schools: *ESSEC*, *ESCP* and *EM Lyon*. Contextual details on the *Grandes Écoles* are given in section 1.2 and Appendix 1.C.1 describes more precisely 10 of the 12 schools. *EM Lyon* and *ENS Cachan* were historically less prestigious and are therefore not included in the first chapter on social reproduction in the long run.[36]

[35] As mentioned in the *remerciements* (acknowledgements), I would like to thank all those, who helped me in the data collection processs: Goulven Le Brech, Marion Lehmanns and Odile Gaultier-Voituriez (*Sciences Po Paris*), Dominique Douillet (*Ponts Alliance*), Anne Lacourt (*École des Ponts ParisTech*), Olivier Azzola (*École Polytechnique*), Laurence Noblet (*Association des anciens élèves de l'ENA*), Martha Ganeva and Rémi Sentis (*Archicubes ENS Ulm*), Danièle Gozlan (*Mines ParisTech*), Isabelle Dubillon (*Telecom ParisTech*), Ambre Filippini (*ESSEC Alumni*), Christèle Fernand and Sandrine Caillat (*EM Lyon*), Frank Bournois (*ESCP Europe*), Éva Mollat du Jourdin and Florian Correard (*ESCP Europe Alumni*), Thierry Robert (*Archives of the Chambre de Commerce d'Île-de-France*), Jean-Antonin Cahéric (*Assemblée Nationale*), Ghislaine Laumonerie (*Sénat*), Alexandra Devantier (*Parlement Européen*), Claire Martin and Anthony Roussel (*Mission des archives auprès des services du Premier ministre*), André Chervel, for the kind sharing of his *répertoire des agrégés*, as well as Vera Cuilleron and Marlene Delhaye (Aix-Marseille Université). This work could not have been possible without their help.

[36] Notes of Figure 1.A.6 discuss the status of *EM Lyon*. *ENS Cachan* (*ENS Paris-Saclay* is its contemporaneous denomination) was not a unified school until 1912 but simply sections detached in different *Grandes Écoles*. It reached autonomy only in 1932 and its status was therefore not consistent over the

I also collected listings on high-profile occupations in politics and business. This includes data on mandates and nominations of 5,528 political representatives since 1958: Presidents of the French Republic, ministers and secretaries of State, French Members of Parliament, senators, and French European parliamentarians. In addition, I used data on the composition of the boards of the major French firms, retrieved from *BoardEx* and *Mint Global*, (*Orbis, Bureau van Dijk*) over the period 1995-2019. This includes information on positions in French firms for 42,074 board members. Besides, I obtained the table of families issued by the Association for Mutual Help of the French Nobility—*Association d'Entraide de la Noblesse Française*—, which registers 2,650 surnames of noble families.

With my coauthors Renaud Coulomb and Marc Sangnier, we collected the universe of the civilian *Légions d'honneur* awarded from April 1995 to July 2019. To this end, we gathered official decrees available from the websites of the *Journal officiel de la République française* and of the *Chancellerie de la Légion d'honneur*. We complemented the *Grandes Écoles*' registers with non-exhaustive data on 5,960 curricula of students at three other elite schools—*École Centrale Paris*, *ENS Lyon* and *HEC Paris*—harvested from the websites of the alumni associations. Besides, we collected stock market information on French listed firms from *Thomson Reuters Datastream*. Finally, we included media data using *Cision Europresse* to download 294,434 print articles published between 1995 and 2019 by the following French national daily newspapers: *Le Monde*, *Le Figaro*, *Les Échos*, *Libération* and *La Croix*.

In order to relate the frequency of appearance of surnames in the *Grandes Écoles* or in elite occupations to the frequency in the general population, I also obtained census data from the French National Institute of Statistics (INSEE). I used a detailed births' census at the surname–municipality level, which provides the exhaustive number of births per surname in each municipality over the period 1891-1990, divided in four cohorts of 25 years. I completed it with less exhaustive censuses divided in cohorts of 10 years over the period 1891-1980. Finally, I used a national gendered births' census by first name between 1900 and 2016.

All these data sources required thorough cleaning, reprocessing and preparation, before matching them together. A first task was to standardize the data originating from as many as 30 sources.[37] To ensure consistency between the different sources and increase the number of matches between datasets, I used token and bigram fuzzy matching on first and last names between each dataset and the census of surnames and first names, as well as

timeframe studied in the first chapter.

[37] This included issues such as particles sometimes appearing in parenthesis, suppression of all types of accents, etc. I also had to properly separate first and last names when they were indistinctively combined, as well as to automatically discern them from different types of information, such as registration in the alumni association, titles, or mention of death. Moreover, I identified the birth name of women when the spouse name was given and a hyphenated name was also provided, and vice versa.

between all datasets (refer to Raffo and Lhuillery, 2009, for a more complete presentation of the technique). Fuzzy matching allows detecting misspelled, shortened, or modified names in schools' registers, *Légion d'honneur* decrees, and board members or political representatives' data.[38] Pairings from fuzzy matchings were individually authenticated based on ad-hoc verifications.

Indeed, I operated a series of ad-hoc adjustments. This involved the completion of usual first and last names, necessary for the nominative media requests via *Cision Europresse*.[39] Moreover, I conducted ad-hoc verifications of birth and spouse names for all feminine graduates at *École Nationale d'administration*, as the school registers provided hyphened versions of last names for married woman, without a consistent order. Luckily, this information could be found online in a variety of sources, usually including official administrative positions announcements in the *Journal Officiel de la République française*, regularly applicable for graduates from the school. Furthermore, I corrected first and last names for an important set of observations when I identified distinctive forms in different data sources.[40]

After all the aforementioned data improvements, several matches were implemented. First, I determined the individuals who studied in multiple schools through a multicriteria screening, which I detail in Appendix 1.C.2 of chapter 1. The matching algorithm exploits first and last names, spouse and birth names when available, as well as the birth year (or its approximation from year of graduation from a *Grande École*). I used in all three chapters matches of surnames of *Grandes Écoles* graduates with the national births' census. It implies that the strings in both datasets are exactly similar, once included the fuzzy matching corrections or complement. Similarly, I operated perfect matches between the gendered national census on first names and first names from the different data sources used, to complete the gender when missing. For chapters 2 and 3, I matched together

[38] Fuzzy matching techniques usually provide a similarity score between 0 and 1 for two distinct chains of characters. Token fuzzy matching identifies similarities based on sequences of characters separated by spaces. For instance, "*Galouzeau de Villepin*" is divided in three sections "*Galouzeau*", "*de*", and "*Villepin*". Two out of three sequences perfectly match with the chain of characters "*de Villepin*", yielding a similarity score of 0.667. By contrast, the similarity score is zero with the surname "*Raux*". Token fuzzy matching is particularly relevant to track shortened versions of long last names. As for bigram fuzzy matching, it identifies similarities between each pair of successive characters. For instance, "*Boufandeau*" is decomposed in "Bo", "ou", "uf", "fa", "an", "nd", "de", "ea", and "au". The similarity score with "*Bouffandeau*", the correct form of *Boufandeau*, is 0.909.

[39] By usual, I mean alias names, which are publicly used. Instances are numerous. The 2007 Presidential candidate Marie-Ségolène Royal uses only Ségolène as her public name. While data in the *Grandes Écoles* registers include the official first name, data on politicians retains the public first name. Both forms—official and usual—are systematically completed in all datasets.

[40] For instance, the businesswoman and *Grandes Écoles* multi-graduated *Agnès Audier*, whose online biographies are numerous, alternatively appear as Agnès or Agnès-Corinne, respectively her usual and official first names, in the different data sources. Another example consists in the official name of the Member of Parliament and ESSEC-ENA graduated *Charles de Courson* being *Charles-Amédée du Buisson de Courson*, as reported, among other sources, by its Wikipedia page consulted on November 6, 2021. Again, I completed both forms in all sources.

the 31,742 board members from *Mint Global* (*Orbis, Bureau van Dijk*) to the 22,379 from *BoardEx* and isolated 42,074 distinctive board members. Matches were operated through equivalence of first and last names, as well as gender and birth year when available. Yet, when at least one birth year was missing, I certified matches using directors' biographies available online to minimize the number of false positive matches, except for individuals with rare enough surnames.[41] I also matched four distinctive datasets: the universe of political representatives, board members of French firms, recipients of the *Légion d'honneur*, and graduates from the *Grandes Écoles* through perfect correspondence of first and last names. As I did not know the precise day of birth of graduates, I discarded matches when the time window was considered too wide, as discussed in section 2.3.3 of chapter 2. Yet, I also authenticated some matches thanks to online biographies for those in a reasonable range around the threshold, especially for bearers of rare surnames. This involved a few corrections of birthdates, which were either inaccurate in the political or business data, or alternatively too imprecise from graduation dates. Finally, positions of board members in given firms were paired with financial data from *Thompson Reuters Datastream* through the firm-specific International Securities Identification Number (ISIN).

All the ad-hoc verifications using online biographies enabled me to discard wrong matches due to homonyms by comparing education when it was provided, or alternatively exact birth dates, maiden names, middle names, or known professional activities. I used *LinkedIn*, *Wikipedia*, *Who's who in France* entries, lesbiographies.com, geneanet.org, viadeo.journaldunet.com, https://www.lsa-conso.fr/annuaire-professionnels-grande-consommation, marketscreener.com/business-leaders, dirigeants.bfmtv.com, and lemoniteur.fr websites, biographies published by the business newspaper *Les Échos*, as well as institutional biographies available from firms' websites.

Ensuring the rectitude of the data highly fortifies and consolidates the validity and precision of the results provided in the following three chapters.

I The *Grandes Écoles and the French elites: overview of the chapters*

> "The gist of the role of the *Grandes Écoles* amounts to producing a nobility [...]. In the manner of the dubbing of knights according to Marc Bloch (1939), this operation of *ordination* (in both the mathematical and religious sense) transforms scalar differences into a series of discontinuous differences [...]. The *Grandes Écoles* produce individuals who are perceived to be—and who perceive themselves

[41] In that case, the threshold was somewhat arbitrary but based on visual inspection of the frequency starting from which there was no more (or extremely rare) false positive pairings.

> to be—of a different kind, of a 'superior essence' as we say in French, that is, separate in absolute terms, in terms of ascription: no matter what they do, what they do is different."
>
> Pierre Bourdieu, in Bourdieu and Wacquant (1993).

In France, the *Grandes Écoles* are elite institutions for higher education, which constitute the main pathway to top positions in the public and private sectors (Suleiman, 1978; Bourdieu, 1989). Constituted by three self-contained chapters, this dissertation documents, from a historical perspective, the pervasive and long-lasting influence of the most prestigious *Grandes Écoles* on the structuring of the French elites. The first chapter shows that the schools' admission processes are characterized by a substantial intergenerational reproduction. In the second chapter, I find that even among their graduates, careers remain determined by social origins. Finally, the last chapter investigates the interconnection of political and business elites through *Grandes Écoles'* alumni networks, which have a durable influence on symbolic awards and financial outcomes.

Chapter 1: Like Father, Like Child, Social Reproduction in the French *Grandes Écoles* throughout the 20th Century

Educational systems expanded over the 20th century in developed countries, and while most scholars find that it promoted social mobility (Breen and Müller, 2020), some argue that the top of the social hierarchy remains shielded over generations (Erikson and Goldthorpe, 1992).

The first chapter contributes to this debate by providing the first results on intergenerational social reproduction in the French *Grandes Écoles* schools over more than a century. I exploit a nominative dataset on 224,264 students from ten *Grandes Écoles*, spanning over five cohorts born between 1866 and 1995, corresponding to 0.36% of the French population. I investigate intergenerational mobility for three dimensions: historical, geographical and lineal advantages. My main measure defines the chances of admission to the schools, relatively to the rest of the population.

Noble families are particularly remanent, albeit their advantage decreased gradually over the last century, from 15.1 to 8.9 times more chances than the rest of the population to enter the schools in our baseline. Two centuries after the French Revolution, the persistence of their higher social status remains considerable.

Besides, the strong territorial anchoring of surnames allows to identify that Parisian-born individuals have been over-represented in the French elite schools. I provide arguments supporting that their increasing advantage in the recent cohorts arises from a gentrification of the capital city, with poorer families being progressively pushed away in the suburbs. As for the rest of France, those born in the northern regions experienced a

decreasing presence in the *Grandes Écoles* over the last century, as their elites may have been progressively attracted to Paris. By contrast, admissions improved for southerners, who are slightly over-represented in the French elite schools in the recent cohorts, although to a much lesser extent than Parisians.

Finally, social reproduction is the most intense for children of *Grandes Écoles* graduates. Across cohorts, they are 72 to 154 times more likely to be admitted, and up to 450 times to the exact same school than their father. This advantage appears remarkably stable for all cohorts born since 1916 and persists across multiple generations, emphasizing the existence of a "glass floor" for the French elites.

Ultimately, I characterize the late and slow admission of women, who are granted access to all *Grandes Écoles* only in the early 1970s. If their increasing enrollment is positive regarding gender equality, it has not contributed to intergenerational equality otherwise, as daughters appear to benefit from comparable advantages or disadvantages as sons do.

These results cannot be interpreted as the fact that the French *Grandes Écoles* are not accessible to those who do not benefit from these advantages. If I show that across the past century, one third to one half of graduates are born in Paris, that students of noble ascendance roughly account for 0.5% of the population but constitute about 4% of the graduates, and that children of *Grandes Écoles* graduates are a very scarce minority but trust up to 17% of the admissions, there remains some degree of regeneration. But while the emphasis is often put on the few individual successes of upward mobility, to promote the meritocratic qualities of the *concours* for the admission to the *Grandes Écoles*, I show that French citizens do not share a common starting line.

Chapter 2: Political and business dynasties in France

Dynasties constitute a visible sign of intergenerational persistence and raise questions on the legitimacy of those in positions of power. The second chapter quantifies the degree of intergenerational reproduction in the French political and business elites.

I link nominative data on 103,309 graduates from 12 *Grandes Écoles* born between 1931 and 1975 to their professional careers in politics and business between 1958 and 2019. I include data on politicians with national-level responsibilities (Presidents, ministers, and members of the Parliament) and board members of French firms.

I first confirm that the *Grandes Écoles* are crucial in the training of such elites, as 26.2% of those in these prominent positions studied in one of the 12 schools, against about 0.33% of the French population over the period. Identifying familial lineage through shared surnames, I then demonstrate the presence of dynasties, as children of political and business leaders had 2.4 times higher chances than their peers to embrace careers

in the elite. This result is conditional on education and therefore constitutes a direct association of social origin and occupational attainment. It demonstrates the existence of a "double-dividend": on top of the better admission chances to the *Grandes Écoles* identified in the first chapter, I show that children of the elite benefit from higher returns from such prestigious education.

Political dynasties are particularly sizeable. Those born between 1931 and 1975 whose fathers were in politics had 36.7 times more chances than their peers graduating from the same *Grande École* to become a national politician, whereas they evenly entered business careers. Yet, business dynasties are also very prominent as a graduate has 8.5 times more chances than his peers to become a businessman with executive functions if his father was one. Nevertheless, a favorable result is that dynastical following has largely reduced over the course of our period of study, especially in politics, a phenomenon also documented for the United States (Clubok et al., 1969; Dal Bó et al., 2009).

A second stage of the analysis highlights that these dynasties affect the composition of the French elite. To that end, I study variations in the schooling and age of first position within the sample of 17,822 individuals holding elite positions. I show that dynastical board members tend to be less educated than first-generation directors, and members of the elite manage to propel their offspring much younger to key business and political positions. Notably, dynastical business directors are twice less likely to be a graduate from one of the 12 *Grandes Écoles*, and even 7 times less likely to have graduated from one of the engineering schools.

Chapter 3: The (Market) Value of Prestige

Manifestations of prestige, such as awards and titles, are socially valued and are often sought for by individuals. Across space, time, and political systems, sovereign entities make great use of these honors. The third chapter explores the interactions between the political and business elites in the attribution of the *Légion d'honneur*, the most prominent state award in France. With my co-authors Renaud Coulomb and Marc Sangnier, we use an exhaustive novel dataset of recipients of civilian awards from April 1995 to July 2019, which we link to data on board positions in French listed firms.

The French context has several merits. The *Légion d'honneur* is a prestigious and well-established award, created in 1802 by Napoléon Bonaparte. Awards are not automatic conditionally on satisfying some objective criteria, and this discretionary feature allows different interpretations of the reasons for which a recipient is decorated. Most importantly, the country's elites are highly concentrated and politically connected, especially because they are trained in the same schools (Suleiman, 1978; Kadushin, 1995; Kramarz and Thesmar, 2013). Therefore, we define political connections through graduation of politicians and businesspersons in a same *Grande École*.

We observe a total of 1,074 recipients who received 1,240 awards over 72 distinct *Légion d'honneur* cohorts since 1995 while seating on the boards of French listed firms. Using media coverage of recipients in the five most popular French daily newspapers, we verify that *Légion d'honneur* cohorts constitute genuine information shocks, as their compositions is reported only after their official announcements. We then estimate the value of the *Légion d'honneur* for a firm by quantifying the impact of an award being attributed to one of its directors on its stock market value. Recipients are likely to exhibit specific attributes, which may be correlated with the characteristics of their firms. However, under the (semi-strong) market-efficiency hypothesis (Fama, 1970), all the pre-award observable firms' and recipients' characteristics are already incorporated in stock prices by the time the award is announced. To address the challenge that awards are not distributed randomly, we follow MacKinlay (1997) and use stocks' abnormal returns to identify exceptional market reaction following awards' announcements.

In a first step, we document positive and significant abnormal returns of firms in the days following the attribution of a *Légion d'honneur* to one of their directors. The two-day compound abnormal return averaged across awarded firms amounts to about 0.21%. As the median market capitalization of recipients' firms at the date of the award across the 1995-2019 period is about 3.5 billion €, in 2000 constant euros, this estimate suggests that a *Légion d'honneur* awarded to a director increases her firm's value by 7.0 million €.

In a second step, we explore the interpretation of state awards by market participants, by examining the heterogeneity in the market's reaction. We provide indirect evidence that awards mostly signal directors' political connections. Assuming that political connections are valuable for firms, connections that were visible before the award should be already priced by the time of the announcement. We show that market reaction to awards is stronger for directors who are not from the same *Grande École* graduation cohorts as members of the government. While we cannot fully disentangle between the different possible interpretations, the evidence is coherent with awards being interpreted by traders as a new signal of proximity to politicians, and more generally, as symbolic manifestations of directors' network.

References for the general introduction

Adermon, A., Lindahl, M., and Palme, M. (2021). Dynastic human capital, inequality, and intergenerational mobility. *American Economic Review*, 111(5):1523–48.

Adermon, A., Lindahl, M., and Waldenström, D. (2018). Intergenerational wealth mobility and the role of inheritance: Evidence from multiple generations. *The Economic Journal*, 128(612):F482–F513.

Akbaş, M., Ariely, D., and Yuksel, S. (2019). When is inequality fair? An experiment on the effect of procedural justice and agency. *Journal of Economic Behavior & Organization*, 161:114–127.

Alesina, A. and Giuliano, P. (2014). Family ties. In Aghion, P. and Durlauf, S., editors, *Handbook of economic growth*, volume 2, pages 177–215. Elsevier.

Almås, I., Cappelen, A. W., and Tungodden, B. (2020). Cutthroat capitalism versus cuddly socialism: Are Americans more meritocratic and efficiency-seeking than Scandinavians? *Journal of Political Economy*, 128(5):1753–1788.

Alvaredo, F., Atkinson, A. B., Piketty, T., and Saez, E. (2013). The top 1 percent in international and historical perspective. *Journal of Economic perspectives*, 27(3):3–20.

Anger, S. (2012). Intergenerational transmission of cognitive and noncognitive skills. In Ermisch, J., Jäntti, M., and Smeeding, T., editors, *From Parents to Children: The Intergenerational Transmission of Advantage*, pages 393–421. Russell Sage Foundation.

Arneson, R. J. (1999). Against Rawlsian equality of opportunity. *Philosophical Studies: An International Journal for Philosophy in the Analytic Tradition*, 93(1):77–112.

Atkinson, A. B. (2014). After Piketty? *The British Journal of Sociology*, 65(4):619–638.

Atkinson, A. B. and Piketty, T. (2007). *Top incomes over the twentieth century: a contrast between continental European and English-speaking countries*. Oxford University Press.

Barker, D. (1994). *Mothers, Babies and Disease in Later Life*. BMJ.

Barone, G. and Mocetti, S. (2020). Intergenerational mobility in the very long run: Florence 1427–2011. *The Review of Economic Studies*.

Barry, B. (2005). *Why social justice matters*. Polity Press.

Barsoux, J.-L. and Lawrence, P. (1991). The making of a French manager. *Harvard Business Review*, 69(4):58–60.

Bauer, M. and Bertin-Mourot, B. (1987). *Les deux cents, comment devient-on un grand patron ?* Seuil, Paris.

Bauer, M. and Bertin-Mourot, B. (1995). La tyrannie du diplôme initial et la circulation des élites: la stabilité du modèle français. In Suleiman, E. and Mendras, H., editors, *Le recrutement des élites en Europe*. La Découverte.

Becker, G. (1964). *Human capital: A theoretical and empirical analysis, with special reference to education*. Columbia University Press.

Becker, G. S., Kominers, S. D., Murphy, K. M., and Spenkuch, J. L. (2018). A theory of intergenerational mobility. *Journal of Political Economy*, 126(S1):S7–S25.

Becker, G. S. and Tomes, N. (1986). Human capital and the rise and fall of families. *Journal of labor economics*, 4(3, Part 2):S1–S39.

Behrman, J. R. and Rosenzweig, M. R. (2004). Returns to birthweight. *Review of Economics and statistics*, 86(2):586–601.

Bernardi, F. (2014). Compensatory advantage as a mechanism of educational inequality: A regression discontinuity based on month of birth. *Sociology of Education*, 87(2):74–88.

Bernardi, F. and Ballarino, G. (2016). *Education, occupation and social origin: A comparative analysis of the transmission of socio-economic inequalities*. Edward Elgar Publishing.

Bertrand, M. and Schoar, A. (2006). The role of family in family firms. *Journal of economic perspectives*, 20(2):73–96.

Birnbaum, P., Barucq, C., Bellaiche, M., and Marié, A. (1978). *La classe dirigeante française: Dissociation, interpénétration, intégration*. Presses universitaires de France.

Bisin, A. and Verdier, T. (2001). The economics of cultural transmission and the dynamics of preferences. *Journal of Economic theory*, 97(2):298–319.

Black, S. E. and Devereux, P. J. (2011). Recent developments in intergenerational mobility. In Ashenfelter, O. and Card, D., editors, *Handbook of Labor Economics*, pages 1487–1541. Elsevier. edition 1. volume 4. chapter 16.

Blau, P. M. and Duncan, O. D. (1967). *The American occupational structure*. John Wiley and Sons.

Bloch, M. (1939). *La société féodale*. Albin Michel.

Boltanski, L. and Chiapello, E. (1999). *Le nouvel esprit du capitalisme*. Gallimard.

Bouchet-Valat, M. (2014). Les évolutions de l'homogamie de diplôme, de classe et d'origine sociales en France (1969-2011): ouverture d'ensemble, repli des élites. *Revue française de sociologie*, 55(3):459–505.

Bourdieu, P. (1979). *La Distinction. Critique sociale du jugement*. Les Éditions de Minuit, Paris.

Bourdieu, P. (1989). *La noblesse d'État: Grandes écoles et esprit de corps*. Éditions de Minuit, Paris.

Bourdieu, P. and Passeron, J.-C. (1970). *La reproduction: éléments pour une théorie du système d'enseignement*. Les Éditions de Minuit.

Bourdieu, P. and Wacquant, L. J. (1993). From ruling class to field of power: An interview with Pierre Bourdieu on La noblesse d'état. *Theory, Culture & Society*, 10(3):19–44.

Bowles, S. and Gintis, H. (1976). *Schooling in Capitalist America: Educational Reform and the Contradictions of Economic Life*. Basic Books.

Bowles, S. and Gintis, H. (2002). Schooling in capitalist America revisited. *Sociology of education*, pages 1–18.

Breen, R. and Goldthorpe, J. H. (1997). Explaining educational differentials: Towards a formal rational action theory. *Rationality and society*, 9(3):275–305.

Breen, R. and Müller, W. (2020). *Education and intergenerational social mobility in Europe and the United States*. Stanford University Press.

Brown, D. K. (1995). *Degrees of control: A sociology of educational expansion and occupational credentialism*. Teachers College Press.

Brown, P. (1990). The 'third wave': Education and the ideology of parentocracy. *British journal of sociology of education*, 11(1):65–86.

Brown, P., Power, S., Tholen, G., and Allouch, A. (2016). Credentials, talent and cultural capital: A comparative study of educational elites in england and france. *British Journal of Sociology of Education*, 37(2):191–211.

Bühlmann, F., David, T., and Mach, A. (2012). Political and economic elites in Switzerland: Personal interchange, interactional relations and structural homology. *European Societies*, 14(5):727–754.

Cappelen, A. W., Hole, A. D., Sørensen, E. Ø., and Tungodden, B. (2007). The pluralism of fairness ideals: An experimental approach. *American Economic Review*, 97(3):818–827.

Chetty, R., Friedman, J. N., Saez, E., Turner, N., and Yagan, D. (2020). Income segregation and intergenerational mobility across colleges in the United States. *The Quarterly Journal of Economics*, 135(3):1567–1633.

Chetty, R., Hendren, N., Kline, P., and Saez, E. (2014). Where is the land of opportunity? The geography of intergenerational mobility in the United States. *The Quarterly Journal of Economics*, 129(4):1553–1623.

Citrin, J. and Stoker, L. (2018). Political trust in a cynical age. *Annual Review of Political Science*, 21:49–70.

Clark, G., Cummins, N., Diaz Vidal, D., Hao, Y., Ishii, T., Landes, Z., Marcin, D., Mo Jung, K., Marek, A., and Williams, K. (2014). *The Son also Rises: 1,000 Years of Social Mobility*. Princeton University Press, Princeton.

Clubok, A. B., Wilensky, N. M., and Berghorn, F. J. (1969). Family relationships, congressional recruitment, and political modernization. *The Journal of Politics*, 31(4):1035–1062.

Cohen, G. A. (1995). *Self-ownership, freedom, and equality*. Cambridge University Press.

Collado, M. D., Ortuño-Ortín, I., and Romeu, A. (2012). Intergenerational linkages in consumption patterns and the geographical distribution of surnames. *Regional Science and Urban Economics*, 42(1-2):341–350.

Cunha, F. and Heckman, J. J. (2009). The economics and psychology of inequality and human development. *Journal of the European Economic Association*, 7(2-3):320–364.

Currie, J. and Almond, D. (2011). Human capital development before age five. In Ashenfelter, O. and Card, D., editors, *Handbook of labor economics*, volume 4, pages 1315–1486. Elsevier.

Dal Bó, E., Dal Bó, P., and Snyder, J. (2009). Political dynasties. *The Review of Economic Studies*, 76(1):115–142.

De Barros, R. P., Ferreira, F., Vega, J., and Chanduvi, J. (2009). *Measuring inequality of opportunities in Latin America and the Caribbean*. World Bank Publications.

De Paola, M. (2013). The determinants of risk aversion: the role of intergenerational transmission. *German Economic Review*, 14(2):214–234.

Delefortrie-Soubeyroux, N. (1961). *Les dirigeants de l'industrie française*, volume 6. Armand Colin.

Di Tella, R. and MacCulloch, R. (2002). Informal family insurance and the design of the welfare state. *The Economic Journal*, 112(481):481–503.

DiPrete, T. A. and Eirich, G. M. (2006). Cumulative advantage as a mechanism for inequality: A review of theoretical and empirical developments. *Annual Review of Sociology*, 32:271–297.

Dohmen, T., Falk, A., Huffman, D., and Sunde, U. (2012). The intergenerational transmission of risk and trust attitudes. *The Review of Economic Studies*, 79(2):645–677.

Dorandeu, R. (1994). Le cercle magique. Quelques remarques sur les élites de la république. *Pouvoirs*, pages 111–123.

Dubet, F. (2010). Les places et les chances. *Repenser la justice sociale. Le Seuil*.

Duru-Bellat, M. (2003). Actualité et nouveaux développements de la question de la reproduction des inégalités sociales par l'école. *L'orientation scolaire et professionnelle*, (32/4):571–594.

Dustmann, C., Glitz, A., Schönberg, U., and Brücker, H. (2016). Referral-based job search networks. *The Review of Economic Studies*, 83(2):514–546.

Dworkin, R. (1981a). What is equality? Part 1: Equality of welfare. *Philosophy & public affairs*, pages 185–246.

Dworkin, R. (1981b). What is equality? Part 2: Equality of resources. *Philosophy & public affairs*, pages 283–345.

Elias, N. (1985). *La société de cour*. Flammarion Paris.

Engels, F. (1884). Der Ursprung der Familie, des Privateigentums und des Staats. im Anschluss an Lewis H. Morgans' Forschungen. *Hottingen-Zürich*.

Erikson, R. and Goldthorpe, J. H. (1992). *The constant flux: A study of class mobility in industrial societies*. Oxford University Press.

Fama, E. F. (1970). Efficient capital markets: A review of theory and empirical work. *Journal of Finance*, 25(2):383–417.

Feinstein, L. (2003). Inequality in the early cognitive development of british children in the 1970 cohort. *Economica*, 70(277):73–97.

Fernández-Villaverde, J., Greenwood, J., and Guner, N. (2014). From shame to game in one hundred years: An economic model of the rise in premarital sex and its de-stigmatization. *Journal of the European Economic Association*, 12(1):25–61.

Fishkin, J. S. (1983). *Justice, equal opportunity, and the family*. Yale University Press.

Fleurbaey, M. (2008). *Fairness, responsibility, and welfare*. Oxford University Press.

Fleurbaey, M. and Maniquet, F. (2011). *A theory of fairness and social welfare*, volume 48. Cambridge University Press.

François, P. (2010). Les guépards du capitalisme français? structure de l'élite patronale et modes d'accès aux positions dominantes. *Les élites économiques en France, Journées d'études conjointes DRM-IRISSO, Université Paris Dauphine*, 4.

Fukuyama, F. (1995). *Trust, the social virtues and the creation of prosperity*. The Free Press.

Gagliarducci, S. and Manacorda, M. (2020). Politics in the family: Nepotism and the hiring decisions of Italian firms. *American Economic Journal: Applied Economics*, 12(2):67–95.

Goldthorpe, J. (2003). The myth of education-based meritocracy. *New Economy*, 10(4):234–239.

Goldthorpe, J. H. (2014). The role of education in intergenerational social mobility: Problems from empirical research in sociology and some theoretical pointers from economics. *Rationality and society*, 26(3):265–289.

Gouyon, M. (2004). L'aide aux devoirs apportée par les parents: années scolaires 1991-1992 et 2002-2003. *Insee première*.

Grindle, M. (2012). *Jobs for the boys: Patronage and the state in comparative perspective*. Harvard University Press.

Grusky, D. and Weeden, K. (2016). Do disciplinary boundaries keep us from asking the right questions about inequality. *Insights from the Social Sciences*.

Güell, M., Rodríguez Mora, J. V., and Solon, G. (2018). New directions in measuring intergenerational mobility: Introduction. *The Economic Journal*, 128(612):F335–F339.

Güell, M., Rodríguez Mora, J. V., and Telmer, C. I. (2007). Intergenerational mobility and the informative content of surnames. *CEPR Discussion Papers*. nÂ° 6316.

Güell, M., Rodríguez Mora, J. V., and Telmer, C. I. (2015). The informational content of surnames, the evolution of intergenerational mobility, and assortative mating. *The Review of Economic Studies*, 82(2 (291)):693–735.

Guryan, J., Hurst, E., and Kearney, M. (2008). Parental education and parental time with children. *Journal of Economic perspectives*, 22(3):23–46.

Guyon, N. and Huillery, E. (2021). Biased aspirations and social inequality at school: Evidence from French teenagers. *The Economic Journal*, 131(634):745–796.

Harsanyi, J. C. (1953). Cardinal utility in welfare economics and in the theory of risk-taking. *Journal of Political Economy*, 61(5):434–435.

Hartmann, M. (2000). Class-specific habitus and the social reproduction of the business elite in Germany and France. *The Sociological Review*, 48(2):241–261.

Heinich, N. (1993). *Du peintre à l'artiste: artisans et académiciens à l'âge classique*. Éditions de minuit.

Isaksson, A.-S. and Lindskog, A. (2009). Preferences for redistribution—a country comparison of fairness judgements. *Journal of Economic Behavior & Organization*, 72(3):884–902.

Jäntti, M., Bratsberg, B., Roed, K., Raaum, O., Naylor, R., Osterbacka, E., Bjorklund, A., and Eriksson, T. (2006). American exceptionalism in a new light: a comparison of intergenerational earnings mobility in the Nordic countries, the United Kingdom and the United States. *IZA discussion paper*.

Jennings, M. K., Stoker, L., and Bowers, J. (2009). Politics across generations: Family transmission reexamined. *The Journal of Politics*, 71(3):782–799.

Kadushin, C. (1995). Friendship among the French financial elite. *American Sociological Review*, 60(2):202–221.

Kanbur, R. and Wagstaff, A. (2016). How useful is inequality of opportunity as a policy construct? In *Inequality and growth: Patterns and policy*, pages 131–150. Springer.

Karabel, J. (2005). *The chosen: The hidden history of admission and exclusion at Harvard, Yale, and Princeton*. Houghton Mifflin Harcourt.

Konow, J. (2001). Fair and square: the four sides of distributive justice. *Journal of Economic Behavior & Organization*, 46(2):137–164.

Kramarz, F. and Skans, O. N. (2014). When strong ties are strong: Networks and youth labour market entry. *Review of Economic Studies*, 81(3):1164–1200.

Kramarz, F. and Thesmar, D. (2013). Social networks in the boardroom. *Journal of the European Economic Association*, 11(4):780–807.

Kuznets, S. and Jenks, E. (1953). Shares of upper income groups in savings. In *Shares of upper income groups in income and savings*, pages 171–218. NBER.

Lefranc, A. (2018). Intergenerational earnings persistence and economic inequality in the long run: Evidence from French cohorts, 1931–75. *Economica*, 85(340):808–845.

Lefranc, A., Pistolesi, N., and Trannoy, A. (2009). Equality of opportunity and luck: Definitions and testable conditions, with an application to income in France. *Journal of Public Economics*, 93(11):1189–1207.

Linton, R. (1936). *The study of man: an introduction.* Appleton-Century.

Longley, P. A., Webber, R., and Lloyd, D. (2007). The quantitative analysis of family names: Historic migration and the present day neighborhood structure of Middlesbrough, United Kingdom. *Annals of the Association of American Geographers*, 97(1):31–48.

Machiavelli, N. (1531). *Discorsi sopra la prima Deca di Tito Livio*. Bernardo Giunti.

MacKinlay, A. C. (1997). Event studies in economics and finance. *Journal of Economic Literature*, 35(1):13–39.

Mangset, M. (2015). What does it mean to be part of the elite? Comparing Norwegian, French and British top bureaucrats' understandings of the elite concept when applied to themselves. *Comparative Sociology*, 14(2):274–299.

Mann, H. (1848). Report no. 12 of the massachusetts school board.

Mare, R. D. (1991). Five decades of educational assortative mating. *American sociological review*, pages 15–32.

Marshall, A. (1890). *Principles of Economics*. Macmillan.

Meer, J. and Rosen, H. S. (2009). Altruism and the child cycle of alumni donations. *American Economic Journal: Economic Policy*, 1(1):258–86.

Michael, Y. (1958). The rise of the meritocracy.

Michels, R. (1911). *Zur Soziologie des Parteiwesens in der modernen Demokratie*, volume 21. Werner.

Mills, C. W. (1956). *The power elite*. Oxford University Press.

Milner, M. (2004). *Freaks, Geeks, and Cool Kids: American Teenagers, Schools, and the Culture of Consumption*. Routledge.

Mincer, J. (1958). Investment in human capital and personal income distribution. *Journal of political economy*, 66(4):281–302.

Mosca, G. (1896). *Elementi di scienza politica*. Fratelli Bocca.

Munoz-Darde, V. (1999). Is the family to be abolished then? In *Proceedings of the Aristotelian Society*, volume 99, pages 37–56. Oxford University Press.

Murphy, R. (1988). *Social closure: The theory of monopolization and exclusion*. Clarendon Press.

Nicole Desmau, M. (2019). La mystification méritocratique. *Le Vent se lève*.

O'Connor, T. G., Rutter, M., Beckett, C., Keaveney, L., and Kreppner, J. M. (2000). The effects of global severe privation on cognitive competence: Extension and longitudinal follow-up. English and Romanian adoptees study team. *Child development*, 71(2):376–390.

OECD (2018). *A Broken Social Elevator?: How to Promote Social Mobility*. OECD Publishing.

Pareto, V. (1916). *Trattato di sociologia generale...*, volume 2. G. Barbèra.

Parsons, T. (1940). An analytical approach to the theory of social stratification. *American Journal of Sociology*, 45(6):841–862.

Pasquali, P. (2021). *Héritocratie: Les élites, les grandes écoles et les mésaventures du mérite (1870-2020)*. La Découverte.

Payne, G. (2017). *The new social mobility: How the politicians got it wrong*. Policy Press.

Piano, N. (2017). "Schumpeterianism" revised: The critique of elites in Capitalism, socialism and democracy. *Critical Review*, 29(4):505–529.

Piketty, T. (1995). Social mobility and redistributive politics. *The Quarterly journal of economics*, 110(3):551–584.

Piketty, T. (2003). Income inequality in France, 1901–1998. *Journal of political economy*, 111(5):1004–1042.

Piketty, T. (2014). *Capital in the twenty-first century*. Harvard University Press.

Piketty, T. (2020). *Capital and Ideology*. Harvard University Press.

Piketty, T. and Saez, E. (2003). Income inequality in the United States, 1913–1998. *The Quarterly journal of economics*, 118(1):1–41.

Plomin, R., Fulker, D. W., Corley, R., and DeFries, J. C. (1997). Nature, nurture, and cognitive development from 1 to 16 years: A parent-offspring adoption study. *Psychological Science*, 8(6):442–447.

Raffo, J. and Lhuillery, S. (2009). How to play the "Names Game": Patent retrieval comparing different heuristics. *Research Policy*, 38(10):1617–1627.

Ramos, X. and Van de Gaer, D. (2016). Approaches to inequality of opportunity: Principles, measures and evidence. *Journal of Economic Surveys*, 30(5):855–883.

Rawls, J. (1971). *A theory of justice*. Harvard university press.

Reeves, A., Friedman, S., Rahal, C., and Flemmen, M. (2017). The decline and persistence of the old boy: Private schools and elite recruitment 1897 to 2016. *American Sociological Review*, 82(6):1139–1166.

Rioux, J.-P. (1983). Les élites en France au XXe siècle. Remarques historiographiques. *Mélanges de l'école française de Rome*, 95(2):13–27.

Risse, M. (2002). What equality of opportunity could not be. *Ethics*, 112(4):720–747.

Roemer, J. E. (1993). A pragmatic theory of responsibility for the egalitarian planner. *Philosophy & Public Affairs*, pages 146–166.

Roemer, J. E. (1998). *Equality of opportunity*. Harvard University Press.

Roemer, J. E. (2003). Defending equality of opportunity. *The Monist*, 86(2):261–282.

Roemer, J. E. (2004). Equal opportunity and intergenerational mobility: going beyond intergenerational income transition matrices. *Generational income mobility in North America and Europe*, pages 48–57.

Roemer, J. E. and Trannoy, A. (2016). Equality of opportunity: Theory and measurement. *Journal of Economic Literature*, 54(4):1288–1332.

Royer, H. (2009). Separated at girth: US twin estimates of the effects of birth weight. *American Economic Journal: Applied Economics*, 1(1):49–85.

Russell, B. (1929). *Marriage and morals*. Routledge.

Rutter, M. (2006). *Genes and behavior: Nature-nurture interplay explained*. Blackwell Publishing.

Sacerdote, B. (2002). The nature and nurture of economic outcomes. *American Economic Review*, 92(2):344–348.

Sandel, M. (2020). *The tyranny of merit: What's become of the common good?* Macmillan.

Schultz, T. W. (1962). Reflections on investment in man. *Journal of political economy*, 70(5, Part 2):1–8.

Schumpeter, J. (1942). *Capitalism, socialism and democracy*. Harper and Brothers.

Sen, A. (1980). Equality of what? *The Tanner lecture on human values*, 1:197–220.

Solon, G. (1992). Intergenerational income mobility in the United States. *The American Economic Review*, pages 393–408.

Solon, G. (1999). Intergenerational mobility in the labor market. In Ashenfelter, O. and Card, D., editors, *Handbook of Labor Economics*, pages 1761–1800. North-Holland.

Solon, G. (2004). A model of intergenerational mobility variation over time and place. In Corak, M., editor, *Generational Income Mobility in North America and Europe*, pages 38–47. Cambridge University Press.

Solon, G. (2018). What do we know so far about multigenerational mobility? *The Economic Journal*, 128(612):F340–F352.

Sorokin, P. (1927). *Social Mobility*. Harper and Brothers.

Spence, M. (1973). Job market signaling. *The Quarterly Journal of Economics*, 87(3):355–374.

Starmans, C., Sheskin, M., and Bloom, P. (2017). Why people prefer unequal societies. *Nature Human Behaviour*, 1(4):1–7.

Steven, D. (2006). Groups, social influences, and inequality: A memberships theory perspective on poverty traps. In Bowles, S., Durlauf, S. N., and Hoff, K. R., editors, *Poverty Traps*, pages 141–175. Princeton University Press.

Stevens, M. L., Armstrong, E. A., and Arum, R. (2008). Sieve, incubator, temple, hub: Empirical and theoretical advances in the sociology of higher education. *Annu. Rev. Sociol*, 34:127–151.

Stiglitz, J. E. (1975). The theory of "screening," education, and the distribution of income. *The American economic review*, 65(3):283–300.

Stone, L. (1971). *Daedalus*, volume , 100, pp. 46-79., chapter Prosopography. The MIT Press.

Suleiman, E. N. (1978). *Elites in French society: the politics of survival*. Princeton University Press, Princeton, NJ.

Swift, A. (2004). Would perfect mobility be perfect? *European sociological review*, 20(1):1–11.

Tenret, E. (2011). *L'école et la méritocratie. Représentations sociales et socialisation scolaire*. PUF.

Thurow, L. (1975). *Generating inequality*. Basic books.

Thurow, L. (1983). *Dangerous Currents: The State of Economics*. Random House.

Todd, P. E. and Wolpin, K. I. (2007). The production of cognitive achievement in children: Home, school, and racial test score gaps. *Journal of Human capital*, 1(1):91–136.

Torche, F. (2015). Intergenerational mobility and equality of opportunity. *European Journal of Sociology/Archives Européennes de Sociologie*, 56(3):343–371.

Torche, F. (2018). Prenatal exposure to an acute stressor and children's cognitive outcomes. *Demography*, 55(5):1611–1639.

Torche, F. and Corvalan, A. (2018). Estimating intergenerational mobility with grouped data: A critique of Clark's The son also rises. *Sociological Methods & Research*, 47(4):787–811.

Turner, R. H. (1960). Sponsored and contest mobility and the school system. *American sociological review*, pages 855–867.

Van de Werfhorst, H. G. (2011). Skills, positional good or social closure? The role of education across structural–institutional labour market settings. *Journal of Education and Work*, 24(5):521–548.

Veblen, T. (1899). *The Theory of the Leisure Class. An Economic Study in the Evolution of Institutions*. Macmillan, New York, NY.

Vickrey, W. (1945). Measuring marginal utility by reactions to risk. *Econometrica: Journal of the Econometric Society*, pages 319–333.

Vion, A., Joly, H., Grémont, É., and Dudouet, F.-X. (2014). Retour sur le champ du pouvoir économique en France: l'espace social des dirigeants du CAC 40. *Revue Française de Socio-Economie*, 1(13):23–48.

Vosters, K. (2018). Is the simple law of mobility really a law? Testing Clark's hypothesis. *The Economic Journal*, 128(612):F404–F421.

Vosters, K. and Nybom, M. (2017). Intergenerational persistence in latent socioeconomic status: evidence from Sweden and the United States. *Journal of Labor Economics*, 35(3):869–901.

Vovelle, M. (1974). L'élite ou le mensonge des mots. In *Annales. Histoire, Sciences Sociales*, volume 29, pages 49–72. Cambridge University Press.

Watson, H. W. and Galton, F. (1875). On the probability of the extinction of families. *The Journal of the Anthropological Institute of Great Britain and Ireland*, 4:138–144.

Weber, M. (1904). *Die protestantische Ethik und der Geist des Kapitalismus*. Archiv für soziale Gesetzgebung und Statistik, Tübingen.

Weber, M. (1919a). *Politik als Beruf*. Verlag von Duncker & Humblots.

Weber, M. (1919b). *Wissenschaft als Beruf*. Verlag von Duncker & Humblots.

Weber, M. (1921). *Wirtschaft und gesellschaft: Grundriss der verstehenden Soziologie*. Mohr Siebeck.

Ziegler, S. (2017). Personalization and competition in elite schools in Buenos Aires: school strategies for the production and legitimization of dominant groups. *Journal of education and work*, 30(2):145–155.

Zimmerman, D. J. (1992). Regression toward mediocrity in economic stature. *The American Economic Review*, 82(3):409–429.

Chapter 1

Like Father, Like Child: Social Reproduction in the French *Grandes Écoles* throughout the 20$^{\text{th}}$ Century

Abstract

Educational systems expanded over the 20$^{\text{th}}$ century in developed countries, and while most scholars found that it promoted social mobility, some argue that the top of the social hierarchy remains shielded over generations. In France, the most prestigious *Grandes Écoles* are elite institutions for higher education. They constitute the main pathway to top positions in the public and private sectors. The present work provides the first results on intergenerational social reproduction in these schools over more than a century. We construct an exhaustive nominative dataset of 224,264 graduate students from ten of the leading *Grandes Écoles*, spanning over five cohorts born between 1866 and 1995. We develop a new methodology within the literature using surnames to track lineages and find that families from ancient aristocratic lineage, Parisians, as well as descendants of graduates are highly over-represented in the top *Grandes Écoles*, throughout the 20$^{\text{th}}$ century. Across cohorts, children of *Grandes Écoles*' graduates are 72 to 154 times more likely to be admitted, and up to 450 times to the exact same school than their father. This advantage appears remarkably stable for all cohorts born since 1916 and persists across multiple generations, emphasizing the existence of a "glass floor" for the French elites.

> "One is a *Normalien*, as one is a prince by blood."[1]
> Georges Pompidou, Prime Minister

1.1 Introduction

Education was proclaimed the "great equalizer of conditions of men, the balance wheel of the social machinery" by Horace Mann in 1848. Since that time, educational systems of developed countries experienced massive expansions and sociologists documented a decreasing influence of parental socio-economic characteristics on educational attainment over the 20th century (Breen and Müller, 2020). However, Erikson and Goldthorpe (1992) argued that this "neglects the degree to which those in advantaged positions can secure similar positions for their children".

We contribute to this debate by investigating, from a historical perspective, the intergenerational enrollment at the most prestigious institutions of the French higher education system: the *Grandes Écoles* (GE). We construct an original dataset of graduates, corresponding to the top 0.36% of the French population in terms of educational distribution, for cohorts born between 1866 and 1995. The results suggest a substantial advantage in admissions for sons and daughters of *Grandes Écoles*' graduates, Parisian-born individuals, as well as descendants of the former French aristocracy.

Our dataset includes an exhaustive list of 224,264 students from ten of the most prestigious *Grandes Écoles*, graduating between 1886 and 2015.[2] We develop a new methodology within the literature that exploit the informational content of surnames. Preceding studies (e.g. Clark et al., 2014) usually relied on rare surnames, which implies the choice of a somewhat arbitrary threshold, and the use of only part of the available data. Indeed, while the Anglo-Saxon *Smith*, or the French *Martin*, are not useful to identify a precise genealogical link, this is much more the case for *Zuckerberg*, *Peugeot*, or *Dassault*. Therefore, we determine the probability to be linked to a given father with a specific characteristic—e.g. having studied in a GE—as a function of the distribution of such characteristic by surname and of each surname's frequency in the population. This new technique allows to exploit the completeness of our dataset, instead of a discretionary sub-sample.

Matching the lists of graduates with a national census of births per surname, we study

[1] A *Normalien* is a student from *École Normale Supérieure*, one of the oldest *Grandes Écoles*. Quoted in Peyrefitte (1964), translated by Suleiman (1978).

[2] Section 1.3 provides a description of the dataset, and Appendix 1.C.1 supplements it with details on each school of our sample. Whereas there are about 500 *Grandes Écoles* in France, our study focuses on a very restricted set of 10 schools which are particularly relevant in the formation of the French elite as we explain in section 1.2. The list includes *École Polytechnique*, *ENA*, *ENS Ulm*, *ESCP*, *ESPCI Paris*, *ESSEC*, *Mines Paris*, *Ponts et chaussées*, *Sciences Po*, and *Télécom Paris*.

three main dimensions: historical, geographical, and lineal advantages. Our main measure defines the chances of admission to the schools, relatively to the rest of the population. We first estimate the relative advantage of descendants from aristocratic families, who were, in the 18th century, the only one who were granted access to the first-founded *Grandes Écoles*. Then, we exploit the territorial anchoring of surnames and study the prospects of admissions depending on the region of birth. Lastly, we investigate admissions of sons and daughters, as well as grandchildren and great-grandchildren of the *Grandes Écoles* graduates. This last measure is very appropriate for long-term analysis because graduation from an elite school has been more stable than parental occupations over the period.[3]

We find that all three dimensions strongly influence the perspectives of enrollment at the *Grandes Écoles* throughout the period. Noble families have been particularly remanent, albeit their advantage decreased gradually over the last century, from 15.1 to 8.9 times more chances than the rest of the population to enter the schools in our baseline.[4] In recent years, although the descendants of families registered as aristocratic represented only 0.2% of the population, they accounted for 2% of the students of the most prestigious *Grandes Écoles*, and up to 4% if we consider all surnames with a particle. Whereas they were highly over-represented at *Sciences Po Paris* in the early 20th Century, their highest admission rates are to business schools lately.

Besides, the geographical dimension of students' admissions is much representative of the very centralized nature of France. Parisian-born individuals have been 9.3 to 12.6 times over-represented in the GE for cohorts born before 1965 and up to 25.2 times for the most recent period. This over-representation has a very substantial influence on the social composition of the most prestigious *Grandes Écoles*: while about 5% of the French population is born in Paris, Parisians account for 38 to 48% of GE graduates throughout the last century. Besides, as the relative advantage for Parisian-born increased in the most recent cohort, it decreased accordingly for those born in the Parisian suburbs. This is consistent with the phenomenon of gentrification of the capital city, with poorer families pushed away in the suburbs, as documented by Préteceille (2007). As for the rest of France, we emphasize a clear north-east to south-west frontier. Those born in the northern regions experienced a decreasing presence in the *Grandes Écoles* over the last century, as their elites may have been progressively attracted to Paris. By contrast, people born in the southern regions—as well as in the notable exception of *Alsace* in the North-East—experienced a rise in their admission prospects. In the recent cohorts,

[3] Most previous studies used parental occupation, sometimes transformed in parental socio-economic status. Having a corporate executive father in recent cohorts is much more common than it was before the *Trentes Glorieuses*. On the contrary, having a father who graduated from a *Grande École* has concerned a relatively stable share of the population. In addition, education is a lifetime achievement, which does not suffer from lifecycle fluctuations like income does, or even occupation to a lesser extent. Yet, educational following in the context of the French elite school was merely studied due to the absence of suitable data.

[4] As detailed in section 1.3, the baseline is constituted of all schools but *Sciences Po Paris*.

southerners are slightly over-represented in the French elite schools, although to a much lesser extent than Parisians are.

Finally, social reproduction is the most intense for the lineal advantage. Having a father that studied in one of the baseline schools of our sample is associated with 154 times more chances of admission in the early 20th century. This advantage was halved for children born between the two world wars, but remained remarkably stable for those born since 1916, with 72 to 83 times higher perspectives of enrollment for children of a *Grande École* graduate. These results contrast resolutely with previous studies using parental occupation as a background characteristic. Most scholars found a qualitative democratization for cohorts born in the 20th century, in developed societies in general (Shavit et al., 2007; Breen and Müller, 2020), and in France in particular (Vallet and Selz, 2008; Falcon and Bataille, 2018).

Our study also reveals a dynastical over-representation of families in the French elite schools: having a grandfather or a great-grandfather who graduated from a *Grande École* offers 30 to 54 times more chances to be admitted too. Besides, we explore heterogeneity between schools notably via matrices that report for each cohort all combinations of school of origin (father) – school of destination (child) intergenerational social reproduction. We show that descendants tend to mimic their ancestors with much larger admission rates to the exact same school than their ancestors, especially for *ENS Ulm*, *École Polytechnique* or *ENA* with more than 200 times higher chances of admission in the most recent cohorts. At *Sciences Po*, intergenerational reproduction was extremely high at the beginning of the 20th century, but is now lower than in the rest of the prestigious GE. Overall, our findings show that although children of graduates constitute a narrow group, their substantial over-representation implies that, across cohorts, they account for as much as 13 to 17% of the students from the *Grandes Écoles*.

Ultimately, we characterize the late and slow admission of women, who are granted access to all *Grandes Écoles* only in the early 1970s. Whereas they constitute about 55% of the students at *Sciences Po Paris* since 2005 and 45% in the business schools, they are still significantly under-represented at *ENA* and in engineering schools in recent years. We show that the lineal advantage of a father graduating from a *Grande École* is comparable for boys and girls across cohorts. If anything, social reproduction may be slightly higher from fathers to daughters, than it is between fathers and sons. By contrast, aristocratic families favor their sons, whose relative admission rates to the schools where these families are the most over-represented are significantly higher than their sisters'.

Our study relates to several strands of the literature. The first is the one about intergenerational mobility. A vast empirical literature both in sociology and economics has investigated the intergenerational transmission of socio-economic outcomes. Quantitative sociology has measured the intergenerational link of discrete variables like social class,

mainly through transition matrices, odds-ratio, and log-linear models. The economic literature has rather estimated intergenerational elasticities of continuous variables (mainly income and wealth).[5] In a paper mostly known for its model of parental investment in their children welfare, Becker and Tomes (1986) report relatively low regression coefficients (below 0.2 or insignificant) of fathers-sons' earnings in five developed countries. This was the starting point of many national studies, such as Zimmerman (1992) and Solon (1992) who both introduce permanent income and find elasticities twice larger for the US, or Lefranc et al. (2009) for France. Two influential comparative sociological studies analyzed intergenerational transmission of occupations. Erikson and Goldthorpe (1992) covered 12 countries between the 1940s and 1970s and found no variation in mobility across countries and time, while Ganzeboom et al. (1989) studied 35 countries at comparable periods and argue that social fluidity globally improved. Black and Devereux (2011) and Torche (2015) offer comprehensive reviews of the numerous national and transnational studies, which demonstrate the association of parental background and children outcomes.

More precisely, our contribution relates to the role of education, the *great equalizer*, in the process of intergenerational mobility. Ganzeboom et al. (1991) have notably argued that if "the main role of education is to promote social mobility; [...] education is also the main vehicle of social reproduction". With the major structural transformations of developed societies over the 20th century, especially the introduction of welfare regimes and the expansion of educational systems, many scholars expected an equalization, i.e. the reduction of association between social backgrounds and educational attainment. While quantitative democratization, i.e. better access to higher levels of education, has indeed operated to a large extent (Breen and Müller, 2020), qualitative democratization, i.e. a reduction of association between social origin and educational outcome, has been more debated. The influential work of Shavit and Blossfeld (1993) found for cohorts born between 1910 and 1960 a stable link between socio-economic origin and the level of education, but most recent studies challenged this result and supported an equalization over the course of the 20th century, including Shavit himself (Thélot and Vallet, 2000; Shavit et al., 2007; Breen et al., 2009; Falcon and Bataille, 2018; Breen and Müller, 2020). Notably, Breen and Müller (2020) highlight a decreasing association over time, studying cohorts born between 1906 and 1979 in eight countries, including France. They conclude that "the twentieth century saw both educational expansion and educational equalization".

A subfield of this literature focuses on the stratification of education. Indeed, an overall *equalization* of access to education nevertheless keeps open the potential non-linearity of

[5] Discretization of continuous variables—popularized for example by Chetty et al. (2014)—is one of the many indicators of a narrowing difference between economics and quantitative sociology though, as discussed by Erikson and Goldthorpe (2002).

social reproduction across education levels, in particular at the top of the educational distribution. Barone and Ruggera (2018) find for 26 European countries that *equalization* also operated for higher education, although a stabilization is suggested for cohorts born after 1965. For the contemporary United States, Piketty (2020) shows that the probability to pursue tertiary education rises quasi-linearly with parental income, from 25% for those with the poorest parents to more than 90% for children of the richest. Mare (1980) as well as Shavit and Blossfeld (1993) claimed that social background was mainly influential on early years of education, with much less to actually no effect for residual transitions to advanced degrees of higher education. The former two studies rely on classifications, whose granularity at the top remains limited. Nevertheless, the limited association of educational outcome with background characteristics in the highest levels of education was confirmed for the United States with a focus on admissions to MBA programs by Stolzenberg (1994) and Mullen et al. (2003). On the contrary, the latter study exhibits a strong link between parental education and admissions to first-professional degrees (e.g. medicine) and PhD programs, as confirmed by Torche (2018). Exploiting a different type of background characteristics, Chetty et al. (2020) find that offspring with parents in the top 1% of the income distribution in the United States have 77 times more chances than those with parents in the bottom quintile to enroll at 12 institutions including the *Ivy League* colleges. Henderson et al. (2020) show that students whose parents do not hold a university degree ("first-in-family") have lower chances to be admitted to an elite university in the United Kingdom. Linking generations with surnames, Clark and Cummins (2014) also identify that descendants of graduates from the early 19$^{\text{th}}$ century are still more likely to enroll at *Oxford* and *Cambridge*. This last set of studies revived a debate on the level of social reproduction at the top of the educational distribution.

In France in particular, higher education, including the *Grandes Écoles*, has been the focus of a considerable academic contribution, notably by the sociologist Pierre Bourdieu. The seminal *Les Héritiers* by Bourdieu and Passeron (1964) provides detailed statistics on differential access rates to higher education depending on social origin over the period 1960-1963. Bourdieu and de Saint Martin (1987) conduct surveys of *Grandes Écoles*' students over 1966-1969. They observe a "clear frontier" in terms of inherited *economic* and *cultural capital* between GE and university students, accounting for the occupations of ancestors, but also political views, choices of newspapers or consumption of cultural services. Bourdieu (1989) supplements the analysis with data on the enrollment at 84 institutions in 1984-1985 and describes a polarization between the more accessible and the more elitist schools. The multigenerational dimension is absent from most studies, one of the rare exceptions being Le Bras (1983), who categorize students at *Polytechnique* with respect to fathers and grand-fathers being members of the "dominant class". Two additional influent studies focus precisely on intergenerational mobility in the leading *Grandes Écoles* adopting longer perspectives over four decades. Euriat and Thélot (1995)

use non-exhaustive individual data for three prestigious schools of our sample, namely *Polytechnique*, *ENA*, and *ENS*. They find odds-ratio of admission of children of executives and teachers against children of popular background, declining from about 37 for cohorts born in the early 1930s, to 28 for cohorts born around 1970. They conclude that although less than in the universities, children from "popular background" improved their chances to access the top GE and that equality of access globally increased over the period. With survey data on cohorts born between 1919 and 1968, Albouy and Wanecq (2003) find higher admission chances for sons of teachers and executives to a set of 19 top *Grandes Écoles*. Odds-ratios range from 5 to 7 with respect to sons whose fathers have intermediate occupations, and from 24 to 52 compared to those whose fathers have lower occupations. Their work confirms a global *equalization* over the period, unless for a resurgence of inequalities in the very last cohort born in 1959-1968. Falcon and Bataille (2018) study cohorts born between 1918 and 1984. With a less elitist definition of the *Grandes Écoles* from the French Labour Force Surveys (5% of a cohort in the recent period), they identify a decrease of social reproduction for cohorts born in 1918-1945, a stabilization for those born in 1945-1970 and a new opening up for those born in 1970 onwards. At 2.0 and 2.5 respectively for daughters and sons, odds-ratio of admissions for upper-class versus intermediate-class origin in the most recent cohort are three to four times lower than for the oldest cohort. Bonneau et al. (2021) use administrative data and find that odds ratios for the access of "very privileged" versus underprivileged children to a set of 23 highly selective GE have decreased from 30 for the children born in 1988 to 20 for those born in 1995. They also find for the very recent period an over-representation in the GE of those registered in a Parisian high school. Overall, the existing literature applied to the *Grandes Écoles* concludes to a substantial inequality of access, however decreasing over the past decades. This set of evidence is very valuable, but has covered a limited time frame, from a few years to a few cohorts. Previous results also mostly rely on a definition of social origins based on fathers' occupations, although this characteristic shows little stability across generations.

The paper is also connected—although less directly—to the literature on the concentration of top income through two main common features: the focus on the very top of the social hierarchy and the long timeframe of historical data. Attention at the top 1% of the income distribution was initiated by Kuznets and Jenks (1953) and was revived by Piketty (2003) with an application to France, followed by Piketty and Saez (2003) for the United States, and Atkinson and Piketty (2007) for a comparative international study. It reached international public recognition with Piketty (2014)'s *Capital in the Twenty-First Century*. Exploiting fiscal data mostly for developed countries, these authors show that economic resources are highly concentrated among the very rich. They identify a decrease of the concentration of resources among top income between 1910 and the 1940s, followed by three decades of stabilization, and then a resurge of top income since 1980. Our results

suggest that world wars also reshuffled social reproduction in the top of the educational distribution in France, but we find no comparable backlash over the last four decades.

Finally, this paper pertains to the literature, which takes advantage of the rich informational content of surnames. One of the main difficulties to study long-term intergenerational mobility is the scarcity of multigenerational datasets. The use of surnames in social science—as a tool to link generations with one another—opens substantial research opportunities. Researchers need successive cross-sectional nominative data and the distribution of surnames in the population to build a multigenerational dataset. Historians, demographers, or economists have a long experience with nominative sources. About 150 years ago, Watson and Galton (1875) were interested in surnames attrition, which was linked to a decline of aristocratic families. Stone (1971) explains how such data allow to understand the social links and interactions of important historical figures. Longley et al. (2007) study social integration through the evolution of the spatial repartition of surnames in Middlesbrough and Cleveland. Güell et al. (2007, 2015) worked on Catalonian data and were the first to use surnames to measure intergenerational social mobility. They were followed by Collado et al. (2012), Clark et al. (2014), or Barone and Mocetti (2020). While Clark et al. (2014) advocated that it allowed to reveal a "law" of high intergenerational social status persistence, which is claimed to be constant over time and across countries, Torche and Corvalan (2018) supported that this was rather due to a focus on the elite and that their results are group-estimates, thereby not comparable to individual ones. The present paper develops a new methodology for the use of surnames, based on the probability to be linked to a father with a given characteristic, which allows to include in the analysis the whole population rather than only rare surnames.

The rest of the paper is organized as follows. Section 1.2 describes what the *Grandes Écoles* precisely are and their central importance in the French society. We complement with contextual elements on structural changes of educational systems in developed countries over the 20th century, especially in France. Section 1.3 presents the data on the graduates from the GE and provides descriptive statistics. Section 1.4 describes our empirical strategy, notably our measure of intergenerational social reproduction: the relative admission rates. We explain how we construct the historical, geographical, and lineal variables, and present our methodological contribution for the use of surnames. Section 1.5 provides an extensive set of results on the historical, geographical, and lineal advantages. We study all schools as a system and complete with heterogeneity analyses. We also provide a focus on the increasing admissions of women to the *Grandes Écoles*. Finally, section 1.6 discusses public policy implications.

1.2 Context: the *Grandes Écoles*, a flat calm in the educational transformations of the 20th century

Feudal times and the *Ancien Régime* were monarchic societies ruled by nepotism and the tradition of the three-estates. Social positions were defined by a birth lottery and individual merit played a marginal role. The French Revolution, in 1789, abolished the privileges of the aristocracy and overthrew this system. The 22 pre-existing universities—including *La Sorbonne*—were dismantled because of their link to the clergy and the aristocracy, and two elite higher education institutions were founded in 1794: the *École Normale Supérieure* and the *École Polytechnique*. With *École des Ponts et chaussées* (1753) and *École des Mines de Paris* (1783), they constituted the very first *Grandes Écoles*. Noble families had legal prerogatives for admission at the pre-existing schools, until the *Révolution* instituted a meritocratic tournament. Napoléon Bonaparte was highly involved in the structuration of the GE system, which he viewed as an instrument of rulership, to organize and control the training of institutors, engineers, industrialists, and soldiers. Although universities re-emerged progressively, the dual structure of the French higher education system has remained remarkably stable for the last two centuries.[6]

The *Grandes Écoles* are relatively small top level tertiary education establishments, where the admission takes the form of highly competitive examinations called *concours*, after two years of dedicated post-secondary school preparatory program—*classes préparatoires aux Grandes Écoles*.[7] There is indeed no *legacy student*, a phenomenon that exists in the United States with rich individuals sponsoring prestigious institutions and acquiring admissions for their offspring (Meer and Rosen, 2009).

The GE had a monopoly until the very recent decades, and still conserve, a large advantage over the technical and professional training. Universities were indeed dedicated to academic knowledge—to the exception of the *Facultés* of medicine, law and pharmacology. Even the *École Normale Supérieure*—often considered the school of academic excellence—always had the utilitarian purpose of training professors. Importantly, the

[6] While higher education is more homogenous in Germany, Spain, Italy or the Scandinavian countries, duality of the higher education system, between elite institutions and standard universities, is a characteristic of numerous countries including Japan, the US, the UK or France (Brezis and Hellier, 2018). Yet, the American model of business schools emerged in the early 20th century within the universities, while the French elite schools have always operated separately from the *Facultés*

[7] Belhoste (2002) presents the evolution over the 19th and 20th century of the admission examination of the *École Polytechnique*, which inspired the examinations of most of the schools. It was designed in 1794 and immediately decentralized in 22 cities across the country. Initially, there were only oral examinations. Written tests were progressively introduced during the 19th century as an initial stage for applicants to be eligible to attend oral examinations. The process evolved very marginally over the course of the 20th century. It was rapidly generalized in most schools, although slightly later for business schools at the end of the 19th century, starting with *HEC* in 1892.

GE were deliberately designed for and explicitly dedicated to the education of the elite. Over the last two centuries, they have remained the royal way to decision-maker positions in the public and private sectors, training what Suleiman (1978) referred to as *state elites* as they are "trained by the State and destined for State service", be it within the administration, or for national industries.

While the lack of professional opportunities of students from the universities was partly responsible for the May 1968 outbreaks, the careers of GE graduates are to some extent guaranteed for life.[8] Seven out of the eight Presidents of the French Fifth Republic studied in the *Grandes Écoles*, and this was the case as of July 2021 of thirty-one out of the thirty-five French CEOs of firms in the CAC40—the forty largest companies on the French stock market—, including 10 from *École Polytechnique* alone. The *Grandes Écoles* also shape careers slightly less at the top of the occupational distribution, as documented for the private sector by Delefortrie-Soubeyroux (1961), Barsoux and Lawrence (1991) or Vion et al. (2014). There is no historical dataset on wages and income distributions of graduates from the top *Grandes Écoles* but numerous sources document substantial returns to education in these institutions.[9]

Geographically, the most prestigious schools are principally centralized in the Parisian area. The transfer of the *École Nationale d'Administration* (*ENA*) from Paris to Strasbourg in 1991 constitutes one of the rare exceptions. *ENA*'s status is also peculiar as it is attended by slightly older students, mostly after graduation from another *Grande École*. Even if its control was ultimately transferred to the Chamber of Commerce of Versailles in 1980, the foundation of *ESSEC* by Jesuits in 1907 is also a specificity, as most schools are secular. All schools are to some degree supervised by the State, but private and public institutions coexist, and some have alternated between the two statuses. Many of the most prestigious schools were directly founded at the initiative of the State, except for business schools. Public annual resources devoted to tertiary education were historically very heterogeneous and in favor of the GE. Recent data reports average annual spending per student of around 10,000€ in the universities, 15,000€ in the preparatory classes to the *Grandes Écoles* and over 100,000€ at *École Polytechnique* or *École des Mines de Paris*, or even above 150,000€ for the *École Nationale d'Administration*.[10] While pub-

[8] Suleiman (1978, p. 4) states that "one needs to demonstrate considerable competence [...] but once that competence has been demonstrated at an early age, it is never again called into question".

[9] The newspaper *L'Expansion* had a notorious tradition of referencing wages for graduates, a mission also produced by the *Conférence des grandes écoles* (the professional organization of the schools), or more recently by the *Financial Times*. A broad conclusion we may raise from these sources is that the median first job wage offered to graduates from the prestigious schools in our sample seems to roughly correspond to two to three times the level of the median wage in France over the past decades. Although partly informative, these sources usually rely on graduates' surveys with partial response rates, they mostly cover the last 30 to 50 years and they rarely account for exceptionally high wages.

[10] Sources: Ministry of Tertiary Education, Research, and Innovation (DEEP), schools' activity reports, reports by the *Cour des Comptes*. Piketty (2020) reports the distribution of total public spending per

lic subsidies have historically supported to some extent all *Grandes Écoles*, students' fees mostly concerned business schools until recently. Students at *ENA*, *ENS* or *Polytechnique* even have a status of civil-servant trainees, which comes with a financial payment during their education. Piketty (2020) shows that in 2014-2016 the share of private spending in total cost of tertiary education averages at 30% in France, Italy, or Spain, against 65% in the United States, but less than 10% in Scandinavian countries.

Contrary to universities, the *Grandes Écoles* are not centrally supervised by the Ministry of higher education, but are attached to different ministries. For example, the Ministry of Defense supervises the *École Polytechnique*, whose status is military, although it trains all kind of executives. This system favored the progressive gain in autonomy of all schools, private or public, and their capacity to resist attempts of reforms (Suleiman, 1978; Pasquali, 2021). Therefore, over the last century, the environment of the *Grandes Écoles* has remained remarkably stable, whereas the transformation of higher education was otherwise substantial, in all developed societies including France.

Primary schooling was rapidly generalized in the United States in the 19th century, while its universalization was only initiated around the 1880s in countries like the United Kingdom, Germany, or France (Piketty, 2020). In France, the Ferry laws made primary schooling free and compulsory in 1882. Until the 20th century, secondary schooling was merely accessible to the *bourgeoisie* and tertiary education to less than 1% of the population (Prost, 1968). As detailed by Breen and Müller (2020), countries like Germany or the Netherlands already had a substantial share of the population with secondary education in the beginning of the 20th century. By contrast, in countries dominated by agricultural activities, such as France, Spain or Italy, populations reached lower levels of education. Although the phenomenon was slower in France and Spain, an increasing share of the population progressively completes secondary education: it concerns a majority of the population for cohorts born in the second half of the century.[11] The share of the population with tertiary education also increased significantly, especially since cohorts born after World War 2, from a small minority, to 30 to 50% in most developed countries, and up to 70% in Japan or Korea. Consequently, the share of national income devoted to education rose from about 1% in 1890 to 6% in the early 21st century in the most populated European countries (Piketty, 2020). In France, the surge in tertiary education emerged slightly later than most comparable countries. Indeed, Appendix Figure 1.A.1 shows that while less than 5% of the population obtained the *baccalauréat* (high school diploma) until 1950,

student across the whole schooling—from nursery school to higher education—in 2018 in France. The first percentile benefits from 60,000€ while the last receives 300,000€ per student, for a median at 120,000€. These inequalities are not peculiar to France, as Piketty (2014) also shows a high concentration of resources in the United States: out of thousands of universities, the 60 with the highest capital endowments receive more than half of total endowments.

[11] Yet, secondary schooling in France remained socially stratified until the 1970s when it became unified by the Berthoin reform.

this share increased progressively until a breaking point in 1968, after which it exploded, accompanied by more registrations to the universities. French universities were selective until 1960 and then remained unselective until 2018, with the only requirement being the *baccalauréat*. In the 1970s, universities also opened their first professional curriculum, intended to compete with the GE. Alongside the increase of the number of students in the universities, many new *Grandes Écoles*—although less prestigious—were founded since the 1960s and nowadays, there are about 500 GE in the French educational system. Nevertheless, none of the more recent schools compete in any way possible—selectivity, access of its graduates to elite positions, reputation—with the centenarian schools our study focuses on (Vion et al., 2014). By contrast, the period was remarkably stable for these long-established *Grandes Écoles*, whose number of graduates scarcely increased in comparison, as we show in section 1.3.

1.3 Data: schools registers and nominative births census

Our study combines two main types of data: lists of *Grandes Écoles* graduates and nominative censuses for the distribution of surnames in France. To our knowledge, we are the first to gather a dataset of elite students in France, over more than a century. Our dataset exhaustively covers 10 *Grandes Écoles* over the period 1886-2015 and includes 303,514 curricula and 285,286 distinctive students. We collected the data from the schools' Alumni associations, libraries, or archive departments, as well as from other archive institutions. The 10 schools are, historically and still today, among the most prestigious ones, offering the best careers' opportunities to their graduates.[12] To enhance intertemporal comparability, we restrict to the most standard curricula by discarding PhD diplomas, MBAs, executive or specialized masters, as these degrees emerged in recent decades. We also exclude the international cycles at *ENA* dedicated to foreign students since 1964. Table 1.1 provides summary statistics for each school such as the period covered by the data, the year of admission of the first women, the average number of students per promotion, and the share of students who bear a "native" surname, which are surnames which are present in France over the whole period of study, as defined below.

The following overview of the schools in our sample is completed by further contextual details in Appendix 1.C.1. *Sciences Po Paris* is a school of political science or administration. The *École Nationale d'Administration* (*ENA*), founded in 1946, trains senior

[12] One could expect our study to include *HEC Paris* and *École Centrale Paris*, but we could not collect the data. Other candidates included *École nationale supérieure d'arts et métiers*, *École Nationale Supérieure des Beaux-Arts de Paris*, or military schools, such as *École spéciale militaire de Saint-Cyr*, but these schools are less typical of the French elite (Suleiman, 1978).

civil servants. The *École Normale Supérieure* (*ENS Ulm*) is a top-level research-training institution in humanities and science. We include five public engineering schools: *ESPCI Paris*, *École Polytechnique*, *École des Ponts et Chaussées*, *Télécom Paris* and *Mines Paris*. Our sample also contains two business schools, for which our data coverage starts in the beginning of the 20th century: *ESSEC* and *ESCP*. These 10 schools are not a perfectly homogeneous group, but they may be studied as a whole. Indeed, Bourdieu (1989) distinguishes between the "intellectual" tradition (e.g. *ENS Ulm*) and the "power" tradition (e.g. *HEC*, *ENA*) but advocates anyway for the study of the GE as a comprehensive system.

Table 1.1: Description of the dataset per *Grande École*.

Category	*Grande École*	Data coverage period	Entry of women	Total # of graduates	Average # of annual graduates	Share of native graduates
Admin. and research	Sciences Po Paris	1886-2015	1919	152,578	1,183	74%
	ENA	1946-2015	1946	7,714	112	92%
	ENS Ulm	1886-2015	1886	16,826	130	91%
Engineering	ESPCI Paris	1886-2015	1919	5,978	46	91%
	École Polytechnique	1886-2013	1972	37,823	293	89%
	Ponts et Chaussées	1886-2014	1962	13,567	105	77%
	Télécom Paris	1889-2012	1963	11,829	94	74%
	Mines Paris	1921-2012	1969	8,476	90	85%
Business	ESSEC	1905-2010	1969	20,327	185	84%
	ESCP	1906-2011	1972	28,396	261	78%

Notes: *Data coverage period* reports the earlier and latest year of admission in the data. *Entry of women* reports the date at which women are admitted to the schools on a regular basis, although very sporadic appearance of one or very few women may occur earlier, for example during World War 1. The *Average # (number) of annual graduates* is simply the *Total # (number) of graduates* during the whole period divided by the timespan in the data. The *share of native graduates* corresponds to the share of individuals bearing a "native" surname—as defined in the text of the paper—, irrespectively of their nationality or migration history, which we do not observe.

Appendix Figure 1.A.2 reports the evolution in each school over time of the raw number of graduates (1.A.2a), and of the share of the French population admitted (1.A.2b). We observe collapses followed by peaks of students' enrollments during the first and the second world wars. These limited annual fluctuations followed by resumptions have limited effect on our estimates, as we analyze cohorts of 25 years and not short-term variations, as detailed thereafter. The share of the population enrolling the prestigious *Grandes Écoles* increased over the last 130 years but in no instance in comparable proportions to the massive increase in the universities. After World War 1, which constitutes an important turning point, the share of the French population admitted to the schools increases, but mostly due to the addition of data for business schools, as well as the important increase of alumni at *Sciences Po Paris*. The latter school trained overall about half of the graduates from our sample. Therefore, we study *Sciences Po Paris* separately and consider the 9

other *Grandes Écoles* as our baseline, for one single school not to account for about half of our sample. We also note that the lists of graduates are complete and exhaustive until 2010, but that we lose part of the sample afterwards. In particular, we cover business schools until 2012, and lose part of the engineering schools from 2013 on. We discuss in footnote 16 the limited implications of this data coverage issue.

Observations systematically include the surname and the first name of each student. We also observe at least one middle name for 34% of the students. We know the maiden name of almost all women in the sample, but only for 15% do we observe both a maiden and a married name. Gender is also provided for 30% of the observations but we completed this information. We construct for each first name a gender propensity score, thanks to a births' census by gender by first name in France between 1900 and 2016, from the French National Institute of Statistics (INSEE). Some first names are gender-neutral but we were able to categorize 93% of the first names appearing in the schools. The remaining uncategorized students, whose curriculum dates before a school was accessible to women, are identified as men. In the end, we know the gender of 99.7% of the students.

To ensure consistency between the different sources and increase the number of matches, we use token and bigram fuzzy matching on surnames between *the Grandes Écoles* data and the census of surnames. It allows to detect mis-spelled or shortened surnames in some school registers.[13] With a multicriteria screening, which we detail in Appendix 1.C.2, we also identify individuals who studied in multiple schools in order not to count them several times when studying groups of schools. After exclusion of the non-standard curricula, we identify that among the 303,514 curricula of our sample, 267,943 individuals attended one school only, 16,465 attended two schools, while 871 studied in three different schools, and 7 persons attended no less than four schools.[14]

Finally, we approximate the birth year of each student. As we discarded admissions at the master, MBA, or PhD level, and due to the required two-year post-secondary school preparation before the admission examination, the standard age of first admission to a *Grande École* is around 20 years old. This is consistent with data reported by several schools. It implies that students admitted in 1886 are assumed to be born in 1866, while those admitted in 2010 are assumed to be born in 1990. The birth year of students who pursued multiple curricula is based on the admission year in the first school they were admitted to. A specificity concerns admissions to *ENA*, who occur at an older age. As

[13] For example, as *de Villepin* does not exist officially in France, a student appearing as such in a school register is officially a *Galouzeau de Villepin*. This was identified via token fuzzy matching, which identifies similarities based on sequences of characters separated by spaces. Another example is *Boufandeau* officially in the census as *Bouffandeau*. The latter association arose from bigram fuzzy matching, which focuses on similarities between each pair of successive characters.

[14] The most common are *École Polytechnique – École des Ponts* (4,128 individuals), and *Sciences Po Paris – ENA* (3,559 individuals), which are expected sequences, as discussed in Appendix 1.C.1.

56% of enrollees went previously to at least one other school of our sample, we identify their average age of admission to *ENA*—27 years old—using the years difference with the admission to the first school. We assume that students that did not study previously in another *Grande École* of our sample are also admitted to *ENA* at 27 years old.[15]

To exploit the nominative list of graduates, we need information on the frequency of surnames in the population. The French National Statistics Institute produces for the period 1891-1990 a detailed births' census at the surname–municipality level, which allows to compute the number of births per surname, by region, and at the national level. The census is structured with four cohorts of 25 years: 1891-1915, 1916-1940, 1941-1965 and 1966-1990. The 25 years divide corresponds to generations, as Mazuy et al. (2015) show that in 1946, 1966 and 1986 the large majority of births occur when parents are between 20 and 30 years old. Therefore, we consider those born in 1891-1915 as the parents of those born in 1916-1940, the grandparents of those born in 1941-1965 and the great-grandparents of those born in 1966-1990. For students born until 1995, we create an extra pseudo-cohort (1971-1995), for which we assume similar births per surname as in 1966-1990.[16] Obviously, not everyone born in the $[Year; Year + 25[$ interval will have their children precisely born in the $[Year + 25; Year + 50[$ interval. For individuals at the edge of a generation, parents and children may on some occasions appear in the same generation—when there is less than 25 years between their births—or sometimes two generations apart. This constitutes a mismeasurement of our intergenerational link, which biases our estimation of social reproduction, as it adds noise to our explanatory variables.[17]

As we observe the pool of potential applicants to the *Grandes Écoles* through the number of births in France by surname, we must restrict the analysis to those for which we most likely observe the number of births. This motivates a restriction to "native" surnames, as being those for which immigration occurred at last in the late 19$^{\text{th}}$ century. This necessary choice was shared by many scholars working with surnames in the long run, as for instance Dupâcquer and Kessler (1992). Indeed, the distribution of "native" surnames born in France is a good measure of potential "native" applicants to the *Grandes Écoles*.[18]

[15] This is an approximation due to the admission of some students at an older age, while they are already civil servant (*concours interne*), but this remains a marginal concern as discussed below.

[16] The total number of births between 1971 and 1995 was simply 3% lower than between 1966 and 1990 (INSEE). This necessary assumption on surnames distribution, and the fact that the list of graduates is less exhaustive after 2010, imply that results for the pseudo-cohort 1971-1995 should be read with slightly less confidence. They still add to our historical perspective a glimpse of the evolution of social reproduction within the last decade, when compared to the cohort 1966-1990.

[17] The magnitude of the bias is difficult to precisely gauge. Its direction is a downward bias, as long as the parent–child association is the strongest within the family.

[18] We thereby dismiss individuals born abroad, who immigrate in France before the age 20, for which data on the number of births is partial at best. To the contrary, we include those born in France, who emigrate to study or work abroad. First, the latter choice was historically relatively limited and even remained marginal more recently. Indeed, the *Grandes Écoles* provide high-quality education, usually at

Restricting to "native surnames" also limits the issue of self-selection in migration: the fact that migrants have different unobserved characteristics than natives (Borjas, 1987). Indeed, Meurs et al. (2006) show that immigrants, but also children of immigrants, experienced in 1999 more unemployment, as well as lower access to higher-status occupations in France. Similarly, a report by the OECD (2016) shows, for the recent period, that access to tertiary education in France is much lower for individuals with both parents being foreign-born and low educated (26.8%), than it is for those with both parents being low educated as well but French-born (42.3%). Restricting our analysis to native surnames in both the census and the graduates' data prevents composition effects with respect to immigrants and descendants of immigrants to vary over time. Appendix 1.C.3 details how we identify "foreign" surnames. We classify as bearing a foreign surname 17% of the births in France for the last birth cohort (1966-1990), which is consistent with the share represented by immigrants and descendants of immigrants at that time (Bouvier, 2012).

Our study covers individuals born between 1891 and 1995, who studied in the *Grandes Écoles* between 1911 and 2015. We also include the graduates born in 1866-1890 as ancestors of the first cohort. Our baseline sample is constituted of the graduates from the 9 *Grandes Écoles*, excluding *Sciences Po Paris*. Table 1.2 displays descriptive statistics in three parts. First, the census of births per surname, then the graduates from the baseline schools, and finally *Sciences Po Paris* students. 33% of the surnames in the census are associated with an immigration history over the 20$^{\text{th}}$ century. Those immigrant surnames account for about 8% of all births. Over the whole period, there are 118,337 graduates from the 9 baseline GE and 113,085 graduates from *Sciences Po Paris* with native surnames, each accounting for 0.18% of the native French population

As we outline in Appendix Figure 1.A.2b, the share of the population admitted to the GE progressively increases and approximately doubles from the first to the last cohort, both at *Sciences Po Paris* and in the 9 baseline schools—to the exclusion of the pseudo-cohort 1971-1995 with partly missing data. Studying in a *Grande École* nowadays is not perfectly equivalent to doing so at the end of the 19$^{\text{th}}$ century. Still, the expansion remains very limited compared to the one of baccalaureate holders and of tertiary education as a whole. Appendix Table 1.B.1 emphasizes that the composition of our baseline has slightly varied across time, with the business schools training an increasing share of the graduates. Heterogeneity results by school and by school category therefore proves very useful. The slow increase of the share of admitted women is subject to a detailed investigation in section 1.5.4.

lower fees than alternatives, in Anglo-Saxon universities for instance. Docquier and Marfouk (2006) show that only 3.4% of tertiary educated individuals emigrate outside France. More importantly, emigrating to study is a decision, which does not discard studies at a *Grande École* from the opportunity set.

Table 1.2: Descriptive statistics per cohort: national census and *Grandes Écoles* students.

		Full period		Cohorts					
		Number of surnames	Total # of births		Births 1891-1915	Births 1916-1940	Births 1941-1965	Births 1966-1990	
Census	Census	807,229	65,423,121		10,686,923	14,149,274	20,099,847	20,487,077	
	Census of "native"	541,426	59,938,195		10,574,454	13,700,315	18,655,322	17,008,104	
	Share of "native"	67%	92%		99%	97%	93%	83%	
		Number of surnames	Total # of Students 1866-1995	Students' cohort 1866-1890	Students' cohort 1891-1915	Students' cohort 1916-1940	Students' cohort 1941-1965	Students' cohort 1966-1990	Students' cohort 1991-1995
9 *Grandes Écoles*	Students	63,155	141,761	8,398	13,962	20,331	36,287	57,437	5,346
	"Native" students	48,073	118,337	7,997	13,291	19,202	31,920	42,438	3,489
	Share of "native"	76%	83%	95%	95%	94%	88%	74%	65%
	Top educ %		0.18%	-	0.13%	0.14%	0.17%	0.25%	0.10%
	Women %		19%	7%	6%	6%	18%	32%	28%
Sciences Po Paris	Students	77,496	152,552	7,035	14,364	26,273	52,752	45,025	7,103
	"Native" students	49,956	113,085	5,467	11,088	21,508	39,993	30,837	4,192
	Share for "native"	64%	74%	78%	77%	82%	76%	68%	59%
	Top educ %		0.18%	-	0.10%	0.16%	0.21%	0.18%	0.12%
	Women %		33%	0%	6%	20%	36%	51%	56%

Notes: The table is structured in three parts. The upper part concerns the births census, then descriptive statistics are provided for the graduates from the baseline 9 *Grandes Écoles*, and finally for the students of *Sciences Po Paris* alone. We provide statistics for bearers of all surnames (first lines of each section of the table) and for native surnames only (second lines), as well as the share of those native surnames in each statistic (third lines). For both sections on students, restricting to native surnames, we also provide information on the share of the French population admitted (*Top educ %*), and on the share of women among students (*Women %*). Two columns regard the full period, whereas the 6 columns on the right refer to specific cohorts. We provide information on the number of distinctive surnames in each category, as well as the number of births (for census data) or the number of students (for data on graduates). The sum of the total number of students at *Sciences Po Paris* and at the 9 baseline schools is logically higher than the total number of students we reported overall (285,286), and for native students only (224,264). Indeed, some students studied at *Sciences Po Paris* but also in other schools.

1.4 Empirical strategy

In the present section, we first discuss the use of surnames and define the specific advantages we study: historical (H), geographical (G) and lineal (L). Depending on the surname an individual from a given cohort bears, we determine a noble bloodline, and the probabilities to be born in any French region, as well as of the father to have graduated from a *Grande École*. In a second part, we describe our measure of social reproduction: the relative admission rate (RAR), which relates the admission rate of those with a given advantage to the admission rate of the rest of the population.

1.4.1 Surnames to convey history, geography, and lineage

Surnames have limited to no direct effect on socio-economic outcomes, especially once we exclude foreign surnames, that may be discriminated. Yet, they work as family trackers. We take advantage of the informational content of surnames in three ways. First, they intrinsically carry historical content: *de Boissieu*, for example, is a surname of aristocratic origin. Second, this historical component implies that they also convey a geographical dimension. Whereas *Masseglia* is *Provençal*, i.e. from the south-east part of France, all *Le Pouezard* in the censuses 1891-1990 are born in *Bretagne*, in the north-west of the country. Third, all bearers of a surname in generation $t+1$ are descendants of a father sharing the same surname in generation t. In France, surnames have been hereditarily transmitted through the patriarchal line since the 12^{th} century, although surnames selection and mutations were very common in the middle age. From 1474, surnames could not be modified without the King's approval. In 1539, the order of Villers-Cotterêts generalizes the registration of family names, whose orthography is stabilized. Since 1870, the spelling of surnames has been definitively fixed by the implementation of the *Livret de famille* (family register). Two recent laws of 2003 and 2008 state that the father's name, the mother's name, or a combination of both may be chosen. Our study focuses on individuals born between 1866 and 1995, which make patronyms a reliable intergenerational link between fathers and sons, as well as fathers and daughters through their maiden names.

Aristocracy comes from the Greek *aristos*, meaning excellence, and *kratos*, meaning power, and signifies the power of the more able. But the power of the aristocracy during the *Ancien Régime* was rather inherited than earned. The French Revolution abolished their privileges in 1789. As noble families had prerogatives to study at the *Grandes Écoles* 250 years ago, we investigate whether this historical advantage has vanished after the *Révolution* or if it has rather persisted over generations.[19]

[19]Ennoblement is nowadays demanded on a very marginal basis but was a structural dimension of nobility in the old Regime. The aristocratic status of most families therefore dates back at least from the

We identify individuals of aristocratic lineage in two ways. The first simply considers all bearers of surnames with a particle.[20] Although most families from aristocratic ascendance do bear a particle, some noble families do not bear a surname with a particle, and a surname with what seems to be a particle does not systematically imply noble ascendance.[21] Using surnames with particles constitutes a convenient and appropriate proxy of nobility, but it remains an approximation. We therefore use a second definition of nobility: the *table of families* issued by the Association for Mutual Help of the French Nobility—*Association d'Entraide de la Noblesse Française* (ANF)—, which registers 2,650 surnames of noble families.[22] The eleven most common ANF registered surnames account for 50% of the births. To avoid that most of the sample is constituted by a tiny minority of surnames, we use surnames within 2 standard deviations of the mean number of births per cohort within the list of ANF registered surnames. This condition restricts the list to surnames with at most 125 births per generation, and each surname contributes therefore to no more than 0.1% of the population of registered nobles. We construct two dummy variables for the historical advantage, Hp_S and Hr_S, with value 1 if the surname S includes a particle (Hp_S) or if it is registered by the ANF (Hr_S), and 0 otherwise. Obviously, we thereby identify nobility as being transmitted by fathers. This appears not to be too much of a concern, as de Saint-Martin (1993) shows that 64% of men registered at the ANF married a woman of noble ascendance, underlining a very high degree of homogamy among noble families, permanency of a traditional matrimonial alliances scheme (Elias, 1985).

The second characteristic we investigate is the place of birth. Geographical centralization is very pregnant in France, in comparison to many other countries, due to historical roots originating in the Kingdom of France. The emergence of the *Grandes Écoles* was a national and centralized plan, and most of the major *Grandes Écoles* are located in or around Paris. Economic activities are concentrated in the Parisian area (*Île-de-France*), accounting for about one third of the French GDP, and one fourth of employment in the recent period. Parisians have a higher level of education, higher income, and have access to better schools.

With this context in mind, we study the geographical dimension of admissions to the

18th century (Wood, 1977).

[20] These are surnames including any of the following strings: " *d'*", " *de* ", " *du* ", " *des* " or starting by "*d'*", "*de* ", "*du* " or "*des* ", at the exception of those of the Dutch form containing "*van de* ", which are generally identified as foreign surnames anyway.

[21] Refer to Coulmont (2019) for a complementary discussion on that matter.

[22] 2,283 surnames match with the national census of patronyms, which is consistent with the fact that the association explicitly states the extinction of several families, which they nevertheless preserve in the list. A family must apply to get registered by the association and there is therefore a degree of selection, but the official mission of the association is to establish the list of families of "authentic nobility" (de Saint-Martin, 1993), and the association claims that 2,300 out of 3,200 subsisting families are registered.

Grandes Écoles thanks to the regional distribution of births per surname. Surnames do indeed embody a strong regional identity. At the surname level, the main region of origin accounts on average for 53 to 72% of all births depending on the cohort, and between 42 and 52% if we weight by the population size of surnames. Therefore, bearing a given surname is roughly associated with one chance over two to be born in one given region out of 22 Metropolitan regions, with many surnames being very highly geographically concentrated. We construct regional–cohort variables $G_{R,c,S}$, which indicate the probability of being born in a given region R in cohort c for each surname S.[23] Within the Parisian region, we also provide a finer level of analysis by constructing the probability to be born in the capital city itself, as well as in the Parisian region (*Île-de-France*) to the exception of inner Paris.

While surnames allow to characterize nobility ascendence with certitude, they simply inform on a probability of geographical origin. Yet, surnames are substantially informative on births' geo-locations. In addition, we directly identify the place of birth of bearers of each surname by cohort, and therefore do not need to rely on the paternal rather than maternal transmission for that dimension.

Finally, we study the lineal presence in the French elite schools. Linking generations via surnames is effective but it is not a perfect tool either. Most surnames share a common descent—*souche* (stump) in French—but subdivide in distinct family branches. It is particularly true for highly occurring surnames, such as *Smith* in the United States or *Martin* in France. Indeed, rarely occurring surnames are more relevant to precisely track family ties. Fortunately, the distribution of surnames is highly skewed with an abundance of rare surnames in France, as it appears on Appendix Figure 1.A.3. Some studies relying on surnames' links restrict their samples to rare surnames (Clark et al., 2014; Güell et al., 2015). We prefer to exploit the completeness of our sample and avoid choosing an arbitrary threshold for surnames to be considered rare. We rather define as an explanatory variable the probability that the father of someone bearing a given surname has studied in an elite school. The rarer the surname, the more likely the bearers in the older and the younger cohorts are father and daughter or son. Let $AR_{GE,c,S}$ be the admission rate (AR) of the bearers of surname S to a given GE for cohort c:

$$AR_{GE,c,S} = \frac{St_{GE,c,S}}{N_{c,S}}$$

with $St_{GE,c,S}$ the number of students with the surname S born in cohort c graduating from the GE and $N_{c,S}$ the number of births of bearers of the surname S in the French population in cohort c. GE will alternatively be the whole set of schools, the 9 schools

[23] We focus on Metropolitan regions and use the geographic breakdown officially operative from 1970 to 2015, which was not too distinct from the original Clémentel's regions of 1919. Births in the Germany annexed *Alsace-Lorraine* (1871-1918) are also included. With 70 births out of 71 in *Provence-Alpes-Côte d'Azur* (PACA) between 1941 and 1965, the value of $G_{PACA,1941-1965}$ for the surname *Masseglia* is 0.99, indicating that a bearer of the surname *Masseglia* has a 0.99 probability of being born in that region.

in the baseline, a single school, or specific categories, like engineering or business schools. Denoting masculine students as St^M and with the simplifying and acceptable assumption that for each surname in each cohort, there are as many men as women, we may compute a masculine AR:

$$AR^M_{GE,c,S} = \frac{St^M_{GE,c,S}}{N_{c,S}/2}$$

We then define the lineal advantage (L) as the probability for someone born in cohort c that his or her father[24] studied in a GE as the admission rate of masculine bearers of the same surname in the previous cohort:

$$L^{M,Gen-1}_{GE,c,S} = \frac{St^M_{GE,c-1,S}}{N_{c-1,S}/2} = AR^M_{GE,c-1,S}$$

With this new approach, we observe a probability distribution for this independent variable, like for the geographical origin of individuals. As the data does not provide a definite father–child link, our independent variable takes the value 0 for those whose surnames does not appear in the GE in the previous generation, and the probability of a value 1 that the father graduated for the others. The latter probability is cohort and surname dependent. It is a function of the number of masculine births and of masculine graduates bearing the same surname in the previous cohort.

Like for the historical advantage, we focus on transmission from fathers to both sons and daughters. Married names of women would have proven useful to investigate the transmission from mothers, as the share of births outside marriage exceeds 10% only from 1979 onward, but was negligible during most of our period of study. However, this information in the graduates' lists is school-dependent and too scarce to consider a systematic study. Whereas a report by the OECD (2016) stated that upward mobility is about the same when only one of the two parents holds the higher qualification, regardless of who holds it, be it the mother or the father, Beller (2009) argues that excluding mothers—as most studies do—from the assessment of intergenerational mobility is not trivial for the estimations. In any case, women constitute only 7%, 6%, 6% and 18% of the graduates in the four ancestors' cohorts. In addition, the high level of homogamy among the French elite implies that fathers and mothers have very similar characteristics. In particular, the levels of education are highly correlated, as it was shown by Goux and Maurin (2003) for cohorts born between 1934 and 1978, and Bouchet-Valat (2014) for

[24] Subsequently, we define the probability that one's grandfather studied in a *Grande École*, as the probability to be linked to a given father among those bearing the same surname ($\frac{1}{N_{c-1,S}/2}$), multiplied by the probability that a given student in the *GE* in the grand-paternal cohort is the father of this identified father ($\frac{St^M_{GE,c-2,S}}{N_{c-2,S}/2}$): $L^{M,Gen-2}_{GE,c,S} = \frac{1}{N_{c-1,S}/2} \times \frac{St^M_{GE,c-2,S}}{N_{c-2,S}/2} = 4 \times \frac{St^M_{GE,c-2,S}}{N_{c-1,S} \times N_{c-2,S}}$. The probabilities that a great-grandfather and great-great-grandfather studied in a given *Grande École* are respectively defined as follow: $L^{M,Gen-3}_{GE,c,S} = \frac{8 \times St^M_{GE,c-3,S}}{N_{c-1,S} \times N_{c-2,S} \times N_{c-3,S}}$ and $L^{M,Gen-4}_{GE,c,S} = \frac{16 \times St^M_{GE,c-3,S}}{N_{c-1,S} \times N_{c-2,S} \times N_{c-3,S} \times N_{c-4,S}}$. While $N_{1866-1890}$ is the only missing information in our dataset, we assume the number of births per surname in 1866-1890 to be similar to the one in 1891-1915.

a more recent analysis between 1969 and 2011. The latter study shows that endogamy among *Grandes Écoles* graduates even increased over the period. Higher education institutions even serve as marriage markets, as demonstrated by Nielsen and Svarer (2009) in the Danish case. Moreover, correlations of attributes are not restricted to education but include economic characteristics such as labor earnings (for the French case, see Frémeaux and Lefranc, 2020).

Besides, an important dimension of intergenerational mobility is fertility, especially since birthrates have been found to depend on socio-economic background, both across countries and within countries.[25] Yet, our estimates do not isolate the effect of fertility. As we observe education, fertility and advantages at the surname level, an underlying assumption for the probability to be linked to a father with advantage A to be accurate is that, within bearers of a similar surname, there is no major differences in fertility levels between those with or without advantage A. We cannot test it with available data as the historical, geographical, and lineal advantages are observed at the surname level. Nevertheless, demographical studies in France provide evidence of a relatively standardized fertility. Indeed, variance in the number of children has progressively reduced in developed countries. In France, the desired number of children sets at 2 or 3 children for most women since decades (Sobotka and Beaujouan, 2014). A vast majority of French families had 2 or 3 children across the last century. Toulemon (2001) reports that less than 20% of French women born in the beginning of the 20$^{\text{th}}$ century, and only 10% of women born in the second half of the century had 4 children or more. Besides, socio-economic differences in fertility have also been found to be lower in France than in other European countries (Toulemon et al., 2008). There was more volatility in the number of children per family at the end of the 19$^{\text{th}}$ century (Dupâquier, 1988). More importantly, Dürr (1992) documents the differential extinction or proliferation of family lines in France between 1800 and the 1970. If he finds that over more than one and a half century, only about 35% of family descents remain active, while the rest disappeared, extinction rates were much higher in the first generations of the 19$^{\text{th}}$ century than they were over the 20$^{\text{th}}$ century. Moreover, only extremely rare surnames are threatened of vanishing (Dupâquier, 1992). If differences in fertility partly shape intergenerational transmission, they are less influent in the French context and over the 20$^{\text{th}}$ century, than they are in other countries, or were earlier in time. Our data does not allow for a proper decomposition.

In Appendix Table 1.B.2, we report descriptive statistics on the explanatory variables

[25] The negative socio-economic and educational gradients of fertility were theoretically conceptualized around differences in opportunity costs with the idea of a quantity–quality trade-off for children (Becker and Lewis, 1973; Becker and Tomes, 1976). Yet, the lower number of children for the better educated has been questioned more recently. Notably, Kravdal and Rindfuss (2008) identify with Norwegian data on cohorts born between 1940 and 1964 that better educated women give births a few years older but do not have less children. Better educated men are even less likely to remain childless.

identifying the three advantages we study. We include the population size concerned by each background characteristic and the number of surnames with at least one birth with the given characteristic.

1.4.2 Relative admission rates

Our measure of social reproduction is both simple to understand and to interpret. We know $AR_{GE,c,S}$ the admission rate (AR) to a given GE (or group of GE) of the bearers of surname S born in cohort c. As defined in subsection 1.4.1, bearing a surname S is associated with characteristic A either with certitude—historical advantage—or with a certain probability—geographical or lineal advantages. We may define for cohort c the frequency of appearance of individuals with the advantage A (as indicated by their surnames S) in a sample of school GE to their frequency in the French population as defined by:

$$AR_{GE,c,A(S)} = \frac{St_{GE,c,A(S)}}{N_{c,A(S)}}$$

Observations are at the individual level, but observables are surname-dependent (S). To put it simply, $AR_{GE,c,A(S)}$ is the share of the population born in cohort c with advantage A educated in the GE. We define a tool close to odds-ratios, albeit more straightforward to interpret: the relative admission rate (RAR) of those with advantage A. It relates the admission rate to the GE of those with advantage A to the admission rate of the rest of the population, i.e. the admission rate of the group A', not benefiting from advantage A:

$$RAR_{GE,c,A(S)} = \frac{AR_{GE,c,A(S)}}{AR_{GE,c,A'(S)}}$$

The relative admission rate of individuals with advantage A in the *Grandes Écoles* is therefore the factor by which they are more or less represented in the GE compared to the rest of the population.[26] If $RAR_{GE,c,A(S)}$ equals 1, those with advantage A are evenly represented in the GE. When $RAR_{GE,c,A(S)}$ is below 1, they are under-represented in the GE, while they are over-represented when it is above 1. We directly estimate the coefficients of the relative admission rates (RAR) and their corresponding confidence intervals with a log-binomial specification, developed by epidemiologists (Wacholder, 1986). More precisely, for the successive cohorts, we estimate the probability of a binary outcome: having studied in a *Grande École* ($GE = 1$) or not ($GE = 0$). Our univariate explanatory variable $X_{S,c}$ is surname dependent and is alternatively Hp_S, Hr_S, $G_{R,c,S}$ and $L_{GE,c,S}^{M,Gen-t}$ for the historical, geographical, and lineal advantages. For the whole French population, we know the admission history in the *Grandes Écoles* and have information on advantages by surname. The estimated equation of the log-binomial model is:

[26] When those with advantage A are a small group, the complementary set includes almost everyone and $AR_{GE,c,A'(S)}$ is close to the overall representation $AR_{GE,c}$. $RAR_{GE,c,A(S)}$ is in that case close to being related to the average admission rate in the society.

$$\log[P(GE = 1|A(S), c)] = \alpha_c + \beta_{A(S),c} X_{S,c}$$

The $RAR_{GE,c,A(S)}$ is simply the exponential of $\beta_{A(S),c}$.[27]

1.5 Results

In this section, we show that, over the last century, noble families (section 1.5.1)—especially in the business schools—, Parisians (section 1.5.2)—even more so in the very recent period—, and descendants of graduates (section 1.5.3)—over multiple generations, particularly in the same school than their fathers—all benefited from greater admission prospects to the *Grandes Écoles* than the rest of the population. Section (1.5.4) characterizes the slow admission of women. The analysis, as most studies on mobility, is descriptive and we therefore perform bivariate analyses. As praised by Torche (2015), this constitutes a more appropriate choice outside a causal framework.[28]

1.5.1 Historical advantage: *Grandes Écoles*, the ball of aristocracy

In *The State Nobility: Elite Schools in the Field of Power*, Pierre Bourdieu (1989) argues that the GE serve as a legitimization process, suggesting an analogy between the modern elite and the *Ancien Régime* nobility. While some families kept notable real estate properties, aristocratic descendants have, for most part, lost their economic supremacy as exposed by de Saint-Martin (1993), although they were still about 5 times over-represented in the highest Parisian inheritances in the early 20$^{\text{th}}$ century (Piketty, 2020). de Saint-Martin (1993) also showed that noble families have been pursuing educational strategies, by selecting specific schools, such as *Notre-Dame des Oiseaux* in Paris, a high school where 19% of students had particle surnames between 1976 and 1985. An over-representation of noble descendants was also identified in France in the private sector (Birnbaum et al., 1978) and in "elite" occupations and positions (Coulmont, 2019), as it was also shown by Dronkers (2003) for the Dutch case.

In this sub-section, we analyze whether this ancestral nobility enrolls at the GE significantly more than the rest of the population. Table 1.3 reports by cohort the relative admission rates to the baseline 9 *Grandes Écoles*—without *Sciences Po Paris*—of both the

[27] $\log[RAR_{GE,c,A(S)}] = \log[\frac{P_c(GE=1|A(S),c)}{P_c(GE=1|A'(S),c)}] = \log[P_c(GE = 1|X = 1)] - \log[P_c(GE = 1|X = 0)]$
$= \alpha_c + \beta_{A(S),c} X_{S,c}[= 1] - (\alpha_c + \beta_{A(S),c} X_{S,c}[= 0]) = \alpha_c - \alpha_c + \beta_{A(S),c}[1 - 0] = \beta_{A(S),c}$
$\Leftrightarrow RAR_{GE,c,A(S)} = exp(\beta_{A(S),c})$

[28] Yet, Appendix Table 1.B.3 reports estimates from multivariate regressions. This is rather indicative and preferably rely on the bivariate analyses presented in the present section with respect to the historical, geographical, and lineal advantages.

Table 1.3: Noble families in any of the 9 *Grandes Écoles*.

		Surnames with a particle 14,363 surnames - 4,184 students				French Nobility Association register 2,486 surnames - 1,943 students			
(1) Cohort	(2) Global admiss. rate	(3) Popula -tion share	(4) Share among students	(5) Group admiss. rate	(6) Relative admiss. rate*	(7) Popula -tion share	(8) Share among students	(9) Group admiss. rate	(10) Relative admiss. rate*
1891-1915	0.13%	0.36%	4.0%	1.4%	**11.6** [10.4-12.9]	0.12%	1.7%	1.9%	**15.1** [12.8-17.9]
1916-1940	0.14%	0.44%	4.3%	1.4%	**10.0** [9.1-11.0]	0.14%	1.9%	1.9%	**13.9** [12.0-16.0]
1941-1965	0.17%	0.48%	3.7%	1.3%	**7.9** [7.3-8.6]	0.15%	1.8%	2.0%	**12.0** [10.6-13.6]
1966-1990	0.25%	0.59%	3.6%	1.5%	**6.4** [5.9-6.9]	0.20%	1.7%	2.1%	**8.5** [7.6-9.7]
1971-1995	0.22%	0.59%	3.8%	1.4%	**6.6** [6.0-7.1]	0.20%	1.8%	2.0%	**8.9** [7.8-10.1]

Notes: *admiss.* stands for admission. This table reports our main measure of social reproduction—the relative admission rates—by cohort for the baseline 9 *Grandes Écoles* both for individuals bearing a surname with a particle, and for members of families registered at the French Nobility association. We also report the *population share* of these groups within the French "native" population, as defined in the text of the paper. The *share among students* consists of the share of individuals with noble ascendance among graduates from the 9 schools. The *Group admiss. rate* is the fraction of individuals with noble ascendance who enroll at one of the 9 schools. We recall that the *relative admission rate* is defined as compared to the rest of the population, i.e. all non-noble individuals. The *global admission rate* of the French population to the 9 schools is also reported. The number of *surnames* and *students* are reported across cohort for the whole period. *95% confidence intervals are reported between brackets.

surnames with a particle and the families registered at the French Nobility Association. The second column recalls by cohort the global admission rate of the French population to the schools, between 0.13 and 0.25%. Columns 3 and 7 present by cohort the population share of each nobility group. Registered nobles are about three times less numerous than bearers of surnames with particles. Birthrates were relatively dynamic: one French native out of 278 bore a surname with a particle one century ago, against one out of 170 for the cohort 1966-1990.[29] Columns 4 and 8 show that noble families represent a quite stable share among admitted students over the whole period. Surnames with particles account for about 4% of the students, while students from registered families represent slightly less than 2% of the graduates for all cohorts. The stability is partly due to their increasing demographic weight, as young individuals from noble families experience stable admission rates (columns 5 and 9), while the admissions for the whole population increased (column 2). Indeed, about 1.5% of those with a particle in their surname and about 2% of the children of registered noble ascendance are admitted to one of the 9 prestigious *Grandes Écoles* of our baseline sample across the period. As a consequence of their stable admission rate and of the increasing admission rate in the rest of the population, the relative admission rates of noble families decline over the period. One century after the French revolution, the bearers of a surname with a particle born between 1891 and 1915 had 11.6 times the chances to be admitted to the French elite schools, and up to 15.1 times for

[29] This increase in population size is not due to the restriction to native surnames, although the magnitude would be slightly lower considering the full population.

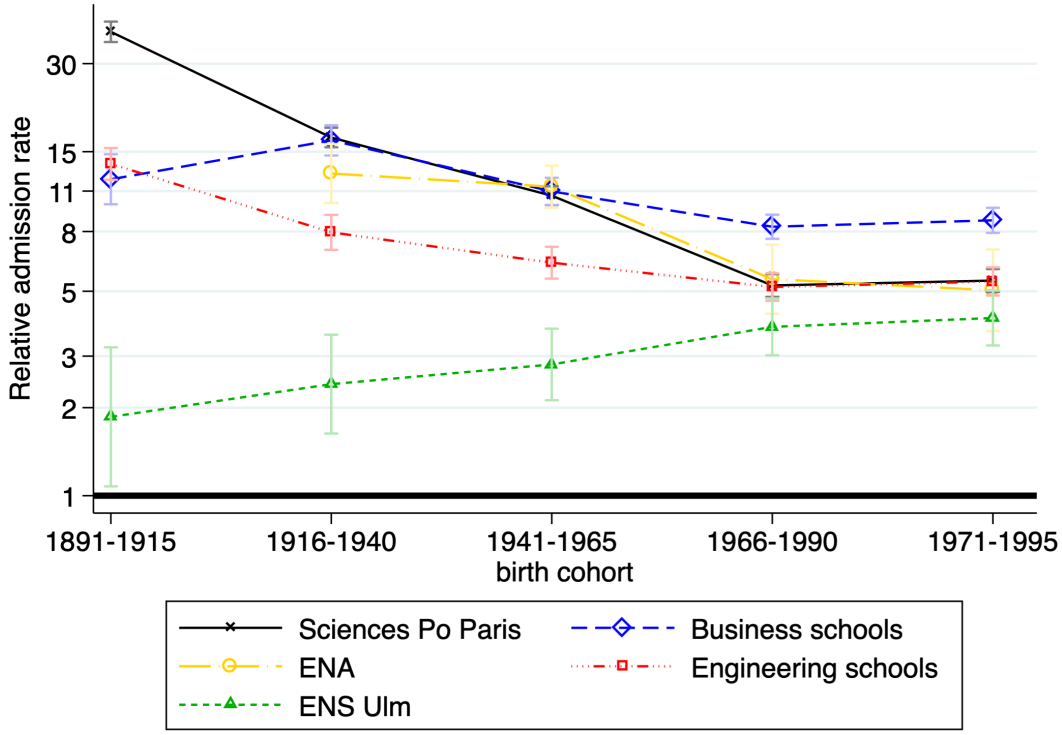
those registered at the Nobility association. This historical advantage has progressively declined for each successive cohort. Yet, more than two centuries after the *Révolution*, descendants of nobles are still over-represented in the *Grandes Écoles*: 6.5 times for those with particle surnames and even 8.9 times for families registered at the French Nobility Association. While the magnitude of estimates for descendants of families registered at the French Nobility Association might be more accurate, as it defines nobility more precisely, both identifications conclude to a statistically significant remanence of the advantage of descendants of the French aristocracy in the enrollment at the most prestigious *Grandes Écoles* during the 20$^{\text{th}}$ century.

Figure 1.1 presents a decomposition in school categories of the relative admission rate of noble families with a particle in their surname. We show that nobles used to be intensely over-represented a century ago at *Sciences Po Paris*—which was excluded from the results for the baseline presented just above—with as many as 38 times more chances to enroll for those born between 1891 and 1915. While nobles represented 0.36% of all births of this cohort, they constituted as much as 12% of the students at *Sciences Po Paris*. However, we also observe for *Sciences Po Paris* a steady decline of the RAR of nobles over the 20$^{\text{th}}$ century. It becomes comparable to most of the other schools in the last cohorts, with slightly more than 5 times more chances to be admitted. We thereby extend previous findings by Coulmont (2019)—who exhibits the decreasing share of students bearing a particle surname at *Sciences Po Paris* since 1920—by relating the frequency of these surnames to their frequency in the French population. We observe that admissions to the *École Nationale d'Administration* (*ENA*) were also very favorable to nobles in the first decades after its foundation in 1945, with about 13 times more chances to enroll, but that the situation improved with a RAR of 5.0 for the cohort 1971-1995. Noble families are hardly significantly over-represented at the *École Normale Supérieure* at the beginning of the 20$^{\text{th}}$ century. However, this specificity progressively fades, and the over-representation of families of aristocratic ascendence at *ENS* becomes comparable to what it is for other schools. Finally, except for the first cohort, business schools constitute the category for which relative admission rates of individuals from noble families are the highest.

In an analysis of education reported in the *Who's Who in France* for individuals mostly born in the 1940s, de Saint-Martin (1993) finds that bearers of surnames with a particle frequently studied at *ENA*, *Sciences Po Paris*, military schools and at law faculties. Her work also underlines that they favor business schools over scientific ones. By using more complete data over a longer timeframe, as well as relating it to the frequency of surnames in the population, our analysis strengthens the results for the cohorts born before 1966. It also shows that business schools are nowadays a stand-alone, while the over-representation of the descendants of the aristocracy at *Sciences Po Paris* and *ENA* converged to the same level than at engineering schools. Detailed results per school are presented in Appendix

Table 1.B.4, where we also provide the results for surnames registered at the Nobility association. It notably stresses out that *ESCP* and the catholic founded *ESSEC* are not homogenous in this dimension, as the RAR of registered nobles was 40.5 and 36.9 at *ESSEC* for the two first cohorts respectively, against 5.5 and 16.1 at *ESCP*. The advantage of noble families in the admissions to both schools has however converged since the cohort 1941-1965. As for engineering schools, we also find that *Polytechnique* and *Mines Paris* enrolled more nobles born in the first two cohorts than other schools.

Figure 1.1: Noble families in the *Grandes Écoles*, by school or school category.



Notes: This figure reports by birth cohort at different schools and schools' categories our main measure of social reproduction—the relative admission rates—for individuals with a particle in their surname. Brackets refer to 95% confidence intervals. We use a logarithmic scale for the ordinate.

1.5.2 Geographical advantage: Paris and its impassable gateways

Table 1.4 presents our findings for Parisian families. We first observe in columns 3 and 4 that the number of births in Paris is declining over the period, dropping from 6.67% of all births in 1891-1915 to 4.12% in 1966-1990. By contrast, Parisians are constantly over-represented in the schools. While their relative admission rates (column 8) were already of 9.3, 10.4 and even 12.6 in the three first cohorts, it doubled for those born after 1966, who had about 25 times more chances to be admitted to the prestigious *Grandes Écoles* than the rest of the French population. This over-representation has a very substantial

influence on the social composition of the *Grandes Écoles*, as Parisians constitute more than one third to almost half of the students of the 9 baseline schools throughout all cohorts (column 6).

Table 1.4: Parisian-born individuals in any of the 9 *Grandes Écoles*.

(1) Cohort	(2) Number of surnames	(3) Number of births	(4) Popula -tion share	(5) Number of students*	(6) Share among students*	(7) Group admiss. rate*	(8) Relative admiss. rate**	
1891-1915	128,453	705,190	6.67%	4,989	37.54%	0.7%	**9.3**	[8.3-10.4]
1916-1940	166,487	930,258	6.79%	7,899	41.14%	0.8%	**10.4**	[9.5-11.3]
1941-1965	159,330	1,098,642	5.89%	13,301	41.67%	1.2%	**12.6**	[11.5-13.7]
1966-1990	133,616	700,783	4.12%	20,185	47.56%	2.9%	**25.1**	[23.1-27.2]
1971-1995	133,616	700,783	4.12%	18,215	47.63%	2.6%	**25.2**	[23.2-27.4]

Notes: *admiss.* stands for admission. This table reports by cohort the *relative admission rates* of Parisian-born individuals at the baseline 9 schools. We also report by cohort the *number of surnames* with at least one birth in Paris, the *number of births* in Paris and the corresponding *population share*. *The number of Parisian versus non-Parisian students—and therefore *share among students* from the *Grandes Écoles* and *group admission rate*—are adjusted per surname with respect to the share of Parisian versus non-Parisian births and the estimated relative admission rate between Parisians and the rest of the population. Refer to Appendix 1.C.4 for technical details on the computation. ** 95% confidence intervals are reported between brackets.

This phenomenon is to be linked to the structural evolution of the capital region over the 20th century, as the demographical weight of the capital city within the capital region has shrunk from 80% in 1880, to about 50% around 1950, and less than 20% nowadays, as we show on Appendix Figure 1.A.4, accompanied by contextual comments. The historical migrations from and towards Paris underline the interest of our measure of geographical origin, which tracks the place of birth of individuals. The sudden rise of the RAR of Parisians in the most recent cohort should at least partly be linked to the progressive gentrification of the city of Paris, implying that fewer families can afford to stay and have their children born there. Fostered by a sudden increase in house prices (Friggit, 2008), as well as the reduction in the number of persons per household (Rochas, 1994), the population of inner Paris indeed decreases rapidly from 2.8 million in 1960 to 2.2 million inhabitants in 1980, a level which has remained relatively stable since. We also show in Appendix Table 1.B.5 that families born in Paris in the most recent periods had higher prospects of enrollment earlier in the century. This underlines that families who remained settled in Paris have had a higher socio-economic status since several generations.

Appendix Figure 1.A.5 reports the relative admission rates of Parisians from Table 1.4 and contrasts it with the RAR of families born in Île-de-France (Parisian area) to the exclusion of inner Paris, as well as in the region as a whole. While the over-representation of those born in the Parisian region only scarcely increases (RAR estimates from 6.2 to 7.3 over the whole century), the large increase of the RAR for Parisians born since 1966 is concomitant with an important decrease for the suburban population (from 5.4 to

3.6), underlining the rising polarization between the capital city and the suburbs among people bearing native surnames. While Bonneau et al. (2021) exhibited, for the academic year 2016-2017 only, that about half of the students of *École Polytechnique*, *ENS Ulm* or *Sciences Po Paris* were previously registered in a Parisian high school, our results show that this is not a recent phenomenon, and that it considerably increased at the end of the 20th century.

This clear Parisian hegemony has a corollary: the constant under-representation, over the last century, of those born in the rest of France, namely outside of the Paris area, which is generically called *Province*. Indeed, we observe a strong polarization of the French system, with Paris on the one hand, and the rest of the territory on the other.

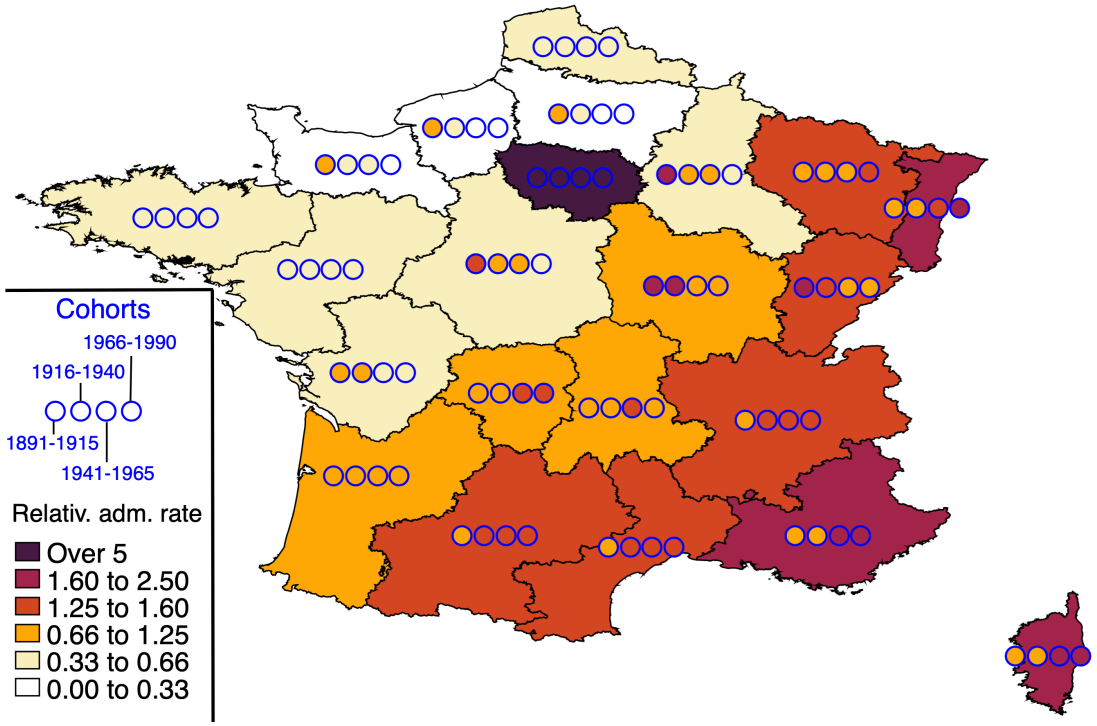
The "*Province*", however, does not constitute a homogeneous set. Figure 1.2 shows a heatmap of admissions to the baseline 9 schools for the 22 metropolitan regions. The background color relates to the relative admission rates for the cohort 1971-1995, while the four "traffic lights" symbols refer to the successive cohorts between 1891 and 1990. This cartography highlights a clear north-east to south-west axis. The dynamics and the trend across cohorts highlighted by the "traffic lights" show that all regions to the northwest of a Strasbourg-Toulouse (north-east to south-west) axis experienced a decreasing representation in the *Grandes Écoles* over the period, e.g. from 0.97 for the cohort 1891-1915 to 0.18 for 1966-1990 in *Picardie*. This seems to indicate that the elites from the northern regions, geographically closer to Paris, were progressively drawn in the capital city. By contrast, the southern regions and the notable exception of *Alsace* in the North-East have been over-represented in the schools and have experienced a rise in their admission prospects for the more recent cohorts.[30]

As it appears in Appendix Table 1.B.6 providing detailed results by region and cohort, the over-representations for the cohort 1966-1990 of *Alsace* (2.1), *Corse* (2.0), *Provence-Alpes-Côte d'Azur* (1.9), *Languedoc-Roussillon*, (1.6) or *Rhône-Alpes* (1.5) remain however incomparable to the RAR of Parisians (25.1). For recent periods, our results are in line with Bonneau et al. (2021) on admissions to the most selective GE for the academic year 2016-2017, except for *Corse*, which appears under-represented in their work.[31]

[30] While all further cohorts were not concerned, those born in the first decade of the first cohort (1891-1915) in the German-annexed North-East territories of *Alsace-Lorraine* were probably not all potential applicants to the *Grandes Écoles*.

[31] Admissions of Corsicans may have reduced in recent years. But the gap between the two studies might more probably be explained by the different geographical trackers. Possibly Corsicans enrolling at the *Grandes Écoles* transit through continental high schools. Or, bearing a Corsican surname could be associated with a lower probability to be born in Corsica among the GE graduates. Yet, our methodology producing original results on the long-run is comforted by the fact that most geographical results for our last cohort echo Bonneau et al. (2021)'s findings for admissions in 2016-2017. To further convince of the accuracy of surnames to identify geographical origin, Appendix Figure 1.A.6 shows how well it identified the historical over-representation of individuals born around Lyon in the local business school (*EM Lyon*).

Figure 1.2: Relative admission rates to any of the 9 *Grandes Écoles* by region of birth in metropolitan France: 1971-1995 cohort in background color and previous cohorts with traffic lights.



Notes: *relativ. adm. rate* in the legend stands for relative admission rate (RAR). The background color refers to the relative admission rate of the 1971-1995 cohort. The four successive "traffic-lights" refer to the RAR of the cohorts 1891-1915, 1916-1940, 1941-1965, and 1966-1990 respectively. With the positions of the traffic lights in each region as a reference, we find from North to South: *Nord-Pas-de-Calais*, *Picardie*, *Haute-Normandie*, *Basse-Normandie*, *Lorraine*, *Champagne-Ardenne*, *Île-de-France*, *Alsace*, *Bretagne*, *Centre*, *Pays de la Loire*, *Bourgogne*, *Franche-Comté*, *Poitou-Charentes*, *Limousin*, *Auvergne*, *Rhône-Alpes*, *Aquitaine*, *Midi-Pyrénées*, *Provence-Alpes-Côte d'Azur*, *Languedoc-Roussillon*, and finally the island of *Corse*.

1.5.3 Lineal advantage: like (great-grand)father, like child in the *Grandes Écoles*

A spontaneous way to think of social mobility and social reproduction is to link an achievement in a generation with the same achievement in the previous generation. We evaluate for the first time how descendants of *Grandes Écoles* graduates do perform at the same admission examinations, over generations. Table 1.5 summarizes the main results of access to any of the 9 prestigious *Grandes Écoles* from our baseline for children of graduates from any of these 9 schools. For the cohort 1891-1915, 14,619 sons and daughters (column 4) had a father born between 1866 and 1890 who bore one of the 5,502 identified surnames (column 3) and graduated from one of the 9 baseline schools.[32] 1,766 of those children were admitted to one of the GE (column 6). While the overall admission rate to

[32]With 7,996 fathers in the paternal generation bearing these 5,502 surnames, it corresponds to 1.83 children per graduate on average.

the *Grandes Écoles* was of 0.13%, the success rate of graduates' children was 12.1% (column 2 and 8). This implies a substantial relative admission rate of children of graduates during the *Belle époque* (i.e. from the end of the 19th century to 1914): with 154 times more chances to be admitted to these prestigious schools (column 9). Although children of graduates constitute a narrow group, representing only 0.14% of the population for the first cohort (column 5), their presence in the schools is noteworthy: they account for as much as 13.3% of the students (column 7).

Table 1.5: Admissions to any of the 9 *Grandes Écoles* of children of graduates from any of the 9 *Grandes Écoles*.

(1) Cohort	(2) Global admiss. rate	(3) Number of surnames	(4) Number of births*	(5) Popula -tion share*	(6) Number of students*	(7) Share among students*	(8) Group admiss. rate*	(9) Relative admiss. rate**
1891-1915	0.13%	5,502	14,619	0.14%	1,766	13.3%	12.1%	**154** [127-187]
1916-1940	0.14%	8,602	31,205	0.23%	2,500	13.0%	8.0%	**81** [69-96]
1941-1965	0.17%	12,072	49,234	0.26%	4,483	14.0%	9.1%	**72** [63-83]
1966-1990	0.25%	16,651	49,542	0.29%	6,777	16.0%	13.7%	**75** [66-86]
1971-1995	0.22%	16,972	50,223	0.30%	6,503	17.0%	12.9%	**83** [73-96]

Notes: *admiss.* stands for admission. This table reports by cohort our main measure of social reproduction—the *relative admission rates*—to the baseline 9 schools for children of graduates from these 9 schools. The precise reading of each column is detailed in the notes of Tables 1.3 and 1.4. * As discussed in the notes of Table 1.4, technical details on the computations are presented in Appendix 1.C.4. ** 95% confidence intervals are reported between brackets.

Those born between 1916 and 1940, whose fathers held a GE diploma were also highly over-represented in the 9 GE but their RAR was halved, with 81 times more chances to be admitted—between 69 and 96 at the 95% confidence level—, which is significantly lower than in the previous cohort. The following cohorts born in 1941-1965, 1966-1990, as well as the pseudo-cohort 1971-1995, also experience large over-representations in the schools with point estimates of their RAR at 72, 75 and 83 respectively, not statistically different from one another. The consequences on the composition of the *Grandes Écoles*' cohorts are substantial. Across cohorts, children of graduates have represented between 13 and 17% of all admitted students, one individual every 6 to 8 students.

Social reproduction in the French *Grandes Écoles* is therefore characterized by a very high level for all cohorts of the past century, especially for those born during the *Belle Époque*. The magnitude of social reproduction substantially reduced for those born after World War 1, but it remained impressively stable for all subsequent cohorts. Depending on the birth cohort, a young individual born in France between 1916 and 1995 has between 72 to 83 times more chances to enroll at one of the 9 *Grandes Écoles* of our sample if his or her father did too.

The stability of intergenerational reproduction since 1916 in the very prestigious *Grandes Écoles* responds to Euriat and Thélot (1995)—for cohorts born in 1930-1970—

and Falcon and Bataille (2018)—for births over 1918-1984—, who both identified a decreasing social reproduction using parental occupation as a background characteristic. Falcon and Bataille (2018) study a much wider, heterogeneous, and unstable set of GE, as acknowledged by the authors. While they conclude to a "clear equalization trend in access to the highest educational levels in France", we show that this has not operated at the extreme top of the educational distribution (top 0.18 to 0.36% including or not *Sciences Po Paris*). A complementary reason for our different findings is that our measure of paternal education in a *Grande École* is a sign of cultural capital, while parental occupation would rather relate to socio-economic inequality. Social origin may actually be less influential than cultural origin with respect to educational attainment, a result which was suggested by Thélot and Vallet (2000), who identify a stronger influence of parental diploma than of father occupation on education.

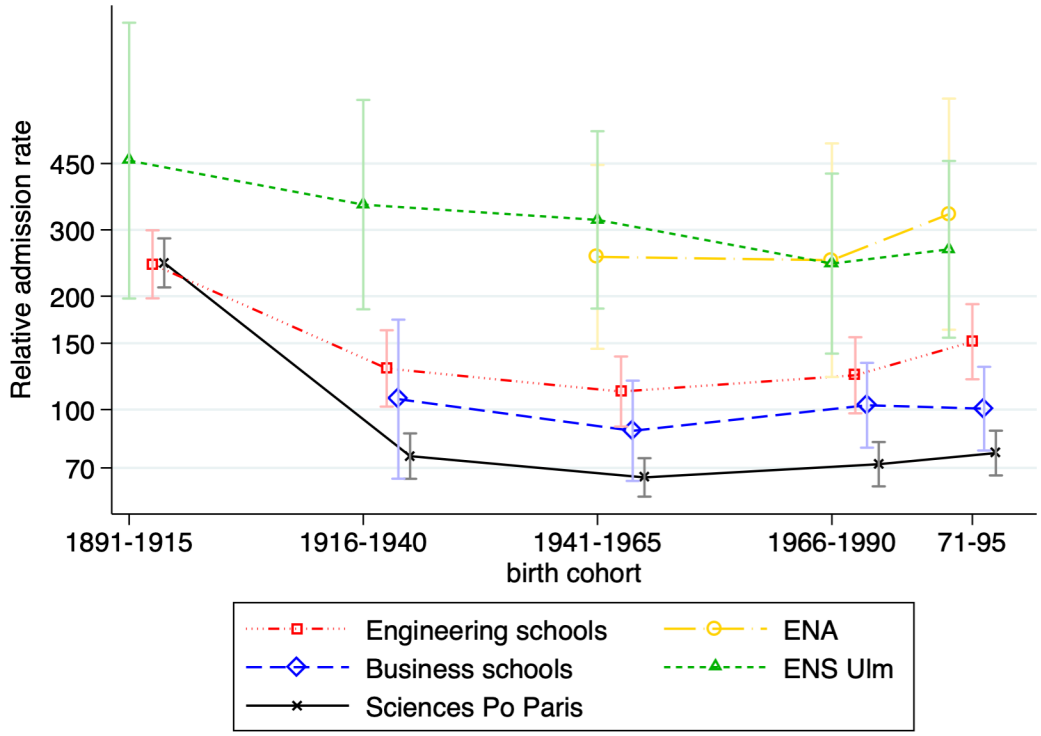
As a sensitivity analysis, Appendix Table 1.B.7 provides comparable findings for the 10 schools including *Sciences Po Paris*, with only slightly lower point estimates. We also report in Appendix Table 1.B.8 a series of robustness tests for our main estimates of relative admission rates to the 9 baseline schools. We show that both the trend and the order of magnitudes of our estimates are robust to a restriction to rarer surnames, for which we more precisely track lineages. Results are also robust to the inclusion of "immigrant" surnames, although the evolution is obviously more contrasted for the more recent cohorts when the schools started to open much more widely to international students.

As we read on Appendix Table 1.B.1, the weight of each school category has evolved over the last century, particularly for the business schools, which were absent from the first ancestors' generation. To verify that it does not explain the sharp drop in the RAR between the two first cohorts, we estimate separately the relative admission rates to one of the 9 *Grandes Écoles* when the father did study at an engineering school, at *École Normale Supérieure*, or at a business school. As a result, Appendix Table 1.B.9 shows that graduates from all school categories provide very high admissions prospects to their offspring. However, the advantage is significantly lower for children of business schools' graduates born until 1966. The increasing share of business schools' students in our sample, and more generally as an important component of the French elite education, is responsible for part of the decrease in social reproduction between the two first cohorts. Still, this result is not imputable to composition effects, as a sharp decline of social reproduction between the two first cohorts is also observed for the children of graduates of engineering schools, who constitute the majority of the ancestors' sample in the very first cohorts. Regarding the *ENS*, however, the number of graduates is smaller and larger confidence intervals make the pattern less clear to analyze.

As the *École Normale Supérieure* is perceived as the very core of the French intellectual elite, it may appear surprising that children from *Normaliens* do not exhibit higher prospects of enrollment at the GE. The prestigious *Grandes Écoles* constitute a compre-

hensive elite system. Yet, we should consider that a large part of social reproduction could happen with descendants being admitted to the very same school in which their fathers studied.[33] Figure 1.3 reports RAR to the same school category where the fathers studied. The first striking result is that the relative admission rates are higher: there is a much larger social reproduction within each school or schools' category, than overall in the *Grandes Écoles*. While the RAR to the 9 GE of children of *ENS* graduates born between 1891 and 1915 is 93, the point estimate suggests that they had 458 times more chances than the rest of the population to enroll at *ENS Ulm* too.

Figure 1.3: Lineal advantage for children in the same school category than their fathers.



Notes: This figure reports, by birth cohort, to different schools and schools' categories, the relative admission rates for children with a father who graduated from the same school or school category. Brackets refer to 95% confidence intervals. We use a logarithmic scale for the ordinate.

Indeed, higher RAR are observed for all schools' categories, in all cohorts. We already stated that the over-representation at *Sciences Po Paris* of children from noble families born between 1891 and 1915 was extremely large. We also find that at that time, children of *Sciences Po*'s graduates were 245 times more likely to be admitted to the school. Having a father that studied at *Sciences Po* remains a considerable advantage across all cohorts. However, the advantage has decreased importantly, and is lower than what we observe for engineering schools, *ENS* or *ENA* since the 1916-1940 cohort.

[33]It may also partly explain the increasing RAR of descendants of business schools' graduates, for the admission to all 9 GE, as these schools represent an increasing share of the baseline, from 21% of the students for the cohort 1891-1915 to 42% for the cohort 1966-1990.

With respectively only 112 and 130 students per year in average, the confidence intervals for children of graduates from *ENA* or *ENS Ulm* are large and partly intersect with those of other schools. It remains notable that social reproduction is particularly high in these two schools. While Euriat and Thélot (1995) found that the admission to *ENS Ulm* is as unequal for cohorts born in the 1930s than for cohorts born around 1970 with respect to parental occupation, we find that point estimates of the RAR of children of *ENS Ulm* graduates rather decreased. Although confidence intervals are too large to decisively conclude, relative admission rates progressively fell from 458, to 350, 319, and 244 chronologically for the four complete cohorts. On the contrary, Euriat and Thélot (1995) found a decreasing inequality in the admissions to *ENA*. Our point estimates of RAR to *ENA* of *ENA* graduates' children are relatively stable for the cohort 1941-1965 (254) and 1966-1990 (249), while the last pseudo-cohort, for which we observe students until 2015, would rather indicate an increasing intergenerational reproduction in the recent decade at *École Nationale d'Administration* (330).

We also confirm the clear drop of the RAR between the cohorts 1891-1915 and 1916-1940 for all schools that had ancestors at that time, albeit the difference is not significant for *ENS*. Although we cannot precisely disentangle the effects within the complexity of the channels of transmission, our results suggest that financial constraints may be less determining than cultural capital. Indeed, not only studying at *ENS* is nearly free, but students are paid by the State during the program. Yet, social reproduction is stronger than for the more expensive business schools. Economic capital may however play a non-neglectable role at different stages of the educational process, as for example regarding family location decisions and the quality of the closest schools.[34]

The descriptive statistics provided in Table 1.2 show that the number of graduates progressively increased, from 0.13% to 0.25% of the population. Did it influence the trend of mobility, in particular the sharp drop in social reproduction in the early 20$^{\text{th}}$ century? To answer the questions, we investigate social reproduction in a subset of schools with stable class sizes across all cohorts: the *École Polytechnique*, the *École Normale Supérieure* and the *École supérieure de physique et de chimie industrielles de la ville de Paris* (*ESPCI*). These three schools welcomed in average 0.07% of the population across the last century, ranging from 0.07% to 0.08% depending on the cohort. As they are among the most elitist schools—in terms of the number of enrolled students notably—, the RAR of descendants of their graduates, reported in Appendix Table 1.B.10, are higher. More importantly, the decreasing pattern of the relative admission rates between the cohorts 1891-1915 and 1916-1940 is confirmed, plummeting from 210 to 121 (both

[34] Poupeau and François (2008) show that familial strategies of avoidance of geo-affected public schools in specific districts make schooling segregation even stronger than residential segregation, suggesting that both economic resources and parental strategies interact in this intergenerational transmission.

being statistically different from one another). Although the statistical power is limited for these small schools, the trend in the following cohorts appears however rather upward, with point estimates of the RAR being 137 (1941-1965), 158 (1966-1990) and even 181 (1971-1995).[35] Schools with stable number of annual admissions rather exhibit a U-shape pattern of intergenerational social reproduction over the last century, with higher advantages for cohorts born before the first World War and since the end of the *Trente Glorieuses* (1945-1973). Bearing in mind that those three schools may differ in some other dimension than the sole evolution of class sizes, the stability of intergenerational social reproduction in the *Grandes Écoles*, which we document throughout most of the 20th century, could have been favored by the increase of the class sizes. While this increase was very limited compared to the universities, opening new seats in the GE appears as one way to improve *qualitative democratization*.

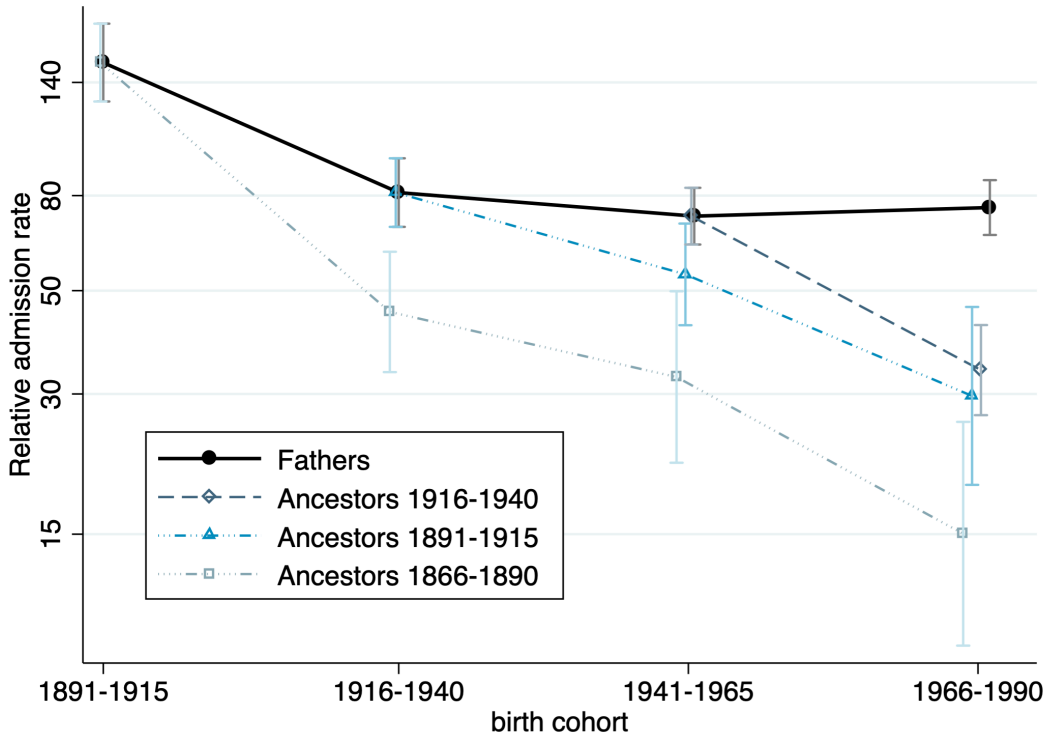
We may still wonder if there was something specific to the status of the fathers (born 1866-1890) of the first cohort (born 1891-1915), that may explain this specifically high RAR in the early 20th century. Do these fathers also offer very high prospects to their descendants two, three or even four generations later? Figure 1.4 presents a multi-generational perspective with the influence of fathers, grandfathers, great-grandfathers, and great-great-grandfathers on the admission to the 9 baseline *Grandes Écoles*. By construction, the first point of each multi-generational curve is common to the dark solid-curve representing fathers–children associations, which recalls uni-generational results reported in Table 1.5.[36] The lighter curve displays the RAR of descendants of the masculine ancestors born between 1866 and 1890. We already showed that their children had 154 times more chances to be admitted to one of the 9 schools. We now exhibit that their grandchildren remain advantaged, yet 3.4 times less, with 45 more chances to enroll. The RAR of their great-grandchildren born between 1941 and 1965 is still 33, while their great-great-grandchildren, born a century after them, still had 15 times more chances than the rest of the population to enroll at a *Grande École*.

In each cohort, the multi-generational transmission is lower than the fathers-children transmission. Yet, the decrease from uni-generational to multi-generational transmission is more moderate for the more recent cohorts of ancestors. The graduate ancestors born in 1891-1915 offered RAR of 81, 54 and 30 to their children, grandchildren, and great-grandchildren respectively—namely simply 1.5 times lower for grandchildren compared to children. The children and grandchildren of graduates born in 1916-1940 had respectively 72 and 34 times more chances to enroll a *Grande École*. Overall, across cohorts, two

[35] Whereas the 1891-1915 to 1916-1940 decline is significant at the 2% level, the increase between 1916-1940 and 1971-1995 is only significant at the 11% level.

[36] Our dynastical setting does not abstract from the mediating role of intermediate generations. We measure the relative chances of those with a grand-paternal graduate, without removing the effect of parental education in the GE, such that we offer a direct measure of persistence in the long-run.

Figure 1.4: Dynastical lineal advantage for the admission to the baseline 9 *Grandes Écoles*, for those with ancestors in any of the 9 *Grandes Écoles*.



Notes: This figure reports by birth cohort the relative admission rates to the baseline 9 *Grandes Écoles* for children with ancestors who graduated in different cohorts from these schools. Depending on the ancestor's birth cohort, they may be their fathers, grand-fathers, great-grand-fathers, or even great-great-grandfathers. Brackets refer to 95% confidence intervals. We use a logarithmic scale for the ordinate. We do not report the 1971-1995 cohort because this pseudo-cohort is less suited for multi-generational analysis.

to three generations after its ancestor, a descendant of a graduate from the *Grandes Écoles* still had 30 to 54 times more chances than the rest of the population to study in a *Grande École*. First, this shows that the very high fathers–children transmission of the first cohort is indeed very peculiar, and not transmitted in comparable magnitudes to later descendants. Secondly and more importantly, it constitutes evidence of a very persistent multigenerational over-representation of families in the French elite schools, who constitute educational dynasties.

Finally, we deepen the characterization of intergenerational mobility between schools over the period. Table 1.6 is a heat matrix, which reports for the cohort born in 1971-1995, all relative admission rates to the school of origin (father) – school of destination (child) level. In lines, we read the RAR to each of the 10 schools, given that the father has studied in one particular school. In columns, we read the RAR in a given school depending on where the father studied. As we analyze admissions to a given school conditionally on fathers' graduation in a particular school, sample sizes are logically smaller. This is particularly true for the first cohort with less students, or for smaller schools such as *ESPCI*. With those limitations in mind, results in Table 1.6, combined with similar

Table 1.6: School of origin – school of destination matrix of intergenerational social reproduction for children born in 1971-1995 of *Grandes Écoles*' graduates.

FATHER IN: Cohort 1971-1995	CHILDREN IN: ENS Ulm	Polytech-nique	Ponts	Mines	Telecom	ESPCI	ESCP	ESSEC	Sciences Po Paris	ENA
ENS Ulm	266 [155;457]	107 [63;180]	46 [21;101]	47 [13;164]	73 [30;178]	26 [7;94]	41 [21;83]	53 [26;107]	67 [41;109]	125 [36;436]
Polytech-nique	141 [91;220]	296 [209;420]	279 [175;447]	191 [113;322]	137 [83;225]	82 [38;174]	102 [71;146]	127 [86;188]	88 [66;119]	134 [62;291]
Ponts	103 [49;217]	166 [100;277]	216 [118;394]	87 [41;184]	76 [37;154]	17 [5;57]	105 [55;197]	87 [46;166]	81 [51;128]	157 [45;553]
Mines	121 [55;265]	195 [110;345]	181 [87;375]	328 [120;899]	87 [40;190]	63 [20;199]	63 [35;115]	94 [46;192]	78 [44;140]	157 [48;514]
Telecom	108 [47;249]	174 [100;302]	199 [90;439]	198 [86;453]	154 [67;353]	98 [28;348]	107 [57;199]	46 [24;89]	60 [36;99]	164 [46;587]
ESPCI	139 [41;473]	108 [44;264]	85 [32;225]	133 [14;1293]	55 [11;275]	365 [95;1402]	124 [35;447]	149 [42;529]	51 [20;135]	390 [44;3441]
ESCP	37 [20;68]	58 [35;94]	63 [31;126]	20 [6;61]	10 [3;32]	36 [10;138]	86 [58;128]	123 [81;186]	56 [41;77]	25 [8;72]
ESSEC	84 [46;153]	57 [35;95]	42 [20;86]	63 [30;129]	86 [39;191]	99 [30;326]	99 [67;146]	107 [71;160]	52 [37;72]	32 [12;85]
Sciences Po Paris	58 [43;79]	55 [44;69]	44 [31;63]	53 [36;78]	36 [23;54]	15 [6;36]	80 [66;98]	76 [61;95]	77 [67;88]	78 [51;120]
ENA	122 [68;219]	116 [55;243]	128 [49;334]	172 [82;359]	76 [26;224]	59 [14;260]	115 [67;199]	137 [84;222]	128 [86;190]	330 [163;669]

Notes: This heat matrix reports, for children born in 1971-1995, the relative admission rate to any given school from our sample (in columns) depending on the school where their father graduated (in lines). The darker the cell, the higher the RAR. 95% confidence intervals are between brackets below each estimate. Complementary results for previous cohorts are reported in Appendix Tables 1.B.11a, b, c, d.

matrices for all cohorts in Appendix Tables 1.B.11a, b, c, d are very informative regarding the structure of intergenerational transmission across schools.

We first confirm that descendants tend to mimic their ancestors: the diagonals are among the darkest areas across all cohorts, especially at *ENS Ulm*, *École Polytechnique* and *ENA*. As scientific schools are grouped on the upper-left part (*ENS Ulm* and engineering schools), and schools with a tradition of presentation skills (business schools, *Sciences Po Paris*, and *ENA*) on the bottom-right, we underline a wider dark area around the diagonal. We also observe the relatively specific status of *ESPCI*, which has lower intergenerational association with the other engineering schools. Indeed, *Ponts*, *Mines* and *Télécom* are much more linked to *Polytechnique*, as the best students at *Polytechnique* often continue their training in one of these applied engineering schools. While this may explain the link between these schools, the very strong intergenerational transmission between different engineering schools remains notable. Indeed, for cohorts born since 1941, it even provides higher advantages for the admission to *Ponts* if someone's father studied at *École Polytechnique* than at *École des Ponts* itself.

Besides, darker lines of Table 1.6 represent schools, whose graduates provide better prospects of enrollment to their offspring at several schools. We see that this is particularly the case of *ENA* and *École Polytechnique*. In contrast, darker columns exhibit schools, which are less accessible to those whose fathers did not study in any of the *Grandes Écoles*. This is notably the case of *Ponts*, *École Polytechnique* again, as well as business schools and *ENS Ulm* for the more recent cohorts. The matrices confirm that while social reproduction was extremely high at *Sciences Po Paris* one century ago and remained substantial over the whole period, it was nevertheless among the lowest of all schools for those born after the first World War. Indeed, the penultimate column is very dark for the first cohort (Appendix Table 1.B.11a) and lightens in the following cohorts (Appendix Tables 1.B.11b, c, d). The relative homogeneity of estimates in *Sciences Po*'s column in all cohorts indicates that *Sciences Po Paris* is a school of destination for children of graduates, whatever the GE their father attended. By contrast, we notice that children of graduates from *Sciences Po Paris* are admitted to business schools with similar prospects than to *Sciences Po* itself, but that their RAR to engineering schools is noticeably lower for most cohorts.

Our mapping confirms what was documented by Bourdieu (1989), namely that rather than registering in a university, the offspring of high social status families find a refuge in the prestigious but slightly less selective schools, when they are not admitted to *ENS*, *École Polytechnique*, or *ENA*. We also confirm the singularity of *ENS*: for all cohorts, we find that children of *ENS Ulm* graduates have a considerable advantage in the admission process to *ENS*, but less so to other schools, especially if we compare to children of engineering schools, or *ENA*, who enroll at any of the 9 GE with high prospects. Besides, an apparent improvement for those born in 1941-1965 compared to the cohort 1916-1940 suggests a relative early democratization of admissions to *ENA*. Nevertheless, parental education in the GE becomes much more linked to admission to the school for the cohort 1966-1990, and even more for the pseudo-cohort 1971-1995, highlighting an increasing closure of the *École Nationale d'Administration* in the most recent period. Except at *Sciences Po Paris*, where students are considerably more numerous, confidence intervals limit the significance of these results. Nevertheless, the set of matrices provides clear conclusions with respect to how much open are specific doors to the offspring of graduates. Indeed, for the cohort 1971-1995, those with a *Polytechnician* father are 296 [209-420] times more likely to be admitted to *Polytechnique*, while the relative admission rate to *Polytechnique* of children of *Sciences Po Paris*'s graduates is significantly lower (88 [66;119]), and more comparable to the one of children of ESCP's graduates (102 [71;146]).[37] Likewise, the relative admission rate to *École des Ponts* of a child born in 1971-1995 is 279 [175;447]

[37] Le Bras (1983) provides a monography of admissions to *Polytechnique* in 1979. He showed that 25% of students had a *Polytechnician* in their extended family and that among graduates, children of engineers were 400 more likely than children of skilled workers.

if his or her father graduated from *Polytechnique*, but only 42 [20;86] if the father was a student at *ESSEC*.

1.5.4 Women: familial support but institutional conservatism

"“Daddy gladly said: Simone has the brain of a man; Simone is a man.” I was nevertheless treated as a girl", wrote Simone de Beauvoir (1958) in her autobiography *Mémoires d'une jeune fille rangée*. While her father declared that he would have registered her to *Polytechnique*'s examination if she was a man, she herself stated that she suffered from being hindered and forbidden to pursue a similar education than men. A crucial structural change across the 20th century in the *Grandes Écoles* is the slow generalization of the admissions of women as it appears on Appendix Figure 1.A.7, which reports for relevant school categories the share of feminine students by year of admission.

Only the *École Normale Supérieure* admits women across the whole period—in distinctive schools for men and women though until 1985. We observe several bursts in the admission of women, the first one being World War 1, when women replaced men in job positions, and when they also very sporadically infiltrated into some *Grandes Écoles*. From that time on, women were admitted to *Sciences Po Paris—École libre des sciences politiques* as it was known until 1945—, although the *baccalauréat* was required for them, when it was not the case for men. The Second World War constitutes a second shock, whose tangible effects remain however limited, except at *Sciences Po Paris*. In 1941, the examination for the admission becomes different according to gender. Consequently, women's admissions to the political institute collapses during World War 2. 1945 constitutes a pivotal year, as the French women finally gain voting rights. Now facing the same examination as men, their share at *Sciences Po* starts to expand. 1945 is also the year *ENA* is founded, and women are admitted right away, although they constitute less than 10% of the promotions until 1970. The last shock is indeed the early 1970s, when women are finally granted access to all *Grandes Écoles*. Their share in the business schools increases very rapidly and was slightly below 50% in the early 2010s. The representation of women at *Sciences Po* experiences a last boom in 1971, and it kept increasing until reaching around 55% since 2000. The increase of the presence of women was much slower in engineering schools, where they hardly reach 30% by 2015, and to a lesser extent at *ENA*, where only 3 promotions had more than 36% of women. Interestingly, the presence of women at *École Normale Supérieure* is suddenly declining in 1985, year of the merger of the *École Normale Supérieure de jeunes filles* dedicated to women and the *ENS Ulm* reserved to men.[38] This slow increase and persistent under-representation of women in most *Grandes Écoles*, even in the early 21st century, contrasts with the reversed gender gap in

[38] Ferrand et al. (1999) describe the enrollment of women at *ENS* during the period 1985-1990.

access to higher education, which is known for many developed countries (Buchmann and DiPrete, 2006, 2013), including France.

Pooling young boys and girls, we have shown that Parisians, descendants of the French nobility and children of graduates were over-represented in the French elite schools throughout the 20th century. Yet we wonder if there are heterogeneities between men and women with respect to these results? Besides, is the admission of women an opportunity for higher intergenerational social mobility? It is not relevant for this gender analysis to study the baseline schools all together because the share of women among students is too distinctive between schools. We may however scrutinize sub-groups that admitted women at comparable paces, such as business schools.

To compare men and women, we measure the relative admission rates of those with a given advantage A separately among the masculine population and among the feminine population. For instance, we relate admission rates of sons of graduates to admission rates of sons of non-graduates and compare that to the admission rate of daughters of graduates relatively to daughters of non-graduates. We find no real difference between boys and girls in the geographical inequalities, whatever the region, school, group of schools, or cohort. The only small noticeable gap is for the admission to *ENS Ulm* as being born in Paris was historically less of an advantage for girls than for boys, but we recall that there were two distinct institutions until 1985, one for men and one for women. A more distinctive dimension between boys and girls has to do with the historical advantage. Families of aristocratic ascendance have invested more in the admission of their sons to *Sciences Po Paris* (Figure 1.5a) and to business schools (Figure 1.5b), than they have for their daughters. This proves to be robust to a definition of nobility exploiting surnames with particles, or surnames registered at the French Nobility Association. It is a statistical demonstration of the gendered differences of treatment in these families documented by de Saint-Martin (1993), who reports for the middle of the 20th century that boys from the ancient nobility were sent to *lycées*, while high schools' reputation was considered too bad—"*mauvaise réputation*"—for women.[39]

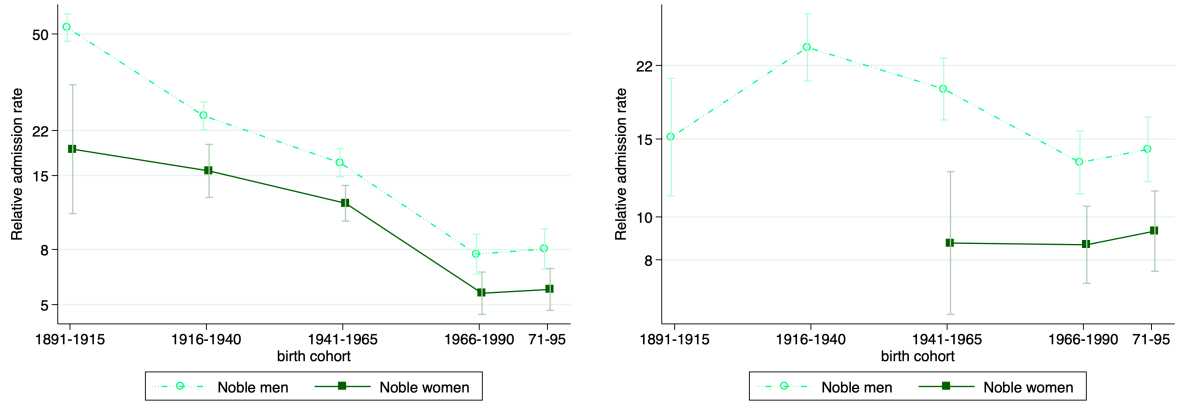
The two schools where women enrolled the earliest, although less numerously than men, are *ENS Ulm* and *Sciences Po Paris*. Therefore, Figure 1.6 reports the relative admission rates of sons versus daughters of fathers[40] that studied at *Sciences Po Paris*

[39] Gender differentiated parenting was also described by Duru-Bellat and Jarousse (1996) without a focus on families of noble ascendance.

[40] Although women constitute only 1.3% of the graduates until 1971 (ancestors' generations) if we exclude *ENS* and *Sciences Po* students, we also deemed important to investigate the transmission from mothers. Data limitations on spouse names was however a decisive pitfall. We attempted to hand-collect spouse names with a focus on subsets of schools and periods, notably thanks to numerous wedding announcements in *Polytechnique* alumni's magazine (*La Jaune et La Rouge*), and to official administrative positions announcements in the *Journal Officiel*, often mentioning both maiden and married names when applicable. Besides the limited number of feminine students, we could at most collect spouse names for

Figure 1.5: Gender differences in the aristocratic advantage for admissions to *Sciences Po Paris* and business schools.

(a) *Sciences Po Paris.* (b) Business schools.



Notes: This figure reports, by birth cohort, the relative admission rates to *Sciences Po Paris* (panel a) or at business schools (panel b) of men versus women, whose surnames are registered in the French Nobility Association. Brackets refer to 95% confidence intervals. We use a logarithmic scale for the ordinate.

Figure 1.6: Admissions of sons against daughters of *Sciences Po Paris* graduates to *Sciences Po Paris*, and of sons against daughters to *ENS Ulm* graduates at *ENS Ulm*.

(a) *Sciences Po Paris.* (b) *ENS Ulm.*

Notes: This figure reports, by birth cohort, the relative admission rates to *Sciences Po Paris* (panel a) or at *ENS Ulm* (panel b) of men versus women, whose fathers graduated from the same school. Brackets refer to 95% confidence intervals. We use a logarithmic scale for the ordinate.

50% of the observations of any given maternal cohort. Selection bias with respect to marriage, as well as weddings announcements, constituted an additional threat to the validity of this approach. Maternal transmission remains therefore unaddressed.

(Figure 1.6a) or at *ENS Ulm* (Figure 1.6b). There were more students at *Sciences Po Paris*, for which confidence intervals are smaller. Trends of the RAR for sons and daughters of graduates appear quite parallel, with no significant difference in the advantage for boys or girls. While it is less the case for the two gendered-separated institutions of *ENS*, there is also no significant difference of relative admission rates for sons or daughters of *ENS* graduates.

Relative admission rates to each of the 10 schools, for sons and daughters separately, are reported in appendix, whether their father studied in the same school (Appendix Table 1.B.12a), or in any of the 9 GE (Appendix Table 1.B.12b). Out of the 71 comparable pairs of estimates, only 3 differ significantly, one being irrelevant due to the infinitesimal number of students, and of women in particular, at *ESPCI*. For the cohort 1891-1915, while there was no difference between sons or daughters of *Sciences Po* graduates in the admission to *Sciences Po Paris*—first line of Appendix Table 1.B.12a—, the advantage was significantly higher for daughters than it was for sons of graduates from the baseline 9 GE—first line of Appendix Table 1.B.12b. This suggests that at that time, *Polytechnicians* could send their sons to *Polytechnique*, but their daughters were rather oriented where they could be admitted, and notably the *École Libre des Sciences Politiques* (*Sciences Po*). The other significant difference relates to sons of graduates from any of the 9 GE who had more chances to be admitted to *ENS Ulm* than daughters in the first cohort. But again, these were two distinct schools for boys and girls at that time. To the contrary, point estimates (although not statistically different) rather indicate higher RAR for daughters in the admission to *ENS Ulm* once the school was unified. Indeed, we also find higher point estimates of social reproduction for daughters of *Polytechnique* and *Ponts* graduates for all cohorts, as well as in most schools for the more recent pseudo-cohort born in 1971-1995. Differences with point estimates for boys are however not statistically significant.

These results indicate that sons and daughters of graduates have benefited from relatively comparable advantages. If anything, social reproduction in the *Grandes Écoles* could be slightly higher from fathers to daughters, than from fathers to sons. This could be one of the mechanisms contributing to the subtle non-significant upturn in social reproduction over the last decade. Indeed, if social reproduction is higher for daughters, the rise in the share of women among graduates mechanically increases the measure of social reproduction. Yet, this is not the only factor, as we find a comparable subtle increase of social reproduction over the last decade for sons only, by comparing the last columns of Appendix Tables 1.B.12a and 1.B.12b. In any case, the increasing enrollment of women constitute a progress for gender equality.

1.6 Discussion

While the top *Grandes Écoles* (GE) constitute the royal way to top positions in both the public and private sectors in France, this paper provides the first estimations of intergenerational social reproduction in these schools, with a historical perspective over more than a century. Our baseline sample covers cohorts born between 1866 and 1995 and is constituted of graduates from 9 of the most selective and prestigious GE, accounting for the top 0.18% of the educational distribution in France. Although the reduction of inequalities is a stated objective of educational policies, we show that the meritocratic promises rooted in the French Revolution were not fully kept. There are remanences of history in the admissions to the *Grandes Écoles*, as families of aristocratic ascendance still enroll at significantly higher rates more than two centuries after the Revolution. Geographical disparities are also very prominent: being born in Paris provides 9 to 25 times better admission prospects over the last century, with an upsurge in recent decades following the gentrification of the capital city. These geographical differences indeed encompass socio-economic inequalities, with inner Paris being the extreme illustration. Admission rates of descendants of graduates from the most prestigious *Grandes Écoles* are also very high, relatively to the rest of the population. Those born between 1971 and 1995, whose father are graduates from the *École Nationale d'Administration* had 330 times more chances than the rest of the population to be admitted to *ENA* too. These advantages are dynastical, as descendants of graduates still have 30 to 54 times more chances to also study in a *Grande École*, two to three generations after their ancestor did. Rather than low social mobility overall, the present work provides evidence that the French elites succeed at securing the education of their offspring over several generations, with what we may call a "glass floor".

It is nevertheless worth adding that the *Grandes Écoles* are not the ugly duckling of social reproduction in an otherwise perfectly mobile French schooling system. The access to the GE is a multi-step process and is very much the paroxysm of cumulative advantages or disadvantages over the course of childhood, from nursery school to tertiary education, as conceptualized by DiPrete and Eirich (2006). Moving back only one step ahead in the preparatory classes to the admission examination, François and Berkouk (2018) show that half of the students admitted to *École Polytechnique* in 2010 and in 2012-2014 come from two single preparatory classes, which already drastically select students at the end of high school.

While previous studies on long-term intergenerational mobility in France indicated a decline of inequalities in the access to higher education over the 20th century, using occupation as a background characteristic (Euriat and Thélot, 1995; Vallet and Selz, 2008; Falcon and Bataille, 2018), our results show that, after a *qualitative democratization* for

cohorts born in 1916-1940 compared to those born in 1891-1915, social reproduction in the most prestigious *Grandes Écoles* remained very stable for all cohorts born since World War 1. If anything, intergenerational persistence of education is surreptitiously rising in the recent decades. This may partly be a mechanical consequence of the increasing admissions of women in the French elite schools, since social reproduction from fathers to daughters is possibly slightly higher than the one from fathers to sons. As defended by Bernardi et al. (2018) for the American case, the recent surge in higher education fees—a phenomenon also occurring in France to a lesser extent—may even foster increasing access inequalities in the short future.

Our results cannot be interpreted as the fact that the French *Grandes Écoles* are definitely not accessible to those who do not benefit from these advantages. If we show that across the past century, one third to one half of graduates are born in Paris, that students of noble ascendance roughly account for 0.5% of the population but about 4% of graduates, and that children of *Grandes Écoles* graduates are a very tiny minority but trust up to 17% of the admissions, there remains some degree of regeneration. But while the emphasis is often put on the few individual successes of upward mobility, to promote the meritocratic qualities of the *concours* for the admission to the *Grandes Écoles*, our work shows that French citizens do not share a common starting line. Most of the measures undertaken by the most prestigious schools over the past 20 years—*Convention d'Éducation Prioritaire* at *Sciences Po Paris*, *Cordées de la réussite*, etc.—have targeted a very narrow base polarized at the bottom of the educational distribution (Oberti, 2013), without addressing a selection process, which proves to be structurally unequal. Besides, the abundant public funding allocated to the most prestigious *Grandes Écoles* compared to the universities, as well as the privileged access to the top positions offered to their graduates, must be examined at the light of the admission inequalities extensively exposed by this study.

References for Chapter 1

Albouy, V. and Wanecq, T. (2003). Les inégalités sociales d'accès aux grandes écoles. *Économie et statistique*, 361(1):27–52.

Atkinson, A. B. and Piketty, T. (2007). *Top incomes over the twentieth century: a contrast between continental European and English-speaking countries*. Oxford University Press.

Barone, C. and Ruggera, L. (2018). Educational equalization stalled? Trends in inequality of educational opportunity between 1930 and 1980 across 26 European nations. *European Societies*, 20(1):1–25.

Barone, G. and Mocetti, S. (2020). Intergenerational mobility in the very long run: Florence 1427–2011. *The Review of Economic Studies*.

Barsoux, J.-L. and Lawrence, P. (1991). The making of a French manager. *Harvard Business Review*, 69(4):58–60.

Becker, G. S. and Lewis, H. G. (1973). On the interaction between the quantity and quality of children. *Journal of political Economy*, 81(2, Part 2):S279–S288.

Becker, G. S. and Tomes, N. (1976). Child endowments and the quantity and quality of children. *Journal of political Economy*, 84(4, Part 2):S143–S162.

Becker, G. S. and Tomes, N. (1986). Human capital and the rise and fall of families. *Journal of labor economics*, 4(3, Part 2):S1–S39.

Belhoste, B. (2002). Anatomie d'un concours. L'organisation de l'examen d'admission à l'École polytechnique de la Révolution à nos jours. *Histoire de l'éducation*, 94:141–175.

Beller, E. (2009). Bringing intergenerational social mobility research into the twenty-first century: Why mothers matter. *American Sociological Review*, 74(4):507–528.

Bernardi, F., Hertel, F. R., and Yastrebov, G. (2018). A U-turn in inequality in college attainment by parental education in the US? *Research in social stratification and mobility*, 58:33–43.

Birnbaum, P., Barucq, C., Bellaiche, M., and Marié, A. (1978). *La classe dirigeante française: Dissociation, interpénétration, intégration*. Presses universitaires de France.

Black, S. E. and Devereux, P. J. (2011). Recent developments in intergenerational mobility. In Ashenfelter, O. and Card, D., editors, *Handbook of Labor Economics*, pages 1487–1541. Elsevier. edition 1. volume 4. chapter 16.

Bonneau, C., Charrousset, P., Grenet, J., and Thebault, G. (2021). Quelle démocratisa-

tion des grandes écoles depuis le milieu des années 2000? *Rapport Institut des politiques publiques (IPP)*, N°30.

Borjas, G. J. (1987). Self-selection and the earnings of immigrants. *The American economic review*, 77(4):531–553.

Bouchet-Valat, M. (2014). Les évolutions de l'homogamie de diplôme, de classe et d'origine sociales en France (1969-2011): ouverture d'ensemble, repli des élites. *Revue française de sociologie*, 55(3):459–505.

Bourdieu, P. (1989). *La noblesse d'État: Grandes écoles et esprit de corps*. Éditions de Minuit, Paris.

Bourdieu, P. and de Saint Martin, M. (1987). Agrégation et ségrégation. Le champ des grandes écoles et le champ du pouvoir. *Actes de la recherche en sciences sociales*, 69:2–50.

Bourdieu, P. and Passeron, J.-C. (1964). *Les Héritiers. Les étudiants et la culture.* Les Éditions de Minuit.

Bouvier, G. (2012). Les descendants d'immigrés plus nombreux que les immigrés: une position française originale en Europe. *Immigrés et descendants d'immigrés en France*, pages 11–28.

Breen, R., Luijkx, R., Müller, W., and Pollak, R. (2009). Nonpersistent inequality in educational attainment: Evidence from eight European countries. *American journal of sociology*, 114(5):1475–1521.

Breen, R. and Müller, W. (2020). *Education and intergenerational social mobility in Europe and the United States*. Stanford University Press.

Brezis, E. S. and Hellier, J. (2018). Social mobility at the top and the higher education system. *European Journal of Political Economy*, 52:36–54.

Buchmann, C. and DiPrete, T. A. (2006). The growing female advantage in college completion: The role of family background and academic achievement. *American sociological review*, 71(4):515–541.

Buchmann, C. and DiPrete, T. A. (2013). *The rise of women: The growing gender gap in education and what it means for American schools*. Russell Sage Foundation.

Chetty, R., Friedman, J. N., Saez, E., Turner, N., and Yagan, D. (2020). Income segregation and intergenerational mobility across colleges in the United States. *The Quarterly Journal of Economics*, 135(3):1567–1633.

Chetty, R., Hendren, N., Kline, P., and Saez, E. (2014). Where is the land of opportunity? The geography of intergenerational mobility in the United States. *The Quarterly Journal of Economics*, 129(4):1553–1623.

Clark, G. and Cummins, N. (2014). Surnames and social mobility in England, 1170–2012. *Human Nature*, 25(4):517–537.

Clark, G., Cummins, N., Diaz Vidal, D., Hao, Y., Ishii, T., Landes, Z., Marcin, D.,

Mo Jung, K., Marek, A., and Williams, K. (2014). *The Son also Rises: 1,000 Years of Social Mobility*. Princeton University Press, Princeton.

Collado, M. D., Ortuño-Ortín, I., and Romeu, A. (2012). Intergenerational linkages in consumption patterns and the geographical distribution of surnames. *Regional Science and Urban Economics*, 42(1-2):341–350.

Coulmont, B. (2019). Dupont n'est pas du Pont. Sociographie de la noblesse d'apparence. *Histoire & mesure*, 34(XXXIV-2):153–192.

de Beauvoir, S. (1958). *Mémoires d'une jeune fille rangée*. Gallimard.

de Saint-Martin, M. (1993). *L'espace de la noblesse*. Métailié.

Delefortrie-Soubeyroux, N. (1961). *Les dirigeants de l'industrie française*, volume 6. Armand Colin.

DiPrete, T. A. and Eirich, G. M. (2006). Cumulative advantage as a mechanism for inequality: A review of theoretical and empirical developments. *Annual Review of Sociology*, 32:271–297.

Docquier, F. and Marfouk, A. (2006). International migration by education attainment, 1990–2000. In Ozden, C. and Schiff, M., editors, *International migration remittances and the brain drain*, pages 151–199. World Bank and Palgrave Macmillan.

Dronkers, J. (2003). Has the Dutch nobility retained its social relevance during the 20th century? *European Sociological Review*, 19(1):81–96.

Dupâcquer, J. and Kessler, D. (1992). *La société française au XXIème siècle*. Fayard.

Dupâquier, J. (1988). *Histoire de la population française (tome 3): De 1789 à 1914*. PUF.

Dupâquier, J. (1992). Nos patronymes vont-ils disparaître ? In Dupâcquer, J. and Kessler, D., editors, *La société française au XXIème siècle*, pages 461–488. Fayard.

Dürr, M. (1992). La reproduction différentielle des familles. In Dupâcquer, J. and Kessler, D., editors, *La société française au XXIème siècle*, pages 439–459. Fayard.

Duru-Bellat, M. and Jarousse, J.-P. (1996). Le masculin et le féminin dans les modèles éducatifs des parents. *Économie et statistique*, 293(1):77–93.

Elias, N. (1985). *La société de cour*. Flammarion Paris.

Erikson, R. and Goldthorpe, J. H. (1992). *The constant flux: A study of class mobility in industrial societies*. Oxford University Press.

Erikson, R. and Goldthorpe, J. H. (2002). Intergenerational inequality: A sociological perspective. *Journal of Economic Perspectives*, 16(3):31–44.

Euriat, M. and Thélot, C. (1995). Le recrutement social de l'élite scolaire en France: évolution des inégalités de 1950 à 1990. *Revue française de sociologie*, pages 403–438.

Falcon, J. and Bataille, P. (2018). Equalization or reproduction? Long-term trends in the intergenerational transmission of advantages in higher education in France. *European Sociological Review*, 34(4):335–347.

Ferrand, M., Imbert, F., and Marry, C. (1999). *L'excellence scolaire, une affaire de famille: le cas des normaliennes et normaliens scientifiques*. Editions L'Harmattan.

François, P. and Berkouk, N. (2018). Are competitive entrance exams neutral? Competition and sponsorship in access to the École polytechnique. *Sociologie*, 9(2):169–196.

Frémeaux, N. and Lefranc, A. (2020). Assortative mating and earnings inequality in France. *Review of Income and Wealth*, 66(4):757–783.

Friggit, J. (2008). Comparing four secular home price indices. *CGEDD*, Working paper.

Ganzeboom, H. B., Luijkx, R., and Treiman, D. (1989). Intergenerational class mobility in comparative perspective. *Research in social Stratification and Mobility*, 8:3–84.

Ganzeboom, H. B., Treiman, D. J., and Ultee, W. C. (1991). Comparative intergenerational stratification research: Three generations and beyond. *Annual Review of sociology*, 17(1):277–302.

Goux, D. and Maurin, E. (2003). Who marries whom in France? In Blossfeld, H.-P. and Timm, A., editors, *Who Marries Whom? Educational Systems as Marriage Markets in Modern Societies*, pages 57–78. Springer.

Güell, M., Rodríguez Mora, J. V., and Telmer, C. I. (2007). Intergenerational mobility and the informative content of surnames. *CEPR Discussion Papers*. nÂ° 6316.

Güell, M., Rodríguez Mora, J. V., and Telmer, C. I. (2015). The informational content of surnames, the evolution of intergenerational mobility, and assortative mating. *The Review of Economic Studies*, 82(2 (291)):693–735.

Henderson, M., Shure, N., and Adamecz-Völgyi, A. (2020). Moving on up: 'first in family' university graduates in England. *Oxford Review of Education*, 46(6):734–751.

Kravdal, Ø. and Rindfuss, R. R. (2008). Changing relationships between education and fertility: A study of women and men born 1940 to 1964. *American sociological review*, 73(5):854–873.

Kuznets, S. and Jenks, E. (1953). Shares of upper income groups in savings. In *Shares of upper income groups in income and savings*, pages 171–218. NBER.

Le Bras, H. (1983). Les origines d'une promotion de Polytechniciens. *Population*, pages 491–502.

Lefranc, A., Pistolesi, N., and Trannoy, A. (2009). Equality of opportunity and luck: Definitions and testable conditions, with an application to income in France. *Journal of Public Economics*, 93(11):1189–1207.

Longley, P. A., Webber, R., and Lloyd, D. (2007). The quantitative analysis of family names: Historic migration and the present day neighborhood structure of Middlesbrough, United Kingdom. *Annals of the Association of American Geographers*, 97(1):31–48.

Mare, R. D. (1980). Social background and school continuation decisions. *Journal of the american statistical association*, 75(370):295–305.

Mazuy, M., Barbieri, M., Breton, D., and d'Albis, H. (2015). L'évolution démographique récente de la France et ses tendances depuis 70 ans. *Population*, 70(3):417–486.

Meer, J. and Rosen, H. S. (2009). Altruism and the child cycle of alumni donations. *American Economic Journal: Economic Policy*, 1(1):258–86.

Meurs, D., Pailhé, A., and Simon, P. (2006). The persistence of intergenerational inequalities linked to immigration: Labour market outcomes for immigrants and their descendants in France. *Population*, 61(5):645–682.

Mullen, A. L., Goyette, K. A., and Soares, J. A. (2003). Who goes to graduate school? Social and academic correlates of educational continuation after college. *Sociology of Education*, 76(2):143–169.

Nielsen, H. S. and Svarer, M. (2009). Educational homogamy how much is opportunities? *Journal of Human Resources*, 44(4):1066–1086.

Oberti, M. (2013). Politique «d'ouverture sociale», ségrégation et inégalités urbaines: le cas de Sciences Po en Île-de-France. *Sociologie*, 4(3):269–289.

OECD (2016). Education at a glance 2016: OECD indicators. *OECD Publishing*.

Pasquali, P. (2021). *Héritocratie: Les élites, les grandes écoles et les mésaventures du mérite (1870-2020)*. La Découverte.

Passant, A. J.-G. (2020). *L'origine des écoles de commerce: ESCP Business School, la passion d'entreprendre*. Editions L'Harmattan.

Peyrefitte, A. (1964). *La Rue d'Ulm*. Flammarion, Paris.

Picon, A., Belhoste, B., and Dahan-Dalménico, A. (1994). *La formation polytechnicienne 1794-1994*. Dunod.

Piketty, T. (2003). Income inequality in France, 1901–1998. *Journal of political economy*, 111(5):1004–1042.

Piketty, T. (2014). *Capital in the twenty-first century*. Harvard University Press.

Piketty, T. (2020). *Capital and Ideology*. Harvard University Press.

Piketty, T. and Saez, E. (2003). Income inequality in the United States, 1913–1998. *The Quarterly journal of economics*, 118(1):1–41.

Poupeau, F. and François, J.-C. (2008). *Le sens du placement. Ségrégation résidentielle et ségrégation scolaire*. Raisons d'agir.

Préteceille, E. (2007). Is gentrification a useful paradigm to analyse social changes in the Paris metropolis? *Environment and Planning A*, 39(1):10–31.

Prost, A. (1968). *L'enseignement en France, 1800-1967*. Armand Colin.

Rochas, J.-E. (1994). Rétrospective démographique de la France par département et région. *INSEE*.

Shavit, Y., Arum, R., Gamoran, A., and Menahem, G. (2007). *Stratification in higher education: A comparative study*. Stanford University Press.

Shavit, Y. and Blossfeld, H.-P. (1993). *Persistent Inequality: Changing Educational Attainment in Thirteen Countries. Social Inequality Series*. Westview Press.

Sobotka, T. and Beaujouan, É. (2014). Two is best? The persistence of a two-child family ideal in Europe. *Population and Development Review*, 40(3):391–419.

Solon, G. (1992). Intergenerational income mobility in the United States. *The American Economic Review*, pages 393–408.

Stolzenberg, R. M. (1994). Educational continuation by college graduates. *American Journal of Sociology*, 99(4):1042–1077.

Stone, L. (1971). *Daedalus*, volume , 100, pp. 46-79., chapter Prosopography. The MIT Press.

Suleiman, E. N. (1978). *Elites in French society: the politics of survival*. Princeton University Press.

Thélot, C. and Vallet, L.-A. (2000). La réduction des inégalités sociales devant l'école depuis le début du siècle. *Économie et statistique*, 334(1):3–32.

Torche, F. (2015). Intergenerational mobility and equality of opportunity. *European Journal of Sociology/Archives Européennes de Sociologie*, 56(3):343–371.

Torche, F. (2018). Intergenerational mobility at the top of the educational distribution. *Sociology of Education*, 91(4):266–289.

Torche, F. and Corvalan, A. (2018). Estimating intergenerational mobility with grouped data: A critique of Clark's The son also rises. *Sociological Methods & Research*, 47(4):787–811.

Toulemon, L. (2001). How many children and how many siblings in France in the last century. *Population and Societies*, 374(4).

Toulemon, L., Pailhé, A., and Rossier, C. (2008). France: High and stable fertility. *Demographic research*, 19:503–556.

Vallet, L.-A. and Selz, M. (2008). Évolution historique de l'inégalité des chances devant l'école: des méthodes et des résultats revisités. *Idées économiques et sociales*, 4(154):59–68.

Vion, A., Joly, H., Grémont, É., and Dudouet, F.-X. (2014). Retour sur le champ du pouvoir économique en France: l'espace social des dirigeants du CAC 40. *Revue Française de Socio-Economie*, 1(13):23–48.

Wacholder, S. (1986). Binomial regression in GLIM: estimating risk ratios and risk differences. *American journal of epidemiology*, 123(1):174–184.

Watson, H. W. and Galton, F. (1875). On the probability of the extinction of families. *The Journal of the Anthropological Institute of Great Britain and Ireland*, 4:138–144.

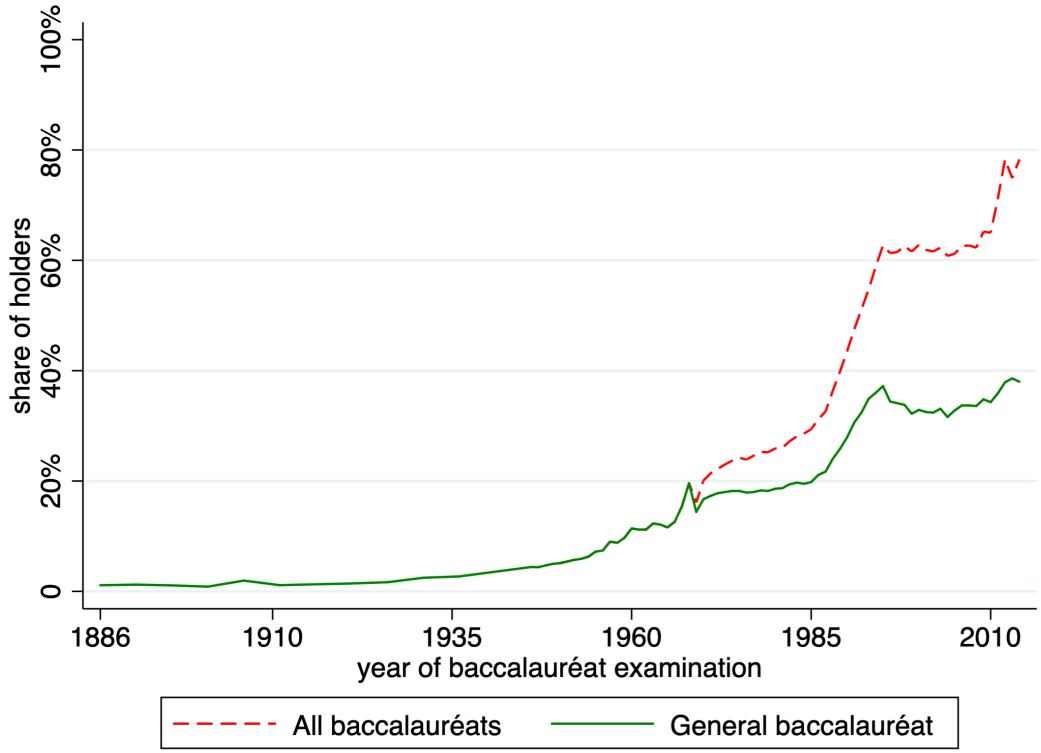
Wood, J. B. (1977). Demographic pressure and social mobility among the nobility of early modern France. *The sixteenth century journal*, 8(1):3–16.

Zimmerman, D. J. (1992). Regression toward mediocrity in economic stature. *The American Economic Review*, 82(3):409–429.

Appendices to Chapter 1

1.A Complementary figures

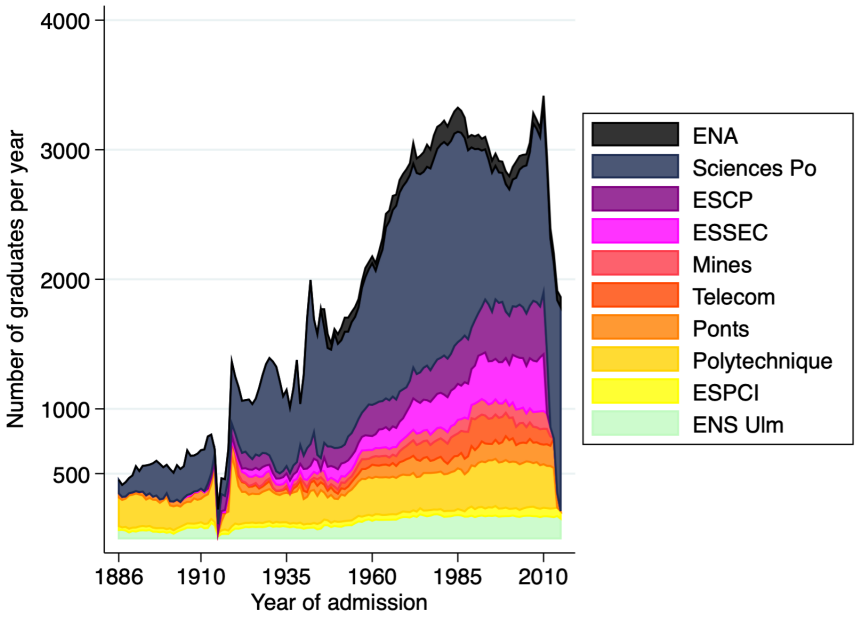
Figure 1.A.1: Historical evolution of the share in the French population of *baccalauréat* holders, who constitute potential applicants to the *Grandes Écoles*.



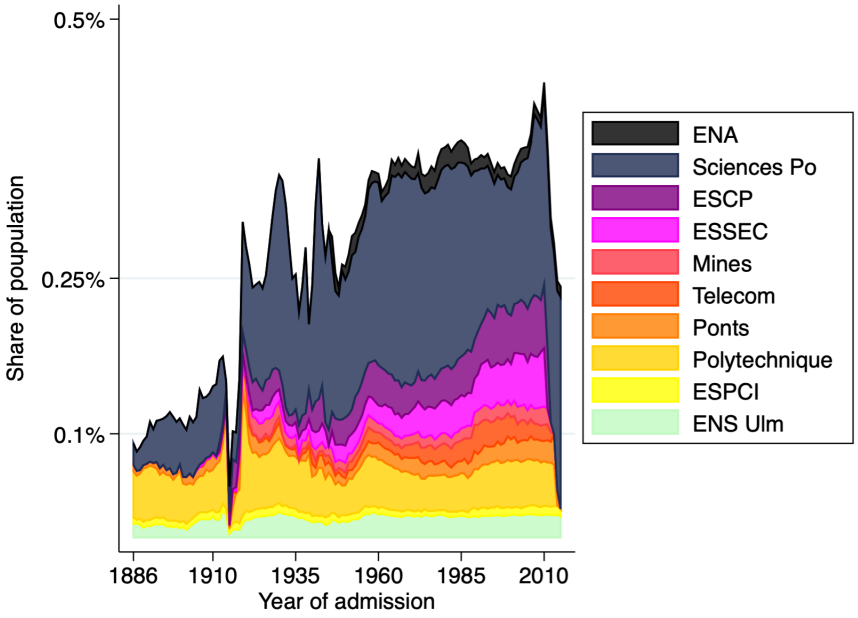
Notes: We report the share of *baccalauréat* holders for each year of examination from different sources. This provides a measure of the evolution of the population, statutorily entitled to apply to the preparatory classes to the *Grandes Écoles*, as holding a *baccalauréat* degree constitutes a necessary requirement. Until 1949, we exploit data from the Ministry of National Education—*L'évolution du nombre des bacheliers (1851-1979)*. From 1950 to 1969, data comes from the Ministry of Higher Education and Research—*Les évolutions de l'enseignement supérieur depuis 50 ans : croissance et diversification*. From 1970 onwards, we use data from `data.gouv.fr`—*La proportion de bacheliers dans une génération*. The drop in 1970 may therefore be explained by the change of data source.

Figure 1.A.2: Evolution of the size of *Grandes Écoles* cohorts (1886-2015).

(a) Number of graduates.

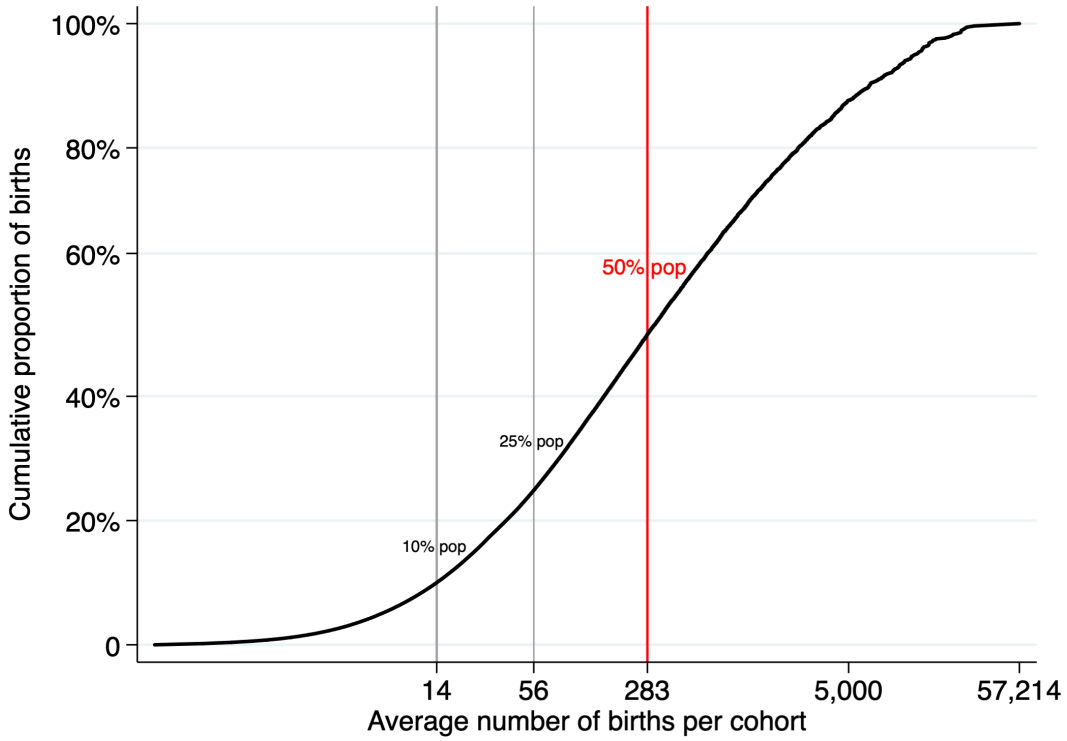


(b) Population share.



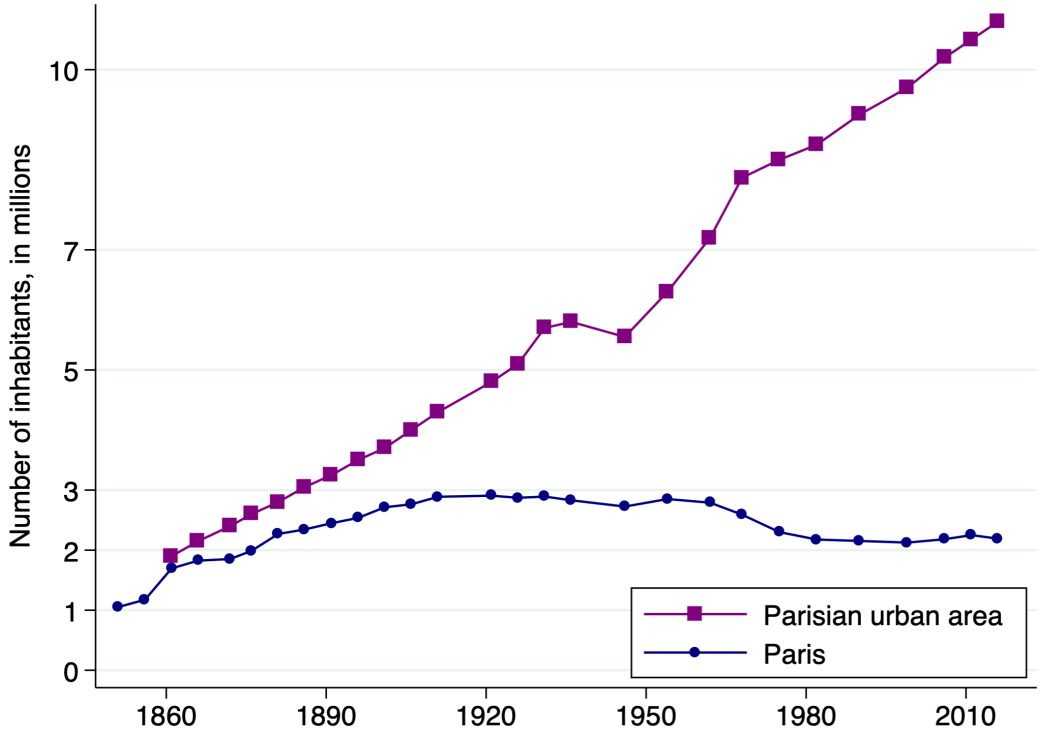
Notes: Panel (a) reports over time the evolution of the number of graduates in each school. Panel (b) reports over time the evolution of the share of the population admitted to each school. We stack for each year the number of graduates of the different schools, only including students with "native" surnames—as defined in section 1.3—, which are the ones considered in the study. For Panel (b), we then divide the number of graduates by the number of births per year at the national level provided by INSEE (https://www.insee.fr/fr/statistiques/4192361).

Figure 1.A.3: Surnames' frequency in France.



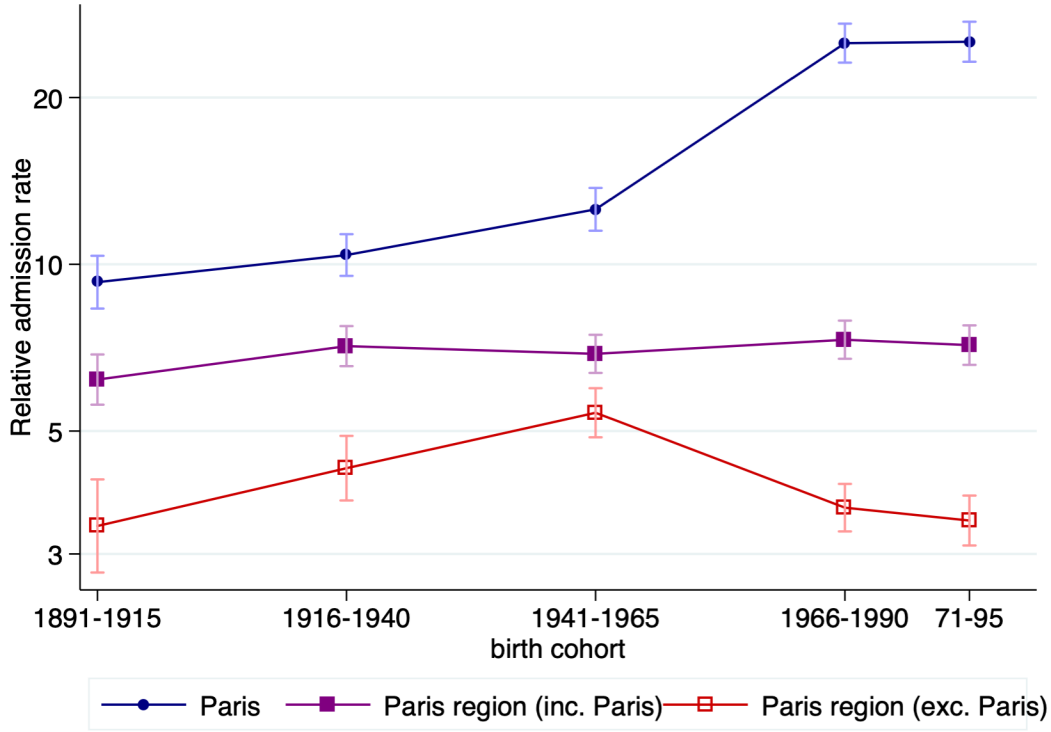
Notes: The figure is based on the number of births by surname per 25-year cohort averaged over the period 1891-1990. We use a logarithmic scale for the abscissa to emphasize the importance of rare surnames. While the number of births per cohort for a single surname ranges from 0.5 to 57,214 (*Martin*), the figure shows that surnames with less than 14 births per cohort account for 10% of all births over the period (*10% pop* vertical line). Surnames with at most 56 births per cohort account for 25% of the population (*25% pop* vertical line), whereas half of the population born between 1891 and 1990 had a surname with less than 283 births per cohort (*50% pop* vertical line). This only includes "native" surnames, as defined in section 1.3. Including all surnames, the 10%, 25% and 50% cut-offs would correspond to even rarer surnames, with averages of 11, 48 and 246 births per cohort respectively.

Figure 1.A.4: Historical population of inner Paris and of Parisian urban area (1850-2015).



Notes: This is a reproduction from *Paris Atlas Historique*: paris-atlas-historique.fr/resources/Croissance_population_Paris.png. Dots and squares correspond to dates with censuses. Until 1860, there is about no population in the surroundings of the capital city. Then, the demographical weight of the capital city within the capital region has shrunk from 80% in 1880, to about 50% around 1950, and less than 20% nowadays. Before World War 1, only the very limitrophe area around Paris (*la Petite couronne*) was significantly populated. This is only in the interwar years that the Parisian suburb really expanded. Despite a halt in rural exodus due to the 1929 crisis, the suburb has more inhabitants than the capital city since the 1930s. The phenomenon was reinforced during the *Trente glorieuses* (1945-1973) with numerous constructions, including the *villes nouvelles* project (new cities created in the suburb), which was accompanied by the express suburban train (RER). Fostered by a sudden increase in house prices (Friggit, 2008), as well as by the reduction in the number of persons per household (Rochas, 1994), the population of inner Paris decreased rapidly, from 2.8 million in 1960 to 2.2 million inhabitants in 1980, a level which remained relatively stable since. Both world wars were followed by large decrease in Parisian house prices, which were divided by 15 between 1900 and 1950. On the contrary, the second half of the 20th century sees a constant price increase. Housing in the suburb becomes more attractive, notably during a crisis of high prices in inner Paris between 1987 and 1995 (refer to Friggit, 2008 for more details).

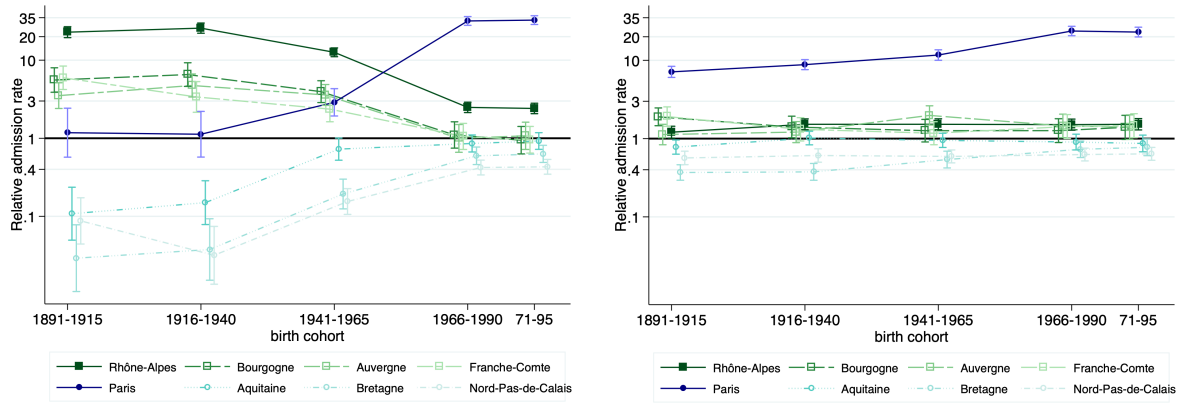
Figure 1.A.5: Complementary results: relative admission rates to any of the 9 *Grandes Écoles* of individuals born in Paris, in the Parisian area, or in the Parisian area to the exclusion of inner Paris.



Notes: This figure reports by birth cohort the relative admission rates to the baseline 9 *Grandes Écoles* of children whose surnames indicate that they are born in Paris, in the Parisian region, or alternatively in the Parisian region to the exclusion of the city of Paris itself. Brackets refer to 95% confidence intervals. We use a logarithmic scale for the ordinate.

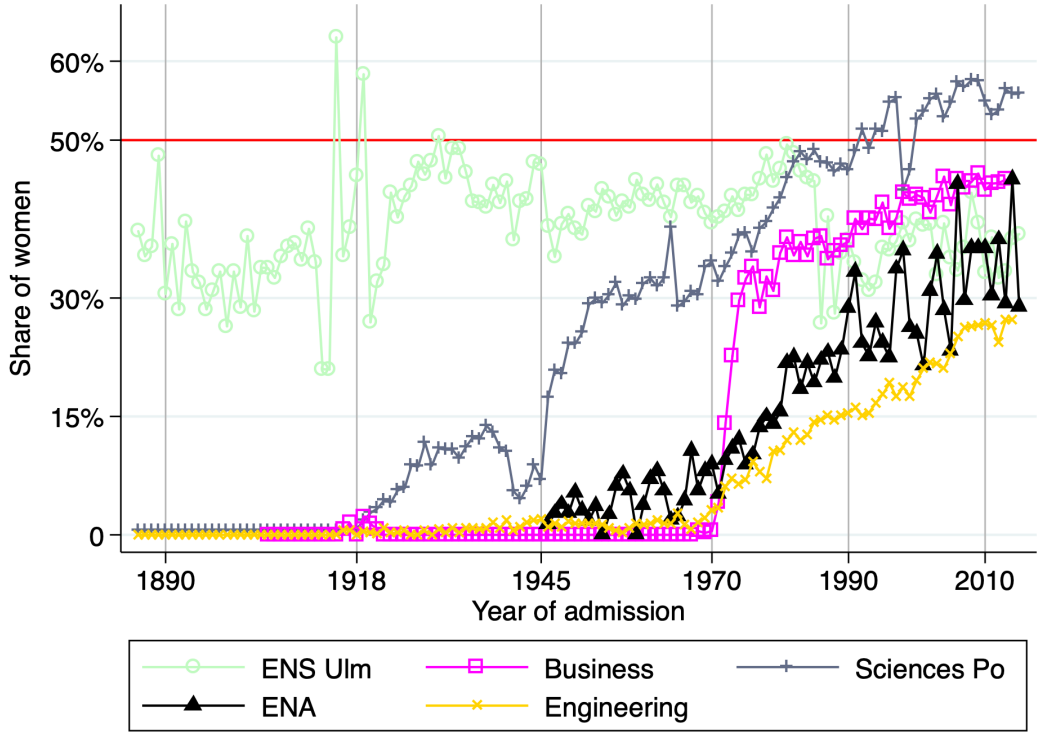
Figure 1.A.6: Relevance of the geographical dimension of surnames: *EM Lyon*, the rise of a regional school.

(a) *EM Lyon.* (b) *École Polytechnique.*



Notes: Both figures report the relative admission rates, to *EM Lyon* (a) or to *École Polytechnique* for comparison (b), of people born in *Rhône-Alpes* (Lyon area), in the three surrounding regions of *Bourgogne*, *Auvergne* and *Franche-Comté*, but also in three regions distant from Lyon, namely *Aquitaine* (south-west), *Bretagne* (north-west), and *Nord-Pas-de-Calais* (north), as well as in inner Paris. Brackets refer to 95% confidence intervals. We use a logarithmic scale for the ordinate. We observe that the recruitment of *EM Lyon* was mostly regional for cohorts born in 1891-1915 or 1916-1940: Parisians were evenly represented in the school, while individuals born in *Rhône-Alpes* but also in the surrounding regions were highly over-represented. By contrast, individuals from distant regions were highly under-represented. The cohort 1941-1965 operates the transition towards what we observe in the schools of our baseline: Parisians become highly over-represented. At the same time, there is a convergence between regions, independently of their geographical proximity to Lyon, except for those born in *Rhône-Alpes* itself, whose prospects of admissions to *EM Lyon* remain higher than to *École Polytechnique*. Figure (b) indeed serves as a counterfactual, representative of the schools from our baseline sample, with *École Polytechnique* being located in the Parisian area. Registers of students at *EM Lyon* include 13,136 students born between 1891 and 1992. They are not included in any of the statistics in the paper besides the present figure. The regional dimension of the school until the recent cohort implied indeed that it was not historically comparable to the rest of our sample. The very high over-representation of students born in the area at *EM Lyon*, when the school did not benefit from a national reputation, underlines how accurately surnames identify regional origin.

Figure 1.A.7: Share of women among enrolled students, by school category (1886-2015).



Notes: The figure reports by year of admission the share of women among students at each school or school category between 1886 and 2015. A small data manipulation is done to improve readability, as the share of women admitted to *ENS* in 1915 is actually a 100%. The school dedicated to men recruited no student that specific year. Anyway, until the reunification of the two gender-separated schools in 1985, the share of women at *ENS* rather constitutes a ratio of relative size between the two institutions.

1.B Complementary tables

Table 1.B.1: Decomposition by cohort of the contribution of each school to the total number of graduates in the baseline sample.

Cohort	Polytech-nique	Ponts	ESPCI	Mines	Télécom	ESCP	ESSEC	ENS Ulm	ENA
1866-1890	67%	10%	10%	0%	1%	0%	1%	13%	0%
1891-1915	45%	10%	6%	7%	2%	15%	7%	15%	0%
1916-1940	31%	7%	5%	7%	5%	19%	12%	13%	9%
1941-1965	22%	8%	3%	6%	9%	19%	17%	13%	11%
1966-1990	20%	9%	4%	7%	10%	23%	20%	10%	4%
1971-1995	21%	10%	4%	7%	9%	22%	19%	11%	4%

Notes: The table reports by cohort the fraction of the total number of graduates in the baseline sample of the 9 *Grandes Écoles* attending each given school. By definition, lines sum to more than 100% because some students are counted multiple times in different schools, when they followed several curricula.

Table 1.B.2: Historical, geographical, and lineal advantages: descriptive statistics.

Category of advantage	Variable	Mean (among positive)	Number of surnames	Population share
Historical	Particle_surnames_1891_1915	1.00	14,363	0.36%
Historical	Particle_surnames_1916_1940	1.00	14,363	0.44%
Historical	Particle_surnames_1941_1965	1.00	14,363	0.48%
Historical	Particle_surnames_1966_1990	1.00	14,363	0.59%
Historical	Particle_surnames_1971_1995	1.00	14,363	0.59%
Historical	Registered_nobility_1891_1915	1.00	2,486	0.12%
Historical	Registered_nobility_1916_1940	1.00	2,486	0.14%
Historical	Registered_nobility_1941_1965	1.00	2,486	0.15%
Historical	Registered_nobility_1966_1990	1.00	2,486	0.20%
Historical	Registered_nobility_1971_1995	1.00	2,486	0.20%
Lineal	Father_at_Sciences_Po_1891_1915	0.21	4,314	0.10%
Lineal	Father_at_Sciences_Po_1916_1940	0.21	7,666	0.18%
Lineal	Father_at_Sciences_Po_1941_1965	0.17	12,073	0.26%
Lineal	Father_at_Sciences_Po_1966_1990	0.12	16,837	0.28%
Lineal	Father_at_Sciences_Po_1971_1995	0.12	16,696	0.28%
Lineal	Father_at_ENA_1891_1915	0.00	0	0.00%
Lineal	Father_at_ENA_1916_1940	0.00	0	0.00%
Lineal	Father_at_ENA_1941_1965	0.10	1,527	0.03%
Lineal	Father_at_ENA_1966_1990	0.08	2,553	0.03%
Lineal	Father_at_ENA_1971_1995	0.07	2,450	0.03%
Lineal	Father_at_ENS_Ulm_1891_1915	0.08	909	0.02%
Lineal	Father_at_ENS_Ulm_1916_1940	0.09	1,047	0.02%
Lineal	Father_at_ENS_Ulm_1941_1965	0.10	1,274	0.02%
Lineal	Father_at_ENS_Ulm_1966_1990	0.07	1,980	0.03%
Lineal	Father_at_ENS_Ulm_1971_1995	0.08	2,118	0.03%
Lineal	Father_at_espci_1891_1915	0.10	678	0.01%
Lineal	Father_at_espci_1916_1940	0.11	700	0.01%
Lineal	Father_at_espci_1941_1965	0.12	707	0.01%
Lineal	Father_at_espci_1966_1990	0.06	798	0.01%
Lineal	Father_at_espci_1971_1995	0.06	838	0.01%
Lineal	Father_at_Polytechnique_1891_1915	0.12	4,012	0.10%
Lineal	Father_at_Polytechnique_1916_1940	0.13	4,530	0.11%
Lineal	Father_at_Polytechnique_1941_1965	0.11	4,625	0.09%
Lineal	Father_at_Polytechnique_1966_1990	0.08	5,436	0.08%
Lineal	Father_at_Polytechnique_1971_1995	0.08	5,410	0.08%
Lineal	Father_at_Ponts_1891_1915	0.12	733	0.01%
Lineal	Father_at_Ponts_1916_1940	0.11	1,165	0.02%
Lineal	Father_at_Ponts_1941_1965	0.11	1,285	0.02%
Lineal	Father_at_Ponts_1966_1990	0.07	2,226	0.03%
Lineal	Father_at_Ponts_1971_1995	0.07	2,307	0.03%
Lineal	Father_at_Télécom_1891_1915	0.10	50,	0.00%
Lineal	Father_at_Télécom_1916_1940	0.10	263	0.00%
Lineal	Father_at_Télécom_1941_1965	0.09	992	0.02%
Lineal	Father_at_Télécom_1966_1990	0.07	2,328	0.03%
Lineal	Father_at_Télécom_1971_1995	0.07	2,742	0.04%
Lineal	Father_at_mines_1891_1915	0.00	0,	0.00%
Lineal	Father_at_mines_1916_1940	0.14	885	0.02%
Lineal	Father_at_mines_1941_1965	0.10	1,211	0.02%
Lineal	Father_at_mines_1966_1990	0.07	1,704	0.02%
Lineal	Father_at_mines_1971_1995	0.07	1,832	0.02%
Lineal	Father_at_ESSEC_1891_1915	0.00	0,	0.00%
Lineal	Father_at_ESSEC_1916_1940	0.13	767	0.02%
Lineal	Father_at_ESSEC_1941_1965	0.10	1,947	0.03%
Lineal	Father_at_ESSEC_1966_1990	0.08	3,622	0.05%
Lineal	Father_at_ESSEC_1971_1995	0.08	3,764	0.05%
Lineal	Father_at_ESCP_1891_1915	0.00	0,	0.00%
Lineal	Father_at_ESCP_1916_1940	0.10	1,781	0.04%
Lineal	Father_at_ESCP_1941_1965	0.10	3,148	0.06%
Lineal	Father_at_ESCP_1966_1990	0.09	3,975	0.05%
Lineal	Father_at_ESCP_1971_1995	0.09	3,913	0.05%
Lineal	Father_at_9_GE_1891_1915	0.13	5,502	0.14%
Lineal	Father_at_9_GE_1916_1940	0.14	8,602	0.23%
Lineal	Father_at_9_GE_1941_1965	0.13	12,072	0.27%
Lineal	Father_at_9_GE_1966_1990	0.10	16,651	0.29%
Lineal	Father_at_9_GE_1971_1995	0.10	16,972	0.30%
Lineal	Father_at_Polyt_ENS_ESPCI_1891_1915	0.12	5,139	0.13%
Lineal	Father_at_Polyt_ENS_ESPCI_1916_1940	0.13	5,776	0.15%
Lineal	Father_at_Polyt_ENS_ESPCI_1941_1965	0.12	6,073	0.12%
Lineal	Father_at_Polyt_ENS_ESPCI_1966_1990	0.08	7,466	0.11%
Lineal	Father_at_Polyt_ENS_ESPCI_1971_1995	0.08	7,579	0.12%
Lineal	Father_at_Engineering_1891_1915	0.13	4,851	0.12%
Lineal	Father_at_Engineering_1916_1940	0.14	6,111	0.15%
Lineal	Father_at_Engineering_1941_1965	0.12	6,648	0.13%
Lineal	Father_at_Engineering_1966_1990	0.09	8,953	0.14%
Lineal	Father_at_Engineering_1971_1995	0.08	9,267	0.15%
Lineal	Father_at_Business_1891_1915	0.17	47,	0.00%
Lineal	Father_at_Business_1916_1940	0.11	2,390	0.05%
Lineal	Father_at_Business_1941_1965	0.11	4,636	0.09%
Lineal	Father_at_Business_1966_1990	0.09	6,531	0.09%
Lineal	Father_at_Business_1971_1995	0.09	6,507	0.09%

Category of advantage	Variable	Mean (among positive)	Number of surnames	Population share
Geographical	Paris_1891_1915	0.31	128,453	6.7%
Geographical	Paris_1916_1940	0.33	166,487	6.7%
Geographical	Paris_1941_1965	0.24	159,330	6.0%
Geographical	Paris_1966_1990	0.19	133,616	4.0%
Geographical	IDF_without_Paris_1891_1915	0.23	80,121	4.4%
Geographical	IDF_without_Paris_1916_1940	0.26	128,547	5.8%
Geographical	IDF_without_Paris_1941_1965	0.27	169,828	8.4%
Geographical	IDF_without_Paris_1966_1990	0.30	204,127	12.3%
Geographical	IDF_with_Paris_1891_1915	0.38	153,281	11.1%
Geographical	IDF_with_Paris_1916_1940	0.42	211,547	12.6%
Geographical	IDF_with_Paris_1941_1965	0.39	221,707	14.4%
Geographical	IDF_with_Paris_1966_1990	0.38	231,765	16.3%
Geographical	Alsace_1891_1915	0.60	28,757	3.6%
Geographical	Alsace_1916_1940	0.44	31,901	3.1%
Geographical	Alsace_1941_1965	0.32	39,061	3.0%
Geographical	Alsace_1966_1990	0.24	50,309	3.0%
Geographical	Aquitaine_1891_1915	0.51	60,665	5.3%
Geographical	Aquitaine_1916_1940	0.44	75,742	5.2%
Geographical	Aquitaine_1941_1965	0.34	83,371	5.1%
Geographical	Aquitaine_1966_1990	0.28	86,829	4.8%
Geographical	Auvergne_1891_1915	0.32	28,899	3.3%
Geographical	Auvergne_1916_1940	0.28	37,832	3.1%
Geographical	Auvergne_1941_1965	0.22	45,090	2.9%
Geographical	Auvergne_1966_1990	0.18	43,986	2.5%
Geographical	Bassse_Normandie_1891_1915	0.28	26,047	2.6%
Geographical	Bassse_Normandie_1916_1940	0.26	37,126	3.0%
Geographical	Bassse_Normandie_1941_1965	0.21	39,275	2.9%
Geographical	Bassse_Normandie_1966_1990	0.17	41,953	2.7%
Geographical	Bourgogne_1891_1915	0.28	36,333	3.5%
Geographical	Bourgogne_1916_1940	0.25	49,623	3.3%
Geographical	Bourgogne_1941_1965	0.21	54,821	3.1%
Geographical	Bourgogne_1966_1990	0.18	56,857	2.9%
Geographical	Bretagne_1891_1915	0.50	38,366	6.8%
Geographical	Bretagne_1916_1940	0.41	44,434	6.4%
Geographical	Bretagne_1941_1965	0.30	48,602	5.5%
Geographical	Bretagne_1966_1990	0.23	60,007	5.4%
Geographical	Centre_1891_1915	0.29	41,643	4.4%
Geographical	Centre_1916_1940	0.26	55,252	4.3%
Geographical	Centre_1941_1965	0.21	65,290	4.2%
Geographical	Centre_1966_1990	0.17	71,649	4.0%
Geographical	Champagne_Ardenne_1891_1915	0.27	35,536	2.7%
Geographical	Champagne_Ardenne_1916_1940	0.25	50,197	2.8%
Geographical	Champagne_Ardenne_1941_1965	0.21	51,774	2.8%
Geographical	Champagne_Ardenne_1966_1990	0.18	53,068	2.6%
Geographical	Corse_1891_1915	0.48	6,696	0.9%
Geographical	Corse_1916_1940	0.35	7,357	0.6%
Geographical	Corse_1941_1965	0.20	8,481	0.4%
Geographical	Corse_1966_1990	0.14	11,517	0.4%
Geographical	Franche_Comte_1891_1915	0.30	25,086	2.3%
Geographical	Franche_Comte_1916_1940	0.27	31,116	2.2%
Geographical	Franche_Comte_1941_1965	0.21	34,715	2.1%
Geographical	Franche_Comte_1966_1990	0.18	38,392	2.0%
Geographical	Haute_Normandie_1891_1915	0.26	31,392	2.9%
Geographical	Haute_Normandie_1916_1940	0.24	45,006	3.2%
Geographical	Haute_Normandie_1941_1965	0.20	46,854	3.1%
Geographical	Haute_Normandie_1966_1990	0.17	53,334	3.2%
Geographical	Languedoc_Roussillon_1891_1915	0.39	33,371	3.6%
Geographical	Languedoc_Roussillon_1916_1940	0.36	42,705	3.2%
Geographical	Languedoc_Roussillon_1941_1965	0.25	50,593	2.9%
Geographical	Languedoc_Roussillon_1966_1990	0.18	62,806	2.8%
Geographical	Limousin_1891_1915	0.36	24,580	2.5%
Geographical	Limousin_1916_1940	0.28	27,257	2.0%
Geographical	Limousin_1941_1965	0.20	29,951	1.7%
Geographical	Limousin_1966_1990	0.16	28,907	1.3%
Geographical	Lorraine_1891_1915	0.44	54,335	4.9%
Geographical	Lorraine_1916_1940	0.38	70,673	4.8%
Geographical	Lorraine_1941_1965	0.31	76,670	4.6%
Geographical	Lorraine_1966_1990	0.26	73,170	4.3%
Geographical	Midi_Pyrenees_1891_1915	0.45	37,697	4.7%
Geographical	Midi_Pyrenees_1916_1940	0.39	53,518	4.5%
Geographical	Midi_Pyrenees_1941_1965	0.29	66,427	4.4%
Geographical	Midi_Pyrenees_1966_1990	0.23	69,695	3.9%
Geographical	Nord_Pas_de_Calais_1891_1915	0.54	55,755	7.9%
Geographical	Nord_Pas_de_Calais_1916_1940	0.49	83,065	7.5%
Geographical	Nord_Pas_de_Calais_1941_1965	0.43	79,546	7.5%
Geographical	Nord_Pas_de_Calais_1966_1990	0.37	78,371	7.2%
Geographical	PACA_1891_1915	0.47	55,406	4.3%
Geographical	PACA_1916_1940	0.42	79,077	4.2%
Geographical	PACA_1941_1965	0.31	98,439	4.5%
Geographical	PACA_1966_1990	0.26	117,907	5.3%
Geographical	Pays_de_la_Loire_1891_1915	0.33	38,687	5.5%
Geographical	Pays_de_la_Loire_1916_1940	0.29	49,596	5.8%
Geographical	Pays_de_la_Loire_1941_1965	0.24	54,563	5.9%
Geographical	Pays_de_la_Loire_1966_1990	0.20	63,060	6.0%
Geographical	Picardie_1891_1915	0.28	36,562	3.4%
Geographical	Picardie_1916_1940	0.27	55,174	3.3%
Geographical	Picardie_1941_1965	0.22	54,505	3.3%
Geographical	Picardie_1966_1990	0.18	57,970	3.1%
Geographical	Poitou_Charentes_1891_1915	0.34	33,172	3.6%
Geographical	Poitou_Charentes_1916_1940	0.29	40,897	3.5%
Geographical	Poitou_Charentes_1941_1965	0.23	46,909	3.4%
Geographical	Poitou_Charentes_1966_1990	0.18	47,061	3.0%
Geographical	Rhones_Alpes_1891_1915	0.44	62,094	7.8%
Geographical	Rhones_Alpes_1916_1940	0.43	87,324	7.9%
Geographical	Rhones_Alpes_1941_1965	0.35	101,839	8.3%
Geographical	Rhones_Alpes_1966_1990	0.30	119,458	8.9%

Notes: The table reports descriptive statistics on explanatory variables. We include the mean value of the variable among non-null observations, the number of surnames concerned by non-null values, as well as the population share concerned by each characteristic. For the lineal explanatory variables, the population share is adjusted as detailed in Appendix 1.C.4. The last eleven characters of each variable name corresponds to the birth cohort. Lineal variables relate to fathers graduating from a school or group of schools, including the 9 baseline *Grandes Écoles* (9GE), and the set of schools with stable class sizes (Polyt_ENS_ESPCI). For the geographical variables, *IDF* stands for *Île-de-France* and *PACA* for *Provence-Alpes-Côte-d'Azur*.

Table 1.B.3: Complementary results: risk ratios from a multivariate analysis of admissions to the 9 baseline *Grandes Écoles*.

	1891-1915	1916-1940	1941-1965	1966-1990	1971-1995
Historical: registered nobility	**8.2**	**6.4**	**7.0**	**3.7**	**3.8**
	[6,7-9,8]	[5,3-7,5]	[6-7,9]	[3,2-4,2]	[3,3-4,3]
Geographical: Parisian-born	**7.1**	**8.2**	**8.8**	**16.2**	**16.4**
	[6,3-8]	[7,4-8,9]	[8-9,7]	[14,7-17,7]	[14,9-18]
Lineal: children of graduates	**46.5**	**23.2**	**25.4**	**18.1**	**18.4**
	[35,3-61,2]	[18,3-29,2]	[21,3-30,2]	[15,2-21,4]	[14,9-22,5]

Notes: This table reports, by cohort, risk ratios of admissions to the baseline 9 *Grandes Écoles* for historical, geographical, and lineal advantages from a multivariate analysis. We provide exponential forms of estimates from Poisson regressions, as log-binomial estimations do not systematically converge with multivariate analyses. As 38 to 48% of graduates are Parisians across cohorts, having a father who graduated from a *Grande École* highly correlates with being born in Paris. This multivariate analysis is rather indicative. To properly describe the association of historical, geographical, and lineal characteristics with admissions to the *Grandes Écoles*, we rely on the bivariate analyses presented in Section 3.4.

Table 1.B.4: Complementary results: historical advantage per school.

Cohort	Sciences Po Paris	ENA	ENS Ulm	ESPCI Paris	Polytech -nique	Ponts	Télécom Paris	Mines Paris	ESSEC	ESCP
Particle surnames nobility										
1891-1915	**38.5**	**-**	**1.9**	**3.2**	**15.0**	**8.4**	**6.3**	**18.0**	**34.2**	**4.0**
	[35.6-41.8]	-	[1.1-3.2]	[1.6-6.1]	[13.0-17.2]	[6.0-11.7]	[2.8-14.1]	[13.7-23.8]	[27.3-42.9]	[2.7-5.9]
1916-1940	**16.8**	**12.6**	**2.4**	**4.6**	**9.1**	**4.9**	**5.3**	**9.3**	**25.0**	**11.0**
	[15.5-18.1]	[10.0-15.9]	[1.6-3.6]	[2.9-7.4]	[7.8-10.7]	[3.3-7.1]	[3.5-7.9]	[7.0-12.4]	[21.4-29.1]	[9.3-13.0]
1941-1965	**10.6**	**11.4**	**2.8**	**6.3**	**6.8**	**6.8**	**4.0**	**5.4**	**11.1**	**11.1**
	[9.8-11.4]	[9.6-13.4]	[2.1-3.7]	[4.4-9.1]	[5.8-7.9]	[5.4-8.5]	[3.0-5.3]	[4.0-7.3]	[9.7-12.8]	[9.7-12.6]
1966-1990	**5.2**	**5.5**	**3.8**	**2.9**	**6.2**	**5.6**	**4.0**	**4.9**	**8.6**	**8.0**
	[4.8-5.7]	[4.2-7.2]	[3.0-4.7]	[2.0-4.3]	[5.4-7.1]	[4.6-6.8]	[3.3-5.0]	[3.9-6.2]	[7.7-9.7]	[7.2-9.0]
1971-1995	**5.4**	**5.0**	**4.1**	**3.2**	**6.2**	**6.2**	**3.8**	**5.4**	**9.2**	**8.3**
	[5.0-6.0]	[3.7-6.9]	[3.3-5.0]	[2.3-4.6]	[5.4-7.2]	[5.2-7.5]	[3.0-4.9]	[4.3-6.9]	[8.1-10.4]	[7.4-9.4]
French Nobility Association register										
1891-1915	**51.3**	**-**	**0.4**	**3.2**	**21.0**	**10.0**	**9.6**	**21.7**	**40.5**	**5.5**
	[45.5-57.9]	-	[0.1-3.1]	[1.0-10.1]	[17.1-25.8]	[6.0-16.8]	[3.1-30.0]	[14.2-33.0]	[28.7-57.1]	[3.1-9.9]
1916-1940	**23.1**	**16.9**	**3.8**	**4.9**	**11.1**	**6.2**	**7.6**	**9.0**	**36.9**	**16.1**
	[20.6-26.0]	[12.1-23.7]	[2.2-6.7]	[2.2-10.9]	[8.7-14.1]	[3.5-11.0]	[4.2-13.9]	[5.5-14.8]	[29.7-45.9]	[12.5-20.9]
1941-1965	**15.0**	**17.9**	**4.0**	**11.6**	**9.4**	**8.0**	**5.0**	**8.1**	**17.4**	**16.6**
	[13.3-16.8]	[14.3-22.6]	[2.7-6.1]	[7.3-18.7]	[7.4-12.1]	[5.6-11.5]	[3.1-7.9]	[5.1-12.8]	[14.3-21.2]	[13.7-20.1]
1966-1990	**6.6**	**6.2**	**5.3**	**4.2**	**8.3**	**7.3**	**5.1**	**7.7**	**12.1**	**10.2**
	[5.7-7.6]	[4.0-9.8]	[3.8-7.3]	[2.4-7.4]	[6.8-10.2]	[5.5-9.8]	[3.7-6.9]	[5.6-10.6]	[10.1-14.3]	[8.6-12.1]
1971-1995	**6.8**	**6.4**	**5.9**	**4.0**	**8.6**	**7.8**	**4.5**	**7.8**	**12.9**	**10.9**
	[5.9-7.8]	[3.9-10.6]	[4.4-8.0]	[2.3-6.9]	[7.0-10.5]	[5.9-10.3]	[3.2-6.5]	[5.4-11.3]	[10.7-15.4]	[9.1-13.0]

Notes: This table reports by cohort (lines) the relative admission rate to each given school (columns) of members of families bearing a surname with a particle (upper panel) or of families registered at the French Nobility Association (bottom panel). 95% confidence intervals are reported between brackets below each point estimate.

Table 1.B.5: Complementary results: Parisian advantage across births' cohorts.

Cohort	Parisians born 1891-1915	Parisians born 1915-1940	Parisians born 1941-1965	Parisians born 1966-1990
1891-1915	**9.3** [8.3-10.4]	**13.4** [12.0-14.9]	**14.2** [12.8-15.9]	**23.7** [21.3-26.4]
1916-1940	**8.2** [7.4-9.1]	**10.4** [9.5-11.3]	**14.6** [13.4-16.0]	**25.8** [23.6-28.1]
1941-1965	**5.8** [5.2-6.4]	**7.9** [7.3-8.7]	**12.6** [11.5-13.7]	**30.5** [28.1-33.0]
1966-1990	**4.6** [4.2-5.1]	**5.8** [5.3-6.3]	**8.6** [7.9-9.5]	**25.1** [23.1-27.2]
1971-1995	**4.8** [4.3-5.3]	**5.7** [5.2-6.2]	**8.7** [7.9-9.5]	**25.2** [23.2-27.4]

Notes: Each column reports, by cohort of birth, the relative admission rates to the 9 baseline *Grandes Écoles* of families of those born in Paris in a given cohort. As an illustration, the last column reports, for each successive cohort, the RAR of those who bear the same surname as Parisians, who were (or will be) born in Paris between 1966 and 1990. This implies that while those born in Paris in 1891-1915 were 9.3 times over-represented in the GE, the ones whose descendants will be born in Paris 3 generations later were at that time 23.7 times over-represented. More generally, for any given cohort (rows), bearing a surname, that is more and more represented in Paris (moving from left to right within a given row) is associated with higher prospects of admissions. This suggests that the remaining Parisian families have a higher socio-economic status, while families of lower status progressively left Paris, possibly replaced by families of higher status. The increase of the relative admission rates to the *Grandes Écoles* for Parisians in the recent cohort is therefore a consequence of the gentrification process of Paris. Indeed, the over-representation in the GE of the families born in Paris since 1966 was already of comparable magnitude in the previous cohorts.

Table 1.B.6: Complementary results: detailed results on the geographical analysis of admissions to the baseline 9 *Grandes Écoles*.

	Population share					Relative admission rate*				
Region	1891 -1915	1916 -1940	1941 -1965	1966 -1990	1971 -1995	1891-1915	1916-1940	1941-1965	1966-1990	1971-1995
Paris	6.7%	6.7%	6.0%	4.0%	4.0%	**9.3** [8.3-10.4]	**10.4** [9.5-11.3]	**12.6** [11.5-13.7]	**25.1** [23.1-27.2]	**25.2** [23.2-27.4]
Ile-de-France (inc. Paris)	11.1%	12.6%	14.4%	16.3%	16.3%	**6.2** [5.6-6.9]	**7.1** [6.5-7.7]	**6.9** [6.4-7.5]	**7.3** [6.8-7.9]	**7.1** [6.6-7.8]
Ile-de-France (exc. Paris)	4.4%	5.8%	8.4%	12.3%	12.3%	**3.4** [2.8-4.1]	**4.3** [3.7-4.9]	**5.4** [4.9-6]	**3.6** [3.3-4]	**3.4** [3.1-3.8]
Alsace	3.6%	3.1%	3.0%	3.0%	3.0%	**0.7** [0.6-0.9]	**1.1** [0.9-1.3]	**1.4** [1.2-1.7]	**2.1** [1.8-2.5]	**2.1** [1.8-2.5]
Aquitaine	5.3%	5.2%	5.1%	4.8%	4.8%	**0.7** [0.6-0.9]	**0.9** [0.8-1.1]	**1.1** [0.9-1.2]	**1.1** [1-1.3]	**1.1** [1-1.3]
Auvergne	3.3%	3.1%	2.9%	2.5%	2.5%	**1.1** [0.9-1.4]	**1.2** [1-1.5]	**1.5** [1.2-1.8]	**1.1** [0.9-1.5]	**1.1** [0.8-1.4]
Basse-Normandie	2.6%	3.0%	2.9%	2.7%	2.7%	**1.0** [0.7-1.4]	**0.6** [0.4-0.7]	**0.4** [0.3-0.5]	**0.3** [0.2-0.4]	**0.3** [0.2-0.4]
Bourgogne	3.5%	3.3%	3.1%	2.9%	2.9%	**2.0** [1.6-2.4]	**1.6** [1.3-2]	**1.1** [0.9-1.3]	**0.9** [0.7-1.1]	**0.8** [0.6-1.1]
Bretagne	6.8%	6.4%	5.5%	5.4%	5.4%	**0.4** [0.3-0.5]	**0.4** [0.4-0.5]	**0.6** [0.5-0.7]	**0.6** [0.5-0.7]	**0.6** [0.5-0.7]
Centre	4.4%	4.3%	4.2%	4.0%	4.0%	**1.3** [1-1.6]	**1.1** [0.9-1.4]	**0.8** [0.7-1.1]	**0.5** [0.4-0.7]	**0.5** [0.3-0.6]
Champagne-Ardennes	2.7%	2.8%	2.8%	2.6%	2.6%	**2.3** [1.9-2.9]	**1.1** [0.9-1.4]	**0.7** [0.6-1]	**0.5** [0.4-0.7]	**0.5** [0.4-0.7]
Corse	0.9%	0.6%	0.4%	0.4%	0.4%	**0.7** [0.5-1]	**0.9** [0.6-1.3]	**1.7** [1.1-2.6]	**2.0** [1.3-3.2]	**2.3** [1.4-3.5]
Franche-Comte	2.3%	2.2%	2.1%	2.0%	2.0%	**2.1** [1.7-2.6]	**1.5** [1.2-1.8]	**1.2** [0.9-1.5]	**1.2** [0.9-1.5]	**1.3** [1-1.6]
Haute-Norman	2.9%	3.2%	3.1%	3.2%	3.2%	**0.8** [0.6-1.1]	**0.5** [0.3-0.6]	**0.3** [0.2-0.5]	**0.2** [0.2-0.3]	**0.3** [0.2-0.4]
Languedoc-Roussillon	3.6%	3.2%	2.9%	2.8%	2.8%	**1.2** [1-1.5]	**1.5** [1.2-1.8]	**1.6** [1.3-1.9]	**1.6** [1.3-2]	**1.5** [1.2-1.9]
Limousin	2.5%	2.0%	1.7%	1.3%	1.3%	**0.7** [0.6-0.9]	**1.1** [0.8-1.4]	**1.4** [1.1-1.8]	**1.3** [0.9-1.7]	**1.2** [0.8-1.6]
Lorraine	4.9%	4.8%	4.6%	4.3%	4.3%	**1.1** [0.9-1.4]	**0.9** [0.7-1.1]	**1.1** [0.9-1.4]	**1.3** [1-1.6]	**1.3** [1-1.6]
Midi-Pyrenees	4.7%	4.5%	4.4%	3.9%	3.9%	**1.1** [0.9-1.3]	**1.2** [1.1-1.5]	**1.3** [1.1-1.6]	**1.3** [1.1-1.6]	**1.3** [1-1.5]
Nord-Pas-de-Calais	7.9%	7.5%	7.5%	7.2%	7.2%	**0.6** [0.5-0.7]	**0.5** [0.4-0.6]	**0.5** [0.5-0.6]	**0.5** [0.4-0.6]	**0.5** [0.4-0.6]
Provence-Alpes-Cote d'Azur	4.3%	4.2%	4.5%	5.3%	5.3%	**0.9** [0.8-1.1]	**1.2** [1-1.4]	**1.7** [1.5-1.9]	**1.9** [1.7-2.2]	**1.9** [1.7-2.2]
Pays de la Loire	5.5%	5.8%	5.9%	6.0%	6.0%	**0.6** [0.4-0.7]	**0.6** [0.4-0.7]	**0.4** [0.3-0.5]	**0.4** [0.3-0.5]	**0.4** [0.3-0.5]
Picardie	3.4%	3.3%	3.3%	3.1%	3.1%	**1.0** [0.7-1.3]	**0.6** [0.5-0.8]	**0.3** [0.2-0.4]	**0.2** [0.1-0.3]	**0.2** [0.1-0.3]
Poitou-Charentes	3.6%	3.5%	3.4%	3.0%	3.0%	**0.7** [0.6-1]	**0.7** [0.6-1]	**0.5** [0.4-0.7]	**0.4** [0.3-0.5]	**0.3** [0.2-0.5]
Rhone-Alpes	7.8%	7.9%	8.3%	8.9%	8.9%	**1.1** [0.9-1.2]	**1.3** [1.2-1.5]	**1.5** [1.3-1.7]	**1.5** [1.3-1.7]	**1.5** [1.3-1.7]

Notes: This table reports by cohort (columns) the population share as well as the relative admission rates to the baseline 9 *Grandes Écoles* of those born in each of the 22 Metropolitan regions of France (lines). 95% confidence intervals for the RAR are provided between brackets at the right of each point estimate.

Table 1.B.7: Complementary results, robustness: admissions to any of the 10 *Grandes Écoles* (including *Sciences Po Paris*) of children of graduates from any of the 10 *Grandes Écoles*.

Cohort	Global admiss. rate	Number of surnames	Number of births*	Popula -tion share*	Number of students*	Share among students*	Group admiss. rate*	Relative admiss. rate**
1891-1915	0.23%	8,806	24,581	0.33%	5,767	24.3%	23.5%	**132** [119-148]
1916-1940	0.29%	14,276	55,174	0.55%	9,765	17.2%	17.7%	**59** [53-66]
1941-1965	0.37%	20,289	92,984	1.03%	11,539	26.1%	12.4%	**53** [48-58]
1966-1990	0.41%	27,341	92,616	1.02%	13,301	35.7%	14.4%	**55** [50-60]
1971-1995	0.38%	27,613	92,525	1.02%	13,920	37.3%	15.0%	**60** [55-66]

Notes: *admiss.* stands for admission. This table reports by cohort the relative admission rates to the 10 *Grandes Écoles* for children of graduates from these schools. We recall the *global admission rate* to the 10 schools in the general population. We also report by cohort the *number of surnames* with fathers in any of the 10 schools. * Also reported in this table, the *number of births* and the *number of students* corresponding to descendants versus non-descendants—and therefore the *shares* and *group admission rates*—are adjusted per surname with respect to the probability of the direct paternal link with the graduates in the ancestor generation and the RAR computed between descendants and non-descendants. Refer to Appendix 1.C.4 for technical details. ** 95% confidence intervals are reported between brackets.

Table 1.B.8: Complementary results, robustness: Relative admission rates to any of the 9 *Grandes Écoles* of children of graduates from any of the 9 *Grandes Écoles*.

(1) Cohort	(2) Main result (recalled)	(3) Inclusion of immigrant surnames	(4) 50% pop. with rarer surnames	(5) 30% pop. with rarer surnames	(6) 20% pop. with rarer surnames	(7) surnames ≤100 masc. births	(8) surnames ≤50 masc. births	(9) surnames ≤25 masc. births
1891-1915	**154** [127-187]	**142** [118-171]	**161** [132-195]	**157** [128-191]	**151** [123-185]	**161** [132-195]	**158** [129-192]	**156** [127-190]
1916-1940	**81** [69-96]	**57** [45-72]	**86** [73-102]	**84** [71-100]	**80** [67-95]	**86** [72-102]	**85** [71-100]	**83** [69-98]
1941-1965	**72** [63-83]	**57** [47-69]	**77** [67-88]	**74** [64-85]	**69** [60-80]	**76** [66-87]	**74** [64-85]	**70** [60-80]
1966-1990	**75** [66-86]	**36** [28-46]	**83** [72-94]	**78** [68-89]	**71** [61-81]	**81** [71-92]	**78** [68-89]	**72** [63-83]
1971-1995	**84** [73-96]	**60** [50-72]	**92** [80-104]	**86** [75-98]	**78** [67-89]	**90** [78-102]	**87** [75-99]	**79** [69-91]

Notes: *pop.* stands for population and *masc.* for masculine. This table reports by cohort our main measure of social reproduction—the relative admission rates—to the baseline 9 *Grandes Écoles* for children of graduates from these 9 schools. 95% confidence intervals are reported between brackets. The second column recalls the baseline estimates from Table 1.5. The third column provides similar estimates with the complete sample of students, including the bearers of surnames identified as immigrant ones. Columns 4 to 9 report results on sub-samples of rare surnames. Column 4 includes the rarer surnames that account for 50% of the total population, column 5 restricts to 30% of the population with rarer surnames, and column 6 to 20% of the population. Column 7 restricts to surnames with at most 100 masculine births in the cohort of interest, while columns 8 and 9 restrict to individuals bearing surnames with at most 50 and 25 masculine births per cohort respectively. The rarer the surnames, the more precisely we track lineages. Rarer surnames are also associated with higher social status. For instance, the 50% of the population with rarer surnames is 1.135 times more likely to be admitted to a *Grande École* for the cohort born in 1891-1915. Therefore, we adjust estimates according to the over-representation of each group of rare surnames. Trends and orders of magnitude of estimates from robustness tests are very comparable to our baseline results. Only for the inclusion of "immigrant" surnames do we find notable discrepancies for the more recent cohorts when the *Grandes Écoles* started to open much more widely to international students. For these surnames, we incompletely track the number of births per cohort and find newly appearing names in schools' registers, without properly relating them to a population size. Mechanically, the measured relative admission rates are slightly lower when including this mismeasurement.

Table 1.B.9: Complementary results: admissions to any of the 9 *Grandes Écoles* of children of graduates from engineering schools, *ENS Ulm*, or business schools.

	Fathers in Engineering schools			Fathers in ENS Ulm			Fathers in Business schools		
Cohort	Popula -tion share*	Share among stud.*	Relative admiss. rate**	Popula -tion share*	Share among stud.*	Relative admiss. rate**	Popula -tion share*	Share among stud.*	Relative admiss. rate**
1891-1915	0.12%	10.93%	**143** [117-174]	0.02%	1.58%	**93** [47-183]	-	-	**-** [-]
1916-1940	0.15%	8.28%	**71** [59-87]	0.02%	1.50%	**83** [50-135]	0.07%	2.55%	**41** [29-56]
1941-1965	0.13%	7.26%	**66** [55-80]	0.02%	1.61%	**90** [61-131]	0.10%	3.80%	**43** [34-54]
1966-1990	0.14%	8.22%	**76** [62-92]	0.02%	1.40%	**59** [40-87]	0.12%	6.16%	**61** [51-75]
1971-1995	0.14%	9.25%	**88** [73-107]	0.03%	1.63%	**69** [47-100]	0.12%	6.40%	**65** [53-78]

Notes: *admiss.* stands for admission; *stud.* stands for students. This table reports by cohort the *population share*, *share among students* and *relative admission rates* to the baseline 9 *Grandes Écoles* for children of graduates from engineering schools, children of graduates from *ENS Ulm*, and children of graduates from business schools. * As discussed in the notes of Appendix Table 1.B.7, technical details on the computations are presented in Appendix 1.C.4. ** 95% confidence intervals are reported between brackets.

Table 1.B.10: Complementary results: admissions to *Polytechnique*, *ENS Ulm* or *ESPCI* of children of graduates from the same schools.

		Fathers in *Polytechnique* / *ENS Ulm* / *ESPCI*		
Cohort	Global admiss. rate	Popula -tion share*	Share among students*	Relative admiss. rate**
1891-1915	0.08%	0.13%	15.66%	**210** [169-261]
1916-1940	0.07%	0.14%	12.51%	**121** [95-153]
1941-1965	0.07%	0.12%	11.89%	**137** [111-169]
1966-1990	0.08%	0.11%	12.42%	**158** [122-204]
1971-1995	0.08%	0.11%	13.28%	**181** [140-233]

Notes: This table reports by cohort the population share (*pop. share*), share among students (*share among stud.*) and relative admission rates (RAR) to *École Polytechnique*, *ENS Ulm* or *ESPCI* for children of graduates from these same three schools. We also provide the global admission rate to these schools, which is very stable across the period. * As discussed in the notes of Appendix Table 1.B.7, technical details on the computations are presented in Appendix 1.C.4. ** 95% confidence intervals are reported between brackets. 10% confidence intervals are as follows: 1891-1915 : 210 [175;252] ; 1916-1940 : 121 [99;148] ; 1941-1965 : 137 [115;163] ; 1966-1990 : 158 [127;195] ; 1971-1995 : 181 [146;223].

Table 1.B.11: Complementary results: school of origin – school of destination matrices of intergenerational social reproduction for children of *Grandes Écoles*' graduates.

(a) Cohort of children born in 1891-1915.

Cohort 1891-1915 (FATHER IN) \ CHILDREN IN	ENS Ulm	Polytech-nique	Ponts	Mines	Telecom	ESPCI	ESCP	ESSEC	Sciences Po Paris	ENA
ENS Ulm	458 [197;1064]	79 [38;164]	38 [13;108]	327 [117;918]	430 [65;2859]	47 [13;169]	6 [0;88]	0 [0;0]	135 [73;251]	–
Polytech-nique	56 [29;106]	309 [240;398]	267 [170;421]	396 [244;645]	264 [48;1455]	174 [78;390]	17 [6;48]	81 [41;159]	191 [152;240]	–
Ponts	6 [1;29]	180 [95;342]	367 [139;969]	434 [125;1505]	0 [0;0]	19 [4;82]	4 [0;36]	102 [22;486]	214 [129;356]	–
Mines	–	–	–	–	–	–	–	–	–	–
Telecom	–	–	–	–	–	–	–	–	–	–
ESPCI	2 [0;244]	46 [12;176]	39 [9;161]	0 [0;0]	2 [0;1585]	1166 [518;2627]	107 [25;448]	5 [0;108]	48 [17;138]	–
ESCP	–	–	–	–	–	–	–	–	–	–
ESSEC	–	–	–	–	–	–	–	–	–	–
Sciences Po Paris	12 [4;37]	59 [44;80]	67 [36;125]	145 [85;246]	4 [0;25]	21 [9;50]	20 [9;45]	165 [102;269]	245 [211;285]	–
ENA	–	–	–	–	–	–	–	–	–	–

Notes: This heat matrix reports, for children born in 1891-1915, the relative admission rate to any given school from our sample (in columns) depending on the school where their father graduated (in lines). The darker the cell the higher the RAR. 95% confidence intervals are provided between brackets below each point estimate. The association with paternal schooling is not available for *Mines*, *ESCP*, *ESSEC*, *ENA* as there was no student in the first ancestors' cohort (born between 1866-1890). There were too few students at *Télécom* to provide relevant estimations. Besides, there is no student born between 1891 and 1915 at *ENA*, implying that the last column is also empty.

(b) Cohort of children born in 1916-1940.

Cohort 1916-1940	CHILDREN IN: ENS Ulm	Polytech -nique	Ponts	Mines	Telecom	ESPCI	ESCP	ESSEC	Sciences Po Paris	ENA
FATHER IN: ENS Ulm	350 [185;664]	129 [64;257]	25 [7;85]	17 [5;56]	120 [42;346]	18 [3;123]	34 [10;121]	48 [9;256]	62 [35;110]	115 [34;397]
Polytech -nique	50 [29;85]	179 [136;238]	180 [114;286]	170 [109;267]	117 [70;197]	33 [13;83]	63 [41;95]	69 [43;112]	75 [60;95]	82 [48;140]
Ponts	15 [4;60]	264 [145;481]	308 [129;739]	227 [88;582]	58 [12;279]	28 [6;121]	25 [7;88]	86 [33;227]	53 [31;92]	38 [12;122]
Mines	39 [14;111]	154 [87;271]	121 [44;332]	208 [90;482]	48 [10;217]	3 [0;42]	111 [56;221]	103 [44;241]	94 [60;145]	144 [57;365]
Telecom	62 [9;421]	138 [42;448]	304 [67;1386]	73 [18;295]	31 [7;143]	60 [6;619]	0 [0;0]	0 [0;0]	59 [22;161]	155 [19;1293]
ESPCI	23 [7;78]	10 [3;35]	20 [3;124]	40 [8;207]	14 [1;243]	276 [73;1038]	52 [14;198]	134 [36;498]	45 [21;96]	65 [14;305]
ESCP	55 [19;162]	22 [7;66]	0 [0;845]	16 [4;62]	10 [1;87]	70 [20;249]	132 [68;259]	12 [3;61]	49 [31;80]	27 [5;141]
ESSEC	79 [19;332]	35 [13;95]	63 [11;363]	4 [0;43]	23 [4;124]	36 [5;290]	71 [30;173]	269 [126;575]	109 [63;187]	88 [20;382]
Sciences Po Paris	12 [7;21]	31 [23;40]	27 [15;49]	29 [17;50]	19 [10;38]	24 [13;47]	39 [29;53]	93 [70;124]	75 [65;86]	79 [57;110]
ENA	–	–	–	–	–	–	–	–	–	–

Notes: This heat matrix relates to children born in 1916-1940. The reading is similar to Table 1.B.11a. The association with paternal schooling is not available for *ENA* as there was no student in the second ancestors' cohort (born between 1891 and 1915).

(c) Cohort of children born in 1941-1965.

Cohort 1941-1965	CHILDREN IN: ENS Ulm	Polytech -nique	Ponts	Mines	Telecom	ESPCI	ESCP	ESSEC	Sciences Po Paris	ENA
FATHER IN: ENS Ulm	319 [185;548]	145 [85;248]	116 [47;283]	103 [35;299]	13 [3;64]	167 [43;639]	32 [12;82]	58 [24;140]	48 [31;74]	64 [23;177]
Polytech -nique	104 [71;154]	177 [135;233]	175 [115;266]	123 [79;192]	98 [60;160]	96 [51;181]	61 [42;88]	92 [66;128]	56 [45;71]	69 [42;114]
Ponts	72 [29;178]	110 [61;197]	154 [76;316]	134 [49;361]	89 [37;215]	51 [14;190]	70 [37;132]	68 [34;134]	38 [24;62]	13 [5;34]
Mines	89 [43;183]	145 [76;274]	145 [59;355]	240 [112;515]	96 [31;293]	53 [12;230]	78 [36;170]	109 [59;200]	50 [30;84]	68 [21;220]
Telecom	82 [28;237]	182 [97;342]	210 [96;458]	94 [44;201]	164 [54;493]	76 [27;220]	55 [20;152]	71 [25;202]	49 [28;84]	101 [32;321]
ESPCI	48 [17;137]	36 [13;99]	31 [11;94]	22 [5;95]	52 [11;240]	150 [44;509]	27 [6;113]	10 [3;36]	23 [11;48]	0 [0;724]
ESCP	35 [16;77]	37 [20;68]	54 [21;143]	28 [13;59]	29 [9;91]	49 [8;285]	113 [72;177]	81 [51;130]	56 [41;76]	41 [21;78]
ESSEC	16 [5;47]	53 [25;110]	22 [9;55]	43 [18;103]	53 [21;135]	61 [12;313]	71 [39;129]	108 [62;186]	72 [50;104]	76 [36;159]
Sciences Po Paris	35 [26;48]	41 [32;54]	41 [29;60]	39 [26;58]	34 [22;51]	32 [18;58]	54 [43;67]	56 [45;70]	66 [59;74]	67 [52;86]
ENA	123 [57;266]	70 [34;146]	49 [17;144]	19 [5;65]	54 [15;201]	21 [5;94]	59 [30;117]	81 [42;157]	145 [98;214]	254 [145;446]

Notes: This heat matrix relates to children born in 1941-1965. The reading is similar to Table 1.B.11a.

(d) Cohort of children born in 1966-1990.

Cohort 1966-1990 (FATHER IN) \ CHILDREN IN	ENS Ulm	Polytech-nique	Ponts	Mines	Telecom	ESPCI	ESCP	ESSEC	Sciences Po Paris	ENA
ENS Ulm	244 [141;423]	79 [48;133]	66 [25;174]	35 [11;114]	38 [17;83]	11 [3;42]	26 [14;51]	68 [33;137]	58 [33;104]	94 [24;369]
Polytech-nique	131 [85;203]	231 [163;326]	186 [119;291]	120 [71;205]	109 [67;176]	79 [36;173]	79 [55;113]	107 [75;154]	67 [49;91]	90 [46;178]
Ponts	112 [54;233]	151 [90;253]	160 [91;279]	81 [38;174]	82 [39;172]	68 [9;520]	117 [66;208]	113 [62;205]	69 [42;112]	156 [59;411]
Mines	97 [41;227]	196 [110;348]	183 [86;388]	203 [74;555]	112 [48;257]	67 [21;213]	57 [29;112]	85 [44;165]	61 [31;117]	143 [47;441]
Telecom	97 [39;240]	86 [46;164]	106 [45;249]	102 [47;224]	111 [53;232]	127 [39;412]	72 [38;135]	45 [24;83]	58 [33;100]	32 [12;90]
ESPCI	95 [26;349]	112 [40;317]	57 [19;171]	97 [17;553]	27 [5;128]	302 [88;1040]	39 [14;107]	116 [37;365]	47 [18;124]	7 [0;345]
ESCP	40 [19;87]	43 [27;68]	71 [38;131]	24 [10;55]	6 [2;16]	68 [19;247]	91 [59;139]	106 [71;157]	56 [40;78]	48 [18;124]
ESSEC	70 [39;125]	56 [32;96]	34 [14;81]	60 [29;122]	71 [36;141]	52 [12;224]	104 [71;153]	107 [71;161]	51 [36;72]	56 [17;179]
Sciences Po Paris	48 [35;64]	48 [39;60]	40 [28;57]	38 [27;55]	32 [22;46]	18 [8;42]	72 [60;87]	75 [61;91]	72 [63;82]	64 [41;99]
ENA	77 [38;157]	80 [43;149]	98 [44;220]	77 [38;155]	53 [21;136]	52 [11;250]	98 [60;159]	118 [75;188]	97 [66;142]	249 [122;509]

Notes: This heat matrix relates to children born in 1966-1990. The reading is similar to Table 1.B.11a.

Table 1.B.12: Complementary results: gender disadvantage, admissions of sons against daughters of graduates.

(a) In a given school, where the father graduated.

Grande Ecole		1891-1915	1916-1940	1941-1965	1966-1990	1971-1995
Sciences Po Paris	sons	**204** [179-234]	**72** [63-83]	**62** [55-71]	**76** [65-89]	**87** [75-103]
	daughters	**194** [121-313]	**77** [62-96]	**71** [61-82]	**67** [57-78]	**66** [56-78]
ENA	sons	**-** -	**-** -	**265** [147-477]	**265** [114-616]	**290** [124-678]
	daughters	**-** -	**-** -	**170** [63-458]	**213** [73-621]	**416** [144-1204]
ENS Ulm	sons	**639** [251-1624]	**495** [249-985]	**355** [203-620]	**228** [117-441]	**211** [108-413]
	daughters	**170** [44-658]	**135** [50-365]	**279** [129-607]	**274** [129-583]	**366** [189-709]
ESPCI	sons	**1190** [544-2602]	**305** [75-1242]	**34*** [8-153]	**435** [122-1551]	**555** [145-2123]
	daughters	**-** -	**50** [6-435]	**834*** [215-3234]	**37** [6-242]	**5** [0-7054]
Polytechnique	sons	**266** [210-338]	**173** [132-226]	**161** [123-212]	**219** [153-314]	**272** [187-395]
	daughters	**-** -	**-** -	**476** [200-1130]	**246** [150-403]	**361** [229-568]
Ponts	sons	**348** [134-900]	**304** [128-719]	**135** [63-291]	**132** [70-246]	**195** [96-396]
	daughters	**-** -	**-** -	**410** [87-1924]	**273** [122-613]	**287** [130-630]
Télécom	sons	**-** -	**31** [7-143]	**171** [56-521]	**108** [47-244]	**158** [64-388]
	daughters	**-** -	**-** -	**59** [19-189]	**121** [37-396]	**120** [39-366]
Mines Paris	sons	**-** -	**206** [89-474]	**245** [112-532]	**180** [51-636]	**292** [82-1035]
	daughters	**-** -	**-** -	**146** [43-493]	**275** [102-740]	**418** [155-1128]
ESSEC	sons	**-** -	**263** [125-555]	**112** [61-204]	**125** [78-203]	**93** [58-148]
	daughters	**-** -	**-** -	**72** [25-202]	**84** [45-154]	**123** [70-217]
ESCP	sons	**-** -	**130** [67-252]	**113** [69-185]	**88** [53-146]	**87** [54-141]
	daughters	**-** -	**-** -	**108** [47-247]	**93** [51-169]	**86** [49-149]

Notes: This table reports by cohort (columns) the relative admission rate to each given *Grande École* of sons versus daughters (lines), with fathers who studied in this exact school. We relate admission rates of sons of graduates to those of sons of non-graduates and compare that to the admission rate of daughters of graduates relatively to daughters of non-graduates. 95% confidence intervals are provided between brackets at the right of each point estimate in bold. * The stars identify significant differences between sons and daughters. It only concerns sons against daughters of *ESPCI* graduates born in 1941-1965 but this result is fragile due to the very small number of students at *ESPCI* (1,016 for this cohort, among which only 160 women).

(b) In a given school, while the father graduated from any of the baseline 9 *Grandes Écoles*.

Grande Ecole		1891-1915	1916-1940	1941-1965	1966-1990	1971-1995
Sciences Po Paris	sons	**136*** [111-166]	**62** [52-73]	**55** [47-64]	**53** [44-64]	**63** [52-76]
	daughters	**363*** [224-588]	**83** [64-108]	**64** [54-76]	**59** [48-71]	**63** [53-76]
ENA	sons	**-** -	**68** [45-103]	**64** [47-86]	**84** [52-134]	**84** [48-148]
	daughters	**-** -	**100** [12-827]	**87** [49-153]	**73** [36-147]	**84** [37-190]
ENS Ulm	sons	**123*** [70-217]	**80** [53-121]	**83** [60-114]	**77** [57-104]	**72** [53-97]
	daughters	**24*** [9-59]	**35** [18-68]	**85** [59-121]	**98** [68-142]	**130** [91-185]
ESPCI	sons	**258** [148-449]	**43** [22-85]	**61** [36-102]	**60** [31-115]	**47** [25-87]
	daughters	**-** -	**35** [7-179]	**153** [59-397]	**84** [44-161]	**100** [53-190]
Polytechnique	sons	**207** [166-259]	**121** [96-153]	**96** [79-117]	**99** [79-124]	**114** [90-143]
	daughters	**-** -	**-** -	**180** [86-377]	**147** [103-210]	**162** [114-230]
Ponts	sons	**214** [143-321]	**122** [83-181]	**89** [65-121]	**87** [63-119]	**98** [70-135]
	daughters	**-** -	**-** -	**228** [101-511]	**135** [81-225]	**169** [102-281]
Télécom	sons	**214** [51-906]	**72** [46-114]	**65** [46-92]	**52** [38-72]	**64** [45-91]
	daughters	**-** -	**-** -	**53** [17-167]	**77** [41-143]	**96** [47-196]
Mines Paris	sons	**296** [192-456]	**111** [76-163]	**82** [58-116]	**75** [51-110]	**98** [65-146]
	daughters	**-** -	**-** -	**71** [35-148]	**71** [40-126]	**93** [52-169]
ESSEC	sons	**65** [35-122]	**77** [55-108]	**73** [58-92]	**95** [75-120]	**90** [69-117]
	daughters	**-** -	**-** -	**82** [53-127]	**86** [68-110]	**102** [79-132]
ESCP	sons	**23** [10-52]	**68** [51-91]	**66** [51-85]	**84** [67-105]	**91** [71-116]
	daughters	**-** -	**-** -	**49** [29-80]	**71** [55-92]	**72** [56-93]

Notes: This table relates to admissions to each given *Grande École* of sons versus daughters, with fathers who graduated from any of the baseline 9 *Grandes Écoles*. The reading is similar to Appendix Table 1.B.12a. Significant differences only concern sons against daughters of graduates born in 1891-1915 in the admission to *Sciences Po Paris* and to *ENS Ulm*.

1.C. Complementary information

1.C.1 Complementary contextual details on the schools in our sample

Our sample corresponds to the schools, which are particularly relevant in the formation of the French elite—to the notable exception of the absent *HEC Paris* and *École Centrale Paris*, for which we could not collect data. The oldest school in our sample is *École nationale des Ponts et chaussées*, which dates back to 1747, and the more recently founded is *École Nationale d'Administration* (1945). As discussed in the paper, the 10 schools work together as a system of elite formation, but each one has its specificities. We broadly categorized the schools in three dimensions: schools of administration and research, engineering schools, and finally business schools. The two latter categories are self-evident, but the first one may be subject to debate. If *Sciences Po Paris* and *ENA* are strongly linked—the former serving as a preparation school for the later[41]—, *ENS Ulm* remains unique in many aspects. In any case, we never study these schools together in the paper. Tables 1.6 and 1.B.11 rather suggest that, in terms of intergenerational social reproduction, *ENS Ulm* is more linked to engineering schools, than it with to *Sciences Po* or *ENA*.

We precede the presentation of each school's specificities below, with more general dimensions, common to several schools. As explained in section 1.2, a fundamental characteristic of the *Grandes Écoles* is the admission process through highly competitive examinations, called *concours*. They take the form of written tests as a first screening, followed for those eligible by oral examinations and interviews. This process takes place after two years of dedicated post-secondary school preparatory program—*classes préparatoires aux Grandes Écoles*.

Tuition fees used to be the exception until recent decades, being negligible in the beginning of our period of study in most institutions but the business schools. There are no fees at *ENA*, and they remain very limited at *ENS Ulm*. It was also inexpensive to study at *Sciences Po Paris* until the late 1980s, after which the increase was continuous, although combined with substantial options for grants. At *Sciences Po*, annual fees range nowadays from 0 to 18,000€ with an average around 6,000€. The five engineering schools of our sample are public institutions with limited tuition fees—historically almost free and costing approximatively 2,500€ per year in recent years—, except at the ESPCI, where studies remain fully subsidized. Like all business schools in France, the two in our sample

[41] 53% of students at ENA in our sample passed by *Sciences Po*.

are private institutions, and always had tuition fees.[42] They currently average around 15,000€ annually. Reductions and grants may however be provided conditionally on households' resources.

A specificity also concerns students of *ENA*, *ENS* and *École Polytechnique*, who have a status of civil-servant trainees. This comes during their education with a monthly payment, usually slightly over the minimum wage, implying for recent years about 16,000€ annually.

Grandes Écoles of administration and research.

Sciences Po Paris. *Sciences Po Paris*—originally *École libre des sciences politiques*—was founded in 1872 to train a new political elite, as the one in place was blamed for plowing France into an unwinnable war against Prussia (Suleiman, 1978). Its founder Émile Boutmy initially designed the school as a liberal private institution opposed to the traditional model of the *Grandes Écoles*. Yet, the school shares many characteristics with the other GE. In a momentum including the foundation of the *École Nationale d'Administration*, *Sciences Po* was partially nationalized in 1945 and divided in two distinct institutions, operating alongside since. The *Institut d'études politiques de l'université de Paris* is a public institution in charge of education. The *Fondation nationale des sciences politiques* is a private one, which manages administrative and financial matters. Since 2001, part of the recruitment is done through a dedicated affirmative action process, targeting pupils from Educational priority areas. The school appears as a pioneer in the movement towards more equality of opportunities. Students are trained in many different disciplines, including political science, humanities, law, sociology, economics, or history. Professional trainings have progressively emerged, notably in journalism, management, urbanism, or communication. Women were admitted to *Sciences Po* in 1919 for the first time.

École Nationale d'Administration (ENA). After several pre-existing attempts, notably one by the *Front Populaire*, the *École Nationale d'Administration*—a public school—was founded in 1945 to train senior civil servants. Its status is peculiar as it is attended slightly older, mostly after studies in another *Grande École*. Students are civil servant trainees and receive a payment during their education. Women may enroll the school since its foundation. Until 1978, *ENA* is hosted in a Parisian building owned by the *Fondation nationale des sciences politiques*, literally only separated by one garden from the facilities of the political science school. This illustrates the proximity of the two institutions, as *Sciences Po* designed specific preparatory programs for the preparation of *ENA*'s *concours*. In 1991, *ENA* is relocated in Strasbourg. About 100 students are

[42] Universities have since the 1950s a public competitor to business schools with the almost free curriculum in the *Institut d'Administration des Entreprises* (*IAE*).

trained in each promotion. They are ranked at the end of studies, and the 15 best ranked students (called *la botte*) may directly choose their assignment in the public service, and especially their *grands corps*.[43]

École Normale Supérieure (ENS Ulm). *École Normale Supérieure* was founded in 1794. This public institution is located rue d'Ulm in Paris since 1841, hence the usual reference to *École Normale Supérieure de la rue d'Ulm* to distinguish it from the other *ENS* in Cachan, Lyon, or Fontenay. Its mission is to provide an academic curriculum of excellence in science or humanities, in order to train researchers and professors. Since 1948, students have a status of civil servant trainee and should spend at least 10 years in serving the State—although this is not fully enforced. This is accompanied by a monthly payment during the years of education, that are counted in the 10-year service. In 1985, the school merged with the *École Normale Supérieure de jeunes filles*. The latter school was founded in 1881 and located in Sèvres until the German occupation of World Ward 2, and then moved to Paris in 1948. It was dedicated to training feminine professors.

Engineering schools.

École supérieure de physique et de chimie industrielles de la ville de Paris (ESPCI Paris). The municipality of Paris founded *ESPCI Paris* in 1882 and remained the supervisory institution since. The school is sometimes called *l'école des Prix Nobel* because although promotions are very small, six Nobel-prize laureates worked there: Marie and Pierre Curie, Frédéric and Irène Joliot-Curie, Pierre-Gilles de Gennes, and Georges Charpak. Although Marie Curie produced her research with her husband in the facilities of the schools, the first feminine students only enrolled in 1919, still being much in advanced compared to other engineering schools. Before a specialization in the last phase of the program, students of *ESPCI* receive a generalist scientific education both in physics and chemistry, as well as in biology since 1994. This pluridisciplinary approach was always a particularity of the school. There was also never any tuition fee charged to students.

École Polytechnique. *École Polytechnique* is among the most prestigious schools in the world, and is usually simply referred as "*X*", an allusion to the mathematical symbol and to the crossed canon barrels of its military logo. The school was founded in 1794 and conserved until today the military status granted by Naopléon Bonaparte in 1804. It was instituted as a prerequisite to enter the *École des Ponts* or *École des Mines de Paris*, that served as *écoles d'application* (schools for applied engineering). Although the latter schools recovered direct accessibility later, *Polytechnique* has always provided a more general and "*poly-technician*" curriculum, and Polytechnicians still often spend one

[43] One may refer to Suleiman (1978) for a comprehensive study of the *grands corps*, which are official civil servant groups with corresponding status, positions, and salaries.

year of specialization in *Ponts*, *Mines*, *Télécom*, or other *école d'application*. The initial missions of *École Polytechnique* were rather oriented towards dissemination of science, and its graduates mostly worked in the public sector. After World War 2, the school adds a stated objective of training the industrial elite. It is for instance the most effective curriculum to become either administrator of the French National Statistical Institute (INSEE), or CEO of the major French companies, as detailed in section 1.2. Located in Paris until 1976, the school then moved to a campus in Palaiseau, in the Parisian suburb. Women are admitted since 1972.

École nationale des Ponts et chaussées. *École nationale des Ponts et chaussées* was founded in 1747. As its name suggests, it was designed to train engineers for the construction and development of bridges (*ponts*) and roads (*chaussées*), and more generally for town and country planning. Between 1795 and 1848, the school was only accessible after studies at *Polytechnique* and served for specializations. Since then, the school still trains students of *Polytechnique* for a one-year specialization, but also restored a proper engineering track of its own. Similarly to *École Polytechnique*, the training of the engineers of the *Ponts* became more oriented towards the private sector after World War 2. Women are admitted since 1962.

Télécom Paris. The school was founded as the *École supérieure de télégraphie* in 1878, when the French government structured its Posting and Telegraph administration. It was located in Paris until 2019, when it moved to Palaiseau, near *École Polytechnique*. Studies focus on communications, networks, with an increasing importance of computer sciences. New fields of study have completed the program, since the last decades of the 20^{th} century, even including a dedicated program in economics. Women are admitted since 1963.

École des Mines de Paris. This is one of the oldest *Grandes Écoles*, with a foundation in 1783. Its original mission was to train directors for the booming mining industry. The primary specialties of the school necessarily reoriented, and they now include energy and raw materials. Its facilities are located in Paris, and women are admitted since 1969.

Business schools.

École supérieure des sciences économiques et commerciales (ESSEC). *ESSEC* was founded in 1907 by Jesuits. In its early years, the school suffered from several crises: it had to close temporarily during World War 1, due to insufficient number of students, and was impacted by the crisis of the 1930s, when fewer could afford tuition fees. Until the 1960s, law constituted an important share of the curriculum, which also comprised trade, languages, accounting, and political economy. The school was located in Paris, under the supervision of the Parisian Catholic Institute. In the early 1970s,

ESSEC gained some degree of autonomy and moved to Cergy, one of the *nouvelles villes* (new cities project), in the Parisian suburb. After new financial difficulties, the school was saved in 1980 by the Chamber of Commerce of Versailles, which became its new supervisor. The admission *concours* was instituted only in the 1940s, which makes the school slightly different than the other ones in the sample until that period. Indeed, it was not open to those in the public preparatory classes until 1951. Women are admitted since 1969.

École Supérieure de Commerce de Paris (ESCP). Founded in 1819 by two merchants, and often associated to an early patronage by Jean-Baptiste Say, *ESCP* is considered the doyenne of business schools in the world. The school was bought by the Chamber of commerce of Paris in 1869, at a time when regional chambers of commerce founded their own business schools, e.g. in 1872 for Lyon, Marseille, and Lille. Studies were highly oriented towards trade, including merchant shipping, or hospitality trade. The school always remained located in Paris, with the addition of new European campuses in the recent decades. Indeed, in 1973, the Chamber of Commerce of Paris also founded the *European School of Management*, known by its French acronym EAP. This latter school,—which had campuses in France, Germany, United Kingdom, and Spain—merged in 1999 with *ESCP*, reinforcing the international nature of the school. Women are admitted to *ESCP* since 1972.

Sources: This set of information predominantly relies on the institutional presentations of the schools available on their websites. It was complemented with documentation in Suleiman (1978) for several schools, Belhoste (2002) and Picon et al. (1994) for *École Polytechnique*, as well as Passant (2020) for *ESCP*.

1.C.2 Description of the identification of individuals with multiple curricula

With observations at the curriculum level, we identify distinct curricula as being followed by a unique individual if one of the following conditions—1 to 4—applies.

1. Observations share the same non-missing first name, spouse name and patronym. In addition, there is at most a 9-year gap in the admission years, or 24 years between the admission to any other school and a later admission at *ENA*.

2. Observations share the same non-missing spouse name or patronym, as well as the same set of first name and 2 middle names (first, second and third *prénoms* are non-missing and similar). There is at most a 9-year gap in the admission years, or 24 years between the admission to any other school and a later admission at *ENA*.

3. Observations share the same non-missing spouse name or patronym, as well as the same set of first name and 1 middle name (first and second *prénoms* are non-missing and similar). There is at most an 8-year gap in the admission years, or 19 between the admission to any other school and a later admission at *ENA*.

4. Observations share the same non-missing spouse name or patronym. They also share at least two names among first name and middle names (there are two common *prénoms* among the list of first, second, third and sometimes fourth *prénoms*). In addition, at least one of the following conditions (a), (b), (c), or (d) applies.
   (a) There is at most an 8 year-gap in the admission years, or 19 years for a later admission at *ENA*. There are less than 10,000 births over 1891-1990 for the surname, which is common to the observations—be it the spouse name or the patronym.
   (b) There is at most a 4 year-gap in the admission years, or 9 years for a later admission at *ENA*. There are less than 20,000 births over 1891-1990 for the surname, which is common to the observations—be it the spouse name or the patronym.
   (c) There is at most a 3-year gap in the admission years, or 6 years for a later admission at *ENA*. There are less than 50,000 births over 1891-1990 for the surname, which is common to the observations—be it the spouse name or the patronym.
   (d) There is at most a 1-year gap in the admission years, or 4 years for a later admission at *ENA*.

In addition to the above-mentioned criteria, we ensure that when spouse names are similar, patronyms are not distinct, and vice versa, when patronyms are similar, spouse names shall not be distinct. We also ensure that genders are not different, which matters only for gender-neutral first names.

Besides, we screened on an ad-hoc basis most matches, and especially all those with 3 or more identified curricula, as well as those with uncommon sequence of schools, and those with highly occurring surnames—more than 12,000 births per cohort. We discarded wrong ones due to homonyms by comparing biographies and curricula, birth dates, maiden names, or middle names. To this end, we used *LinkedIn*, *Wikipedia* and *Who's who in France* entries, lesbiographies.com, viadeo.journaldunet.com, and lemoniteur.fr websites, biographies published by the newspaper *Les Échos*, as well as institutional biographies available from firms' or institutions' websites.

We also used bigram and token fuzzy matching of observations to increase the quality of our identification. To that end, we defined for each curriculum a string of characters, containing the patronym, spouse name if applicable, and first names. With a visual

screening of higher scores and comparing complementary observables, we were able to identify potential misspelling, but also different forms of names in the distinct school registers (e.g. the politician *Laurent Wauquiez* also appears as *Laurent Wauquiez-Motte*). We consequently matched these curricula.

1.C.3 Description of the identification of "foreign" surnames

We identify foreign surnames in two ways. First, we use the evolution of births by surname in the national census. Then, we compare the frequency of surnames among students to their frequency in the French births' records.

Using the birth census, we qualify as "foreign" the 490,565 surnames with only one birth in the births' registers over the period 1891-1990. Out of the 786,531 remaining surnames, we classify as foreign those for which there is no birth on the timeframe of the two first generations (1891 to 1940). We also consider of foreign origin the surnames, whose natality is 10 times higher in the last cohort (1966-1990), as compared to the mean of the first two cohorts (1891-1940), or whose natality is 10 times higher from one cohort to the previous one (e.g. in 1941-1965 compared to 1916-1940). Finally, we compute by surname S two coefficients of variation of the number of births per cohort. A surname for which the number of births experiences notable volatility between cohorts is understood as a process of immigration in a specific generation, followed by children born in France in the following generations. We compute $CV^s_{1891-1990}$ for the four generations between 1891 and 1990 and $CV^s_{1891-1966}$ over the period 1891-1966, targeting specifically early immigration of the 20^{th} century.[44] Surnames with an average number of births per cohort μ^s_t above 30 and a coefficient of variation above 0.6 over the period t are classified as immigrants. These choices are based on visual inspection at different potential thresholds. We complete these conditions using the *Grandes Écoles* data and classify surnames with more students than births in any given cohor as foreign.

The conditions imply that we consider as "native" the surnames, for which the immigration phase happened at last in the first cohort, between 1891 and 1915. Indeed, surnames of foreign origin, which immigrated before our period of study are considered native. Therefore, we literally study a stable set of surnames over the period, more than a "native" set of surnames *per se*. Above all, it ensures that the census of the number of births in France provides a proper image of potential applicants to the *Grandes Écoles* for each generation.

[44] $CV^s_t = \frac{\mu^s_t}{\sigma^s_t}$ where μ^s_t stands for the average number of births of bearers of the surname s over the timeframe t—here either 3 or 4 cohorts—and σ^s_t for the standard deviation.

1.C.4 Computation of adjusted number of students with continuous explanatory variables

We identify our explanatory variables either with a dummy (for noble families), or with the probability of a dummy (for the birth in a region, or for having a father who graduated from a *Grande École*). The number of births in cohort c of those with the advantage A defined by variable X (historical H, geographical G, or lineal L) bearing a given surname is $N_{c,A(s)}^{adjusted} = X_{S,c}.N_{c,S}$. When studying nobility, $X_{S,c}$ (Hp_S or Hr_S) is a dummy variable, and we directly know the number of births by surname $N_{c,S}$. For the geographical ($G_{R,c,S}$) and lineal ($L_{GE,c,S}^{M,Gen-t}$) advantages, the number of births per surname of those with the given characteristic $N_{c,S}^{adjusted}$ is a proportion of $N_{c,S}$ (all births with this surname in cohort c). Indeed, not all bearers of the surname share this characteristic and $0 < X_{S,c} < 1$.[45]

At the surname level, we can also approximate by cohort the number of students with the characteristic of interest—born in a given region or with a father who studied in a given school—using the definition of the relative admission rate (RAR) in the school(s) GE for cohort c and advantage A, as given in section 1.4.2. The reader may refer to section 2.4 for reminders of all notations. We detail the computation below:

$$RAR_{GE,c,A(S)} = \frac{AR_{GE,c,A(S)}}{AR_{GE,c,A'(S)}}$$

$$\Leftrightarrow RAR_{GE,c,A(S)} = \frac{\frac{St_{GE,c,A(S)}}{N_{c,A(S)}}}{\frac{St_{GE,c,A'(S)}}{N_{c,A'(S)}}}$$

$$\Leftrightarrow \frac{St_{GE,c,A(S)}}{N_{c,A(S)}} = RAR_{GE,c,A(S)}.\frac{St_{GE,c,A'(S)}}{N_{c,A'(S)}}$$

$$\Leftrightarrow St_{GE,c,A(S)} = RAR_{GE,c,A(S)}.\frac{N_{c,A(S)}}{N_{c,A'(S)}}.St_{GE,c,A'(S)}$$

$$\Leftrightarrow St_{GE,c,A(S)} = RAR_{GE,c,A(S)}.\frac{N_{c,A(S)}}{N_{c,A'(S)}}.(St_{GE,c,S} - St_{GE,c,A(S)})$$

$$\Leftrightarrow St_{GE,c,A(S)} = RAR_{GE,c,A(S)}.\frac{N_{c,A(S)}}{N_{c,A'(S)}}.St_{GE,c,S} - RAR_{GE,c,A(S)}.\frac{N_{c,A(S)}}{N_{c,A'(S)}}St_{GE,c,S}$$

$$\Leftrightarrow St_{GE,c,A(S)}(1 + RAR_{GE,c,A(S)}.\frac{N_{c,A(S)}}{N_{c,A'(S)}}) = RAR_{GE,c,A(S)}.\frac{N_{c,A(S)}}{N_{c,A'(S)}}.St_{GE,c,S}$$

$$\Leftrightarrow St_{GE,c,A(S)} = \frac{RAR_{GE,c,A(S)}.\frac{N_{c,A(S)}}{N_{c,A'(S)}}}{1+RAR_{GE,c,A'(S)}.\frac{N_{c,A(S)}}{N_{c,A'(S)}}}.St_{GE,c,S}$$

[45] The number of births by region by surname may alternatively be directly constructed from the raw data of the census, but in practice we used the aforementioned method, which provides identical numbers.

$$\Leftrightarrow St_{GE,c,A(S)} = \frac{RAR_{GE,c,A(S)} \cdot \frac{X_{A(S),c} \cdot N_{c,S}}{(1-X_{A(S),c}) \cdot N_{c,S}}}{1+RAR_{GE,c,A(S)} \cdot \frac{X_{A(S),c} \cdot N_{c,S}}{(1-X_{A(S),c}) \cdot N_{c,S}}} . St_{GE,c,S}$$

$$\Leftrightarrow St_{GE,c,A(S)} = \frac{RAR_{GE,c,A(S)} \cdot \frac{X_{A(S),c}}{(1-X_{A(S),c})}}{1+RAR_{GE,c,A(S)} \cdot \frac{X_{A(S),c}}{(1-X_{A(S),c})}} . St_{GE,c,S}$$

Therefore, we use the following two formula to compute the adjusted number of births and adjusted number of students at the surname level for the geographical and lineal advantages:

$$N^{adjusted}_{c,A(s)} = X_{S,c} . N_{c,S}$$

$$St^{adjusted}_{GE,c,A(S)} = \frac{RAR_{GE,c,A(S)} \cdot \frac{X_{A(S),c}}{(1-X_{A(S),c})}}{1+RAR_{GE,c,A(S)} \cdot \frac{X_{A(S),c}}{(1-X_{A(S),c})}} . St_{GE,c,S}$$

Chapter 2

Political and Business Dynasties in France

Abstract

Dynasties constitute a visible sign of intergenerational persistence and raise questions on the legitimacy of the ruling elite. This paper quantifies the degree of intergenerational reproduction in the French political and business elites, defined as politicians with national-level mandates and board members of French firms. We link nominative data on 103,309 graduates from 12 French *Grandes Écoles*—prestigious higher education institutions—born between 1931 and 1975 to their professional careers in politics and business between 1958 and 2019. Identifying familial lineage though shared surnames, we find that children of political and business leaders had higher chances than their peers to embrace careers in the elite. Political dynasties were particularly sizeable, although progressively declining. We show that these dynasties also affect the composition of the French elite. Indeed, dynastical board members graduated less from qualitative institutions than first-generation directors, and members of the elite manage to propel their offspring much younger to top business and political positions.

> "Two hundred families are the masters of the French economy, and so French politics. [...] The two hundred families place their representatives in positions of power."
> Édouard Daladier, Prime Minister, Congress of the Radical Party from 1934 in Nantes

2.1 Introduction

Dynasties, such as the *Murdochs*, *Rockefellers*, or *Kennedys* in the United States, or the *Peugeots*, *Dassaults* or *Le Pens* in France, constitute an ostentatious sign of intergenerational persistence. They raise questions on the legitimacy of the ruling elite, may feed social resentment, and were often the bedrock of major historical turmoil, such as the French *Révolution*. Moreover, the widening gap in economic (Piketty, 2014) and social (Savage, 2015) conditions between top positions and the rest of the society is a sign that these concerns for equity in the access to top positions are fundamental to consider.

In this paper, we analyze occupational dynasties within the French elite, both in politics and business.[1] We use registers from 12 of the most prestigious French *Grandes Écoles* (Bourdieu, 1989, pp. 198-211) and document that among their masculine graduates, children of members of the political and business elites have 2.4 times more chances than their peers to embrace similar elite careers. The former result is therefore conditional on education and constitutes a direct association of social origin to occupational attainment. Moreover, we show that these dynasties have a negative impact on the composition of the French elite: second-generation business leaders are less likely to have graduated from a leading *Grande École*, and elite members propel their kins much younger to top business and political positions.

France constitutes a particularly suitable context for the study of differential returns to education for the ruling elites for two reasons.[2] First, access to top positions in the society essentially demand a curriculum in one of the leading *Grandes Écoles* (Suleiman, 1978; Bauer and Bertin-Mourot, 1987; Bourdieu, 1989).[3] Second, and largely as a consequence of these common backgrounds in small size institutions, a high degree of interpenetration of the French political and business elites was widely documented (see for example Suleiman, 1978, using his own surveys; Birnbaum et al., 1978, with data from the *Who's*

[1] We thereby investigate "allocative inequality" for the attainment of specific positions, and not "within-occupation rewards inequality", which may notably study earnings inequality within occupations (Torche, 2011).

[2] "Elite" remains polysemic by nature and is often subject to an ad-hoc definition per study. Ours is conventional and includes politicians with missions at the national level and board members of French firms, as further detailed in section 2.3.

[3] In France, only specific elite professions, such as physicians or lawyers, essentially go through dedicated training programs in the universities.

Who in France; Kramarz and Thesmar, 2013, using a variety of sources including alumni directories).

A challenge to our analysis may arise from the fact that parental affiliation to the elite increases the prospects to be admitted to a *Grande École* (Bourdieu, 1989; Euriat and Thélot, 1995; Albouy and Wanecq, 2003; Benveniste, 2021), whose graduates are therefore partly selected. Children of elite families therefore represent a higher share of graduates than they do in societies. Yet, we argue that the former point does not constitute a serious threat to our findings. Indeed, those entering the schools without a father in the elite are themselves highly positively selected and constitute a comparison group of very competitive individuals (Mare, 1993). Therefore, our estimates of risk ratios for elite occupational following among graduates of the *Grandes Écoles* are presumably downward-biased with respect to what they would be among the whole French population. Another challenge regards the difficulty to find data on familial links, especially for a population from the elite, which is rarely surveyed on a representative basis. We overcome the latter shortcoming by identifying lineage thanks to surnames, a method increasingly used in the economic literature (see for example Güell et al., 2007, 2015; Chetty et al., 2020b; Barone and Mocetti, 2020). To that end, we follow Benveniste (2021) and construct the probability to be linked to a father who belongs to the ruling elite. The latter is a function of the number of bearers of a similar surname in the elite in the previous cohort and of the frequency of the surname in the French population. This methodology requires to circumscribe the analysis to the transmission between fathers and sons.

We unveil a large predominance of elite dynasties, especially among the political elite. We use nominative data on fathers from the period 1901-1955 and on sons over the period 1931-1975, who served as national politicians (Presidents, ministers, and members of Parliament), or as board members of French firms, with or without executive functions. We first confirm that the *Grandes Écoles* constitute the main entry to top positions in society, as 26.2% of those with elite occupations in our sample graduated from one of the 12 schools, against 0.33% of the French population. More importantly, among the 103,309 graduates born in 1931-1975, those with a father with top political or business positions are more likely than their peers to become a member of the French elite. This result holds through a series of robustness checks regarding sample choices or estimation methods. We thereby show the existence of a "double-dividend": on top of the better admission chances to the *Grandes Écoles* (Benveniste, 2021), we show that children of the elite benefit from higher returns from such education.

Political dynasties are the most notable in magnitude. Those born between 1931 and 1975 whose fathers were in politics had 36.7 times more chances than their peers graduating from the same *Grande École* to become a national politician, whereas they evenly entered business careers. Yet, business dynasties are also very prominent as a graduate has 8.5 times more chances than his peers to become a businessman with executive

functions if his father was one. Some schools however appear to better level the playing field for their graduates, among which there is no significant differences for the access to elite positions (e.g. *ENS Ulm*, *ENS Cachan* or *ESSEC*; presentation of the schools are provided in section 2.3.2), whereas graduates from *EM Lyon* whose parents are not part of the elite have 6.5 times less chances to access these positions. Even conditionally on graduation from *ENA*, the major school for the training of politicians, those with parents involved in politics are about 40 times more likely to have a political career of national importance. Nevertheless, a favorable result is that dynastical following has largely reduced over the course of our period of study, especially in politics, a phenomenon also documented for the United States (Clubok et al., 1969; Dal Bó et al., 2009).

A second stage of the analysis, albeit not causal, suggests that there is a social cost to these dynasties. We study variations in the schooling and age of first position, as a function of paternal belonging to the elite, within the sample of 17,822 individuals holding elite positions. We show that children of businessmen enter business and political positions respectively 5.4 and 9.3 years younger than their colleagues, even with inclusion of cohort and school fixed effects (and up to 8.0 and 11.2 years before for children of business executives). While they do not access more frequently business positions than their peers, children of politicians reaching such positions also benefit from a 5.7-year anticipation in the age of their first position. Yet, there is no acceleration process for careers in politics, perhaps surprisingly as anecdotal evidence often suggests this type of phenomena (Turchi, 2009), possibly rather for local mandates. Additionally, we show the education of dynastical business directors differs from that of their colleagues, as they are twice less likely to be a graduate from one of the 12 *Grandes Écoles*. Two competing interpretations are discussed in the paper: either substitution of alternative attributes such as job-specific skills, or otherwise nepotism. We argue that the latter is more convincing. Indeed, not only those with elite background more frequently attain elite positions among graduates, but they are also more likely to bypass the traditional validation process of the *Grandes Écoles*. Furthermore, engaging a career in the elite 11 years ahead probably induces being less experience.

Nevertheless, we are not able to thoroughly distinguish the different mechanisms at work, which may include access to networks, favoritism, shaping of aspirations or ability, as well as transfer of financial capital (section 2.2 presents the literature on these potential mechanisms). Yet, our results are conditional on graduation from the 12 *Grandes Écoles*, which, to some degree, already select individuals based on aspirations, productivity, as well as access to financial liquidity for the schools with fees. The inclusion of schools' controls in our analysis accounts for part of the heterogeneity with respect to these characteristics, although much remains unexplained. Our work is also subject to some limits, which we point out in the paper, essentially the non-exhaustivity and time-varying coverage of our data on business directors, as well as the imperfectly accounted life cycle bias with

less time for the youngest cohorts to enter the elite. Despite these caveats, the present paper allows to document the intergenerational anchoring of families in the French elite, a phenomenon on which we did not find any previous systematic statistical analysis over several cohorts.

Our study relates to two strands of the literature. The first is the one about occupational following, which is defined as the entry of children into a parent's profession. This was described as a common feature of very diverse societies and political systems across time and space (Putnam, 1976). Occupational dynasties were documented for politicians (Clubok et al., 1969; Laband and Lentz, 1985; Dal Bó et al., 2009; Feinstein, 2010; Niess, 2012; Geys, 2017; Rossi, 2017), liberal professions (Mocetti, 2016 for pharmacists; Aina and Nicoletti, 2018), legal professions (Laband and Lentz, 1992), physicians (Lentz and Laband, 1989), as well as self-employed and entrepreneurs (Laferrere and McEntee 1996; Dunn and Holtz-Eakin, 2000; Fairlie and Robb, 2007; Sørensen, 2007; Colombier and Masclet, 2008; Lindquist et al., 2015).

For instance, Clubok et al. (1969) document that the share of Congressmen's sons also serving in the Congress was above 20% in the late 18th century, and progressively fell to a still significant level of 5 to 7% in the 1950s. Laband and Lentz (1985) find similar magnitudes for 1965 (8% with parents in politics), and also show that dynastical politicians enter the Congress younger, experience longer tenure, and are more likely to run reelection campaigns unopposed. Using Swedish register data, Folke et al. (2017) are able to show that politicians extract rents to the benefice of their children and not of their siblings, which confirms that the intergenerational perspective is the most relevant. For the private sector, Dunn and Holtz-Eakin (2000) exploit waves from 1966 to 1982 of the United States National Longitudinal Surveys and find that having a self-employed parent doubles the probability to work in self-employment. Furthermore, Corak and Piraino (2011) show that, by their 28th birthday, 40% of Canadian men born in 1963 had a work experience in a company in which their father also worked.

Finally, the extensive research on intergenerational social class mobility was connected to occupational following by Weeden and Grusky (2005), who developed the concept of micro-classes. This corresponds to "occupation-level data on the forms of social closure", institutionalized through unions, licensing, job training and socialization with colleagues. Jayet (2021) offers an application to France and he suggests that intergenerational micro-class reproduction is proportionally higher than standard class reproduction.

Besides, the literature showed that occupational following and dynasties matter for global welfare, especially in contexts in which networks, nepotism, or capital constitute substitutes to ability or productivity. Examples include Bennedsen et al. (2007) who use the gender of a CEO's firstborn child as an instrumental variable for the transfer of firms' control (as firms are more likely to be transmitted to sons than daughters), and demon-

strate a negative effect of such nepotism on firms' operating profitability. Equivalent results were found by Pérez-González (2006), or Villalonga and Amit (2006), who show that the value of firms plummets when they are transmitted to heirs, rather than opened for succession. Dynasties may also induce lower levels of exerted efforts (Rossi, 2017), and they were found to favor less skilled individuals (Basso et al. 2021 in the context of Italian lawyers; Geys 2017 for local Italian politicians). Although an exception in this *tableau* is provided by Sraer and Thesmar (2007), who find that French family-managed firms are more profitable, several studies rather showed that inherited firms suffer from worst management practices, notably Bloom and Van Reenen (2007). Overall, researchers mainly concluded that intergenerational occupational reproduction entails a misallocation of resources. Worst, when regarding political representatives, it was often described as a mere threat to democracy (Mosca, 1896). Different mechanisms for this intergenerational transmission were suggested by the literature, which we detail in section 2.2.

Our second contribution is to the role of education in intergenerational social mobility. A long tradition in sociology analyzes their interconnection. One may refer to Breen and Müller (2020) for a review, complemented by country cases. The tripartite relationship between Origins, Education and Destination (often defined as occupational attainment) was conceptualized by the "OED triangle". In this framework, social origin influences the level and quality of education, which translates to the labor market through returns to education. However, there may remain a residual direct effect of social origin on destination. This latter effect is net of the average returns to any given education. Therefore, another way of presenting the direct origin-destination association is that it constitutes differential returns to education, depending on social origin.

In this framework, educational inequality, i.e. the association of parental background to educational attainment, constitutes a first channel of inequality. It was largely documented across countries and time, including for the French *Grandes Écoles* (Bourdieu and Passeron, 1964; Bourdieu, 1989; Euriat and Thélot, 1995; Albouy and Wanecq, 2003; Falcon and Bataille, 2018; Bonneau et al., 2021; Benveniste, 2021). Researchers highlighted a significant association between social origin and the probability to be admitted to these elite schools.

Scholars showed that admissions to elite institutions also translate into high returns on the labour market (Hoekstra, 2009; Wakeling and Savage, 2015; Anelli, 2020; Chetty et al., 2020a). Such returns not only include income, wealth, and occupation, but also network, marriage, and prestige (Dickson and Harmon, 2011). For the access to specific positions, higher education often constitutes a prerequisite, as argued by Bovens and Wille (2017), who state that in Western democracies, it is the most effective way to political and business top occupations.

Yet, residual social inequalities remain conditionally on educational attainment (Erik-

son and Jonsson, 1998; Vallet, 2004; Crawford et al., 2016, among others). Indeed, Bernardi and Ballarino (2016) study 14 countries and find that half to three quarters of the association of social origin and occupational attainment is mediated by education, while one quarter to one half is the result of a residual direct effect of social origin on occupational attainment.[4] The latter inequality subsists in all countries, and is particularly high in Italy, Spain, and to a lesser extent in France, while in countries such as Germany, the majority of the parental influence operates on the level of attained education.

Importantly, the residual effect of social origin on destination was studied across different levels of education. An influential work by Hout (1988) claimed that there was no residual origin-destination association among graduates from college in the 1980s United States. This finding constituted a strong support for the meritocratic virtue of higher education. However, this was later contradicted (Torche, 2011; Bernardi and Ballarino, 2016; Falcon and Bataille, 2018). Notably, Torche (2011) uses the American Panel Study of Income Dynamics, with finer definition of educational attainment than Hout (1988), and shows that the residual origin-destination association is high among those with low levels of education, decreases for college graduates, but increases for graduates with advanced-degrees.[5] She highlights a U-shaped pattern of parental influence with respect to the level of attained education, which holds for class, status or earnings. Falcon and Bataille (2018) confirm this result for France with cohorts born between 1918 and 1984, as parental influence increases among *Grandes Écoles* graduates.

Alternatively, some studies provided an exclusive focus on elite education. Depending on the decile of parental income, Chetty et al. (2020a) document very unequal admissions to 12 elite institutions including the *Ivy League* colleges, for individuals born in 1980-1982. However, they find that most of the intergenerational income elasticity is due to the differences in the attended colleges, as a result of social origin, while residual differences in returns to education within colleges are small. If admissions remain a socially selective process, it suggests that attending college has an "equalizing" influence. To the contrary, Zimmerman (2019) uses a discontinuity in admissions to estimate the causal effect of education in elite Chilean colleges, and he shows that graduation increases mean income for affluent students, but not for their underprivileged peers. Such contradictions in the literature may surely be explained by distinctive contexts, but also by differences in the delineation of the elite, as much for the origin as for the destination.

[4] There also exists an intense debate about the evolution over time of these associations. One may again refer to Breen and Müller (2020) for a presentation. In short, many scholars found a decrease of social reproduction over the past generations, while some argue (notably Erikson and Goldthorpe, 1992) that this oversees acute persistence at the top of the distribution. Such measures are also directly influenced by structural changes, notably in the social and occupational composition of societies.

[5] Yet, this high origin-destination association at the top is not observed for all diploma, as Torche (2018) shows greater mobility among PhD holders.

There may also well be complementary mediating factors to the final level of education, which could be included in the analysis. For instance, Reeves et al. (2017) obtained access to the exhaustivity of entries in the *Who's who* (taken as a proxy of elite social status) and found that conditionally on education at *Oxford* or *Cambridge*, individuals who previously went to a set of 9 secondary schools (a marker of an affluent origin) had twice more chances to have their biography in the *Who's who*. Indeed, the complete journey from social origin to social destination is a multistep process, in which each step may be influenced by social origin, and each may itself further influence the next step (DiPrete and Eirich, 2006). An extreme case of such inclusion of these mediating factors is Sullivan et al. (2018), who find no residual direct effect, when accounting for the full educational path, as well as measures of cognitive skills at age 5, 10 and 16.

The rest of the paper is organized as follows. Section 2.2 discusses the mechanisms of intergenerational occupational reproduction. Section 2.3 describes the data we use on elite positions and *Grandes Écoles* graduates. It also presents our strategy to match the nominative datasets and documents the central role of the *Grandes Écoles* for the access to elite positions in France. Section 2.4 details our use of surnames and explains our econometric specification. Section 2.5 provides our main results on dynasties in the French elite and explains our robustness checks. Section 2.6 expands the analysis, notably with results on heterogeneity between schools and across time. Section 2.7 tackles the consequences of these dynasties, by looking at their effect on age of entry in the elite and schooling of politicians and business directors. Finally, section 2.8 provides some concluding remarks.

2.2 Mechanisms of intergenerational occupational reproduction

The literatures on dynasties, as well as on the mediating role of education in intergenerational mobility both analyzed the mechanisms explaining the persistence of families at the top of the social hierarchy. Erikson and Jonsson (1998) suggest four different channels for the differences in returns to education depending on social origin: social networks, favoritism, aspirations, and differences in productivity. Evans and Jovanovic (1989) complement this list with the importance of liquidity constraints as opposed to inherited capital.

We know that networks—and in particular family links—constitute decisive assets for the entry in the labor market (Kramarz and Skans, 2014; Dustmann et al., 2016). In politics, this may help to raise campaign funds, or to hire efficient staff. For instance, Dal Bó et al. (2009) use a regression discontinuity design with the outcome of close elections, and argue that the better success of dynastical politicians and their higher tendency to run

in their state of birth suggests the use of a pre-existing networks, rather than differences in abilities. Aina and Nicoletti (2018) partition the access to liberal professions in four successive necessary steps. They associate the higher odds of completing the required period of practice for children of liberal professions, as a sign of family networking. Yet, the frontier between what constitutes social networking and what is sheer favoritism is empirically often complicated to distinguish.

Favoritism or nepotism typically take place in family businesses (Bennedsen et al., 2007), but they were also proved to influence career success in companies more generally (Gagliarducci and Manacorda, 2020), as well as in politics (Geys, 2017), or even medical schools (Lentz and Laband, 1989). Favoritism may include hiring choices (Gagliarducci and Manacorda, 2020), but it may also concern the direct inheritance of family businesses (Pérez-González, 2006; Villalonga and Amit, 2006; Bennedsen et al., 2007). It was demonstrated that the probability to inherit increases with the level of expected rents for the heirs (Mocetti, 2016).[6] Close to favoritism, there may be some degree of discrimination in favor of individuals, who fulfill specific expectations from social agents—based on social norms, loyalty, homophily or habit. A related mechanism is exposed by Feinstein (2010), who compares winners to defeated candidates of elections and suggests that dynastic politicians benefit from "brand name advantages", which survive controls on campaign expenditures, experience, and time and geographical covariates.[7] For the private sector, this relates to the concept of "brand equity", i.e. the value of a brand (Aaker, 1991), as for example suggested by the common use of "& sons" signs by craftsmen (Feinstein, 2010). On top of this "name advantage", Laband and Lentz (1985) argue that there exists a dynastical transfer of voters' loyalty, and we argue that the same could apply for customers or business partners (a mechanism usually encompassed in networks but that features favoritism when it includes loyalty and priors on trustworthiness). The valuation or endorsement of specific social skills, tastes, or hobbies may also lead to homophilic behavior, which resembles favoritism. For that matter, one may refer to Bourdieu (1979) for the theory, Hartmann (2000) for an application to the selection of French and German business leaders, and Rivera (2012, 2015) for a case-study of hiring practices for elite positions in the United States. Yet, there may also be efficiency reasons to favor one's own family, such as a reduced need for monitoring, as shown by van Aaken et al. (2020) for the coordination of supervisory and management boards.

[6] Direct bequests of businesses is not marginal. Using a survey of family businesses from 1992, Fairlie and Robb (2007) find that 1.6% to 6.6% were inherited, depending on the types of firms included. Lentz and Laband (1990) find an even greater share of 14.2% of inherited firms in a sample of independent American businesses from 1979.

[7] This "name advantage" was previously suggested, notably by Laband and Lentz (1983) in theory, or Dal Bó et al. (2009) empirically for politicians. Examples of "brand names" are multiple and could include the names *Nehru-Gandhi* in India, *Hariri* in Lebanon, *Bush* or *Kennedy* in the United States, *Churchill* in the United Kingdom, and *Debré*, *Kosciusko-Morizet* or *Le Pen* in France.

Aspirations and preferences may also be intergenerationally transmitted. Jennings et al. (2009) show that this is strongly the case for political views and partisanship. Among other traits, several studies also underlined the transmission of risk aversion (De Paola, 2013; Dohmen et al., 2012). Besides, Guyon and Huillery (2021) identify that, conditional on test scores, socially underprivileged students aspire less to the best educational tracks than their more affluent peers. The authors show that this comes from two distinct factors: disadvantaged students are less informed on educational opportunities, and they also under-estimate their ability to graduate from highly selective tracks.[8] As for preferences, Dunn and Holtz-Eakin (2000) find that intergenerational transmission of self-employment status runs along similar gender lines—daughters are influenced by their mothers, and sons by their fathers—, which they interpret as a transmission of "entrepreneurial tastes or abilities".[9]

Indeed, differences in productivity may also arise from human capital transmission. Laband and Lentz (1983) develop a model of intergenerational occupational following and argue that its main channel is the facilitated transmission of "job-specific" or "career-related" skills. They use as a typical example families of farmers, for whom the workplace coincides with home and whose youngsters get familiar with specific expertise at an early age. The two authors confirm empirically this mechanism for children of lawyers (Laband and Lentz, 1992), but not for children of medical doctors (Lentz and Laband, 1989). For families in politics, this specific knowledge may for example serve to aspiring politicians to find early careers accessible positions in strategic localities. As for the private sector, Fairlie and Robb (2007) study American family firms in 1992 and show that 51.6% of the owners had a self-employed relative, among which 43.6% worked in that family firm, which they perceive as a practice of job-specific skills transfer. They indeed show that having worked in the family business is associated with higher sales and profits, a higher probability to have employees, and less business cessations. Besides, a specific literature compares the role of nature and nurture, with the underlying idea that biological attributes such as genes may matter for talent, ability, and productivity (see Sacerdote 2011 for a discussion). For example, Lindquist et al. (2015) use Swedish data on adoption to study the intergenerational association in entrepreneurship. They find that if pre-birth factors matter (notably the entrepreneurship status of biological parents), post-birth factors (adoptive parents) are at least twice more important. This may support the importance of non-cognitive skills (Blanden et al., 2007), actually influenced by a wider environment than the nuclear family (Anger, 2012). In addition, all the aforementioned "productivity

[8] Beyond aspirations, the informational advantage of more affluent families may for instance lead to strategic selection of fields of study, which are decisive for careers' development (Duru-Bellat et al., 2008).

[9] A similar gendered transmission was found in France by Colombier and Masclet (2008). The fact that ancestors serve as role models was also widely confirmed (see Clubok et al., 1969, as one of the many examples).

dimensions" imply different abilities to build one's own social network (Marmaros and Sacerdote, 2006). This is a channel suggested by Zimmerman (2019), who shows that among graduates of Chilean elite institutions, affluent peers are more likely to lead the same firm, whereas no such effect is found for less privileged ones.

Finally, access to financial resources was also identified as a channel for intergenerational reproduction. Notably, Evans and Jovanovic (1989) model the choice of becoming an entrepreneur and show empirical evidence that less affluent individuals are disadvantaged by liquidity constraints, as financial investment is a pre-requisite to launch a business. Yet, compared to the rest of the previously discussed factors, the relative importance of financial capital in the family was often tempered in the literature, for instance by Dunn and Holtz-Eakin (2000) or Fairlie and Robb (2007).

In practice, it is difficult for empirical research to disentangle the relative importance of the different mechanisms. As exposed in most of the studies presented in this section, researchers often rely on a combination of specific identification strategies and of inevitable assumptions on their interpretation.

2.3 Data

In this section, we first describe political and business elite positions, which include individuals born over the period 1901-1975. Then, we present the data regarding the *Grandes Écoles*' graduates born between 1931 and 1975. As we use surnames to track intergenerational familial lineage, we restrict the analysis to men. Indeed, the nominative data on elite positions simply provides usual names of individuals, which for women alternatively are their maiden name or spouse name. The data on schools' graduates only partially provides spouse names of feminine students, i.e. for 21% of women born between 1931 and 1975. It is therefore only possible to precisely match graduates and elite positions for masculine individuals. Yet, this does not reduce our sample size too significantly, even though 27.0% of graduates born over our period of study are women, and no more than 15.1% of politicians and 19.9% of business people.[10]

2.3.1 Elite occupations

We proxy the access to elite positions with two main types of occupations: politics, with mandates or nominations at the national level, and business, with mandates at the

[10] Beller (2009) argues that excluding women—as most studies do—from the assessment of intergenerational mobility is not trivial for the estimations. However, the high level of homogamy among the French elite (Goux and Maurin, 2003; Bouchet-Valat, 2014; Frémeaux and Lefranc, 2020) implies that fathers and mothers have similar characteristics, which reduces the issue.

boards of French firms.

Politicians at the national level

We consider as elite political positions nominations as minister, or as secretary of State, as well as mandates of President of the French Republic, *député* at the *Assemblée Nationale* (Member of the Parliament), Senator, and French member of the European Parliament. The sample includes politicians elected or nominated during the 5th Republic, since 1958 and until 2019, who are born between 1901 and 1975. The data on Presidents of the French Republic was self-collected. We obtained the list of ministers and secretaries of State from the Archive department of the Prime Minister. The lists of French MPs, senators, and French European MPs were provided respectively by the Archive departments of the *Assemblée Nationale*, *Sénat*, and European Parliament.

Observations include the first and last names, often gender and birthdates, as well as the dates of mandates. We can partly complete missing genders and birthdates for politicians that combined different types of mandates and nominations, when one data source provides more complete information than the other. Using a census of births in France by gender and first name provided by the French National Statistical Institute (INSEE), we are also able to complete gender through the construction of gender propensity scores by first name, and with a limited number of ad-hoc verifications mostly for bearers of gender-neutral first names. Birthdates were completed through ad-hoc requests of biographies online for 334 politicians[11].

Our sample of masculine politicians born in 1931-1975 is constituted of 2,211 individuals, among which 278 served a function in the executive power (President of the Republic, minister, or secretary of State), 1,534 had at least one mandate of *député*, 666 a mandate of senator, and 241 a mandate of European member of Parliament. Naturally, many occupied several types of positions, with as much as 90% of the members of the executive power, who also had a parliamentary mandate. We also include 1,894 politicians born in 1901-1930, but only exploit this data to identify the fathers of those born in our period of study. Among these politicians, 67% served as *députés*, 35% as senators, 13% as members of the executive power and 10% as European members of the Parliament.

Boards' composition

The composition of the boards of the major French firms is retrieved from *BoardEx* and *Mint Global (Orbis, Bureau van Dijk)*.[12] It includes information on boards' composition

[11] See footnote 20, which reports all online sources exploited, including for that specific purpose.

[12] These sources were frequently used in the academic literature, as for example by Adams and Kirchmaier (2016) or Ahn, Daniel P. and Ludema, Rodney (2017). Their scope is not entirely clearly stated,

over the period 1995-2019 on 1,688 traded firms, as well as 391 non-traded firms. As for the data on politicians, these observations include the first and last names, as well as often the gender and birthdate of these board members. We also have information on positions, namely whether they involve executive functions or not, as well as the starting and ending dates of the mandates. We recode this information by considering that an individual is an executive businessman if he holds at least one position as an executive director across the period. We complete gender in a similar way as we did for politicians. Birthdates are however missing for 35.2% of the sample of masculine board members, and this information would be more complicated to complete than for politicians due to the larger volume and more heterogeneous notoriety of firms' directors. Thus, we restrict the analysis to the businessmen with complete data.[13]

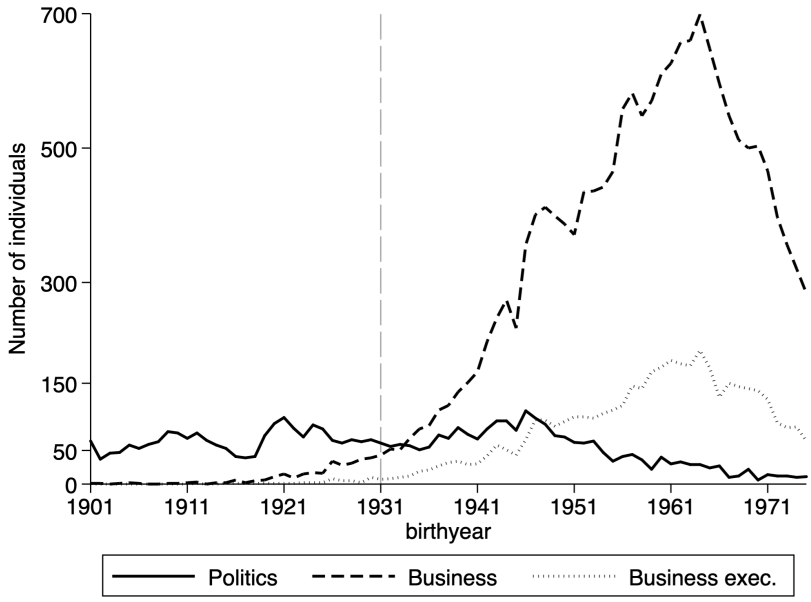
Over the period of analysis 1931-1975, there are 15,670 masculine directors, among which 3,976 are executive (25.4%). 43% of the sample is constituted of directors registered both in *BoardEx* and *Mint Global*, while 36% are mentioned in *Mint* only, and 21% in *BoardEx* alone. Combining both sources thereby improves the coverage of boards' positions. Whereas data on the political elite includes mandates and nominations from 1958 to 2019, presence in the boards is only covered over the period 1995-2019. Although individuals commonly hold boards' positions after the legal retirement age, this shift implies that the distribution of birthyears differs between our sample of political and business elites. Indeed, the modal birth year for politicians is 1946, while it is 1964 for firms' directors.

Figure 2.1 reports the number of individuals in our dataset per birthyear and position type. The vertical dashed line separates the individuals born before 1931, which are only exploited as fathers, from those in our period of study between 1931 and 1975. The number of politicians per birthyear is relatively stable, with a continuous decrease since the birthyear 1946 though. This is explained by two principal factors. First, our data concerns men only and an increasing share of political positions are occupied by women. Assuming this change does not alter dynastical transmission among men, this is not a concern since our estimates are computed within the sample of masculine graduates. The second factor is not restricted to politicians but also concerns businessmen: our data are subject to a lifecycle bias. Because they are younger, more recent cohorts are less likely to be observed in an elite position. We discuss the implication for our estimates in section 2.4.2. Data on businessmen is globally more time-varying. Notably, it includes a

but the largest French firms are included.

[13] Looking at observables in our dataset, business directors with missing birthdates appear of lower status than directors with complete information, notably for the share with executive functions (9.2% against 25.4%), or the number of positions per director (1.14 against 1.78). This small selection with respect to the data provided by *BoardEx* and *Mint Global* appears as a mild issue, as we are anyway interested in top positions, not defined restrictively. However, it constitutes a source of measurement error, as we will wrongly identify some surnames as less present in the elite than they truly are.

Figure 2.1: Distribution of the number of observed members of the elite, by birthyear and by elite type.



Notes: The curves plot the total number of individuals holding an elite position, by position type and by birthyear from 1901 to 1975. *Business exec.* refers to businessmen with an executive role in the firms. They constitute a subset of all businessmen.

very limited number of business leaders before 1931, with only 273 directors who serve as potential fathers. As we further discuss in the paper, this implies that the estimation of intergenerational transmission from fathers in business is subject to larger measurement errors for the first cohorts we study. Indeed, a significant share of our sample is wrongly qualified as not having a father in business for these first cohorts.

2.3.2 *Grandes Écoles*' graduates

The French *Grandes Écoles* are a pluri-centenarian model, partly shaped by Napoléon Bonaparte, as a meritocratic tournament to train the elite of the nation for the State's service. Their mission was initially to train leaders for the military, engineers, or professors, whilst the share of their graduates becoming industrialists—and more generally business people—progressively increased (Suleiman, 1978). The peculiarity of these institutions is that they are explicitly dedicated to the education of the elite. Throughout the 20th century and until the present days, they have indeed constituted the traditional path to the most important positions in the French society (Bauer and Bertin-Mourot, 1987; Bourdieu, 1989; Kadushin, 1995; Kramarz and Thesmar, 2013; Vion et al., 2014). Yet, intergenerational reproduction was documented as particularly high, especially in the most prestigious institutions (Bourdieu, 1989; Euriat and Thélot, 1995; Albouy and Wanecq, 2003; Benveniste, 2021; Bonneau et al., 2021). To investigate whether there are additional inequalities for the entry in the labor market, we analyze the access to elite

positions among the graduates of the *Grandes Écoles*.[14]

To that end, we use a database, first exploited by, and more extensively presented in Benveniste (2021), which exhaustively covers students of 12 of the most prestigious *Grandes Écoles*. Restricting to masculine students born between 1931 and 1975, it contains 112,936 curricula followed by 103,309 distinct individuals. Appendix Table 2.B.1 reports the number of students per 5-year birth cohort for each school. The schools in the sample include *École Polytechnique*, *EM Lyon*, *ENA*, *ENS Cachan*, *ENS Ulm*, *ESCP*, *ESPCI*, *ESSEC*, *Mines Paris*, *Ponts et chausées*, *Sciences Po Paris*, and *Télécom Paris*.[15] The data was collected from the schools' Alumni associations, libraries, or archive departments, as well as from other archive institutions.

Sciences Po Paris teaches political science and administration. The *École Nationale d'Administration* (*ENA*) was founded after World War 2 and trains senior civil servants. The *École Normale Supérieure Ulm* (*ENS Ulm*) was founded to train professors and researchers in humanities and science, while the *École Normale Supérieure Cachan* (*ENS Cachan*) has similar missions with a particular focus on engineer sciences, mechanics, civil engineering, and social sciences. The sample also includes five public engineering schools: *ESPCI Paris*, *École Polytechnique*, *École des Ponts et Chaussées*, *Télécom Paris* and *Mines Paris*. Finally, there are three business schools: *EM Lyon*, *ESSEC* and *ESCP*. Further contextual details on these schools are presented in Suleiman (1978) or Benveniste (2021). Our analysis is based on students graduating from any of these 12 *Grandes Écoles*. However, as we demonstrate in section 2.3.3, their graduates do not access similarly the political and business elites. Therefore, we use school fixed effects in our main specifications, and also explore the heterogeneity of our results between schools.

The schools' registers systematically include the first name and the surname of each student. 38% of the observations contain information on middle names. Gender is provided for about one third of the observations and we completed it in the same way we did for elite positions, using first names. Finally, we approximate the birthyear of each student. As a two-year post-secondary school curriculum is required before taking an admission examination, the standard age of admission to the *Grandes Écoles* is around 20 years old. Therefore, students enrolling in 1951 are assumed to be born in 1931, while those enrolling in 1970 are assumed to be born in 1950. The birthyear of students who pursued multiple curricula is based on the date of admission to the first school they were

[14] Such residual inequalities were documented by Falcon and Bataille (2018) but without a focus on elite positions.

[15] The present work adds students from *EM Lyon* and *ENS Cachan* to the list used in Benveniste (2021). The data was not available, but the inclusion of *École Centrale Paris* and of *HEC Paris* would have been beneficial, especially as the latter school is important in the training of the business elite (Vion et al., 2014), although much less than *Polytechnique*, *Sciences Po Paris*, or *ENA* (François and Lemercier, 2016).

admitted to.[16]

The sample of graduates from the *Grandes Écoles* only marginally evolves over time. Appendix Table 2.B.1 shows that the number of students per cohort is slightly increasing at the beginning of the period. The relative importance of business schools also rises. Yet, the recruitment of the *Grande Écoles* remains remarkably stable, especially when we compare it to the structural changes in the French universities over the period (see a discussion in Suleiman 1978). Using heterogenous samples of *Grandes Écoles*, Euriat and Thélot (1995), Albouy and Wanecq (2003) and Falcon and Bataille (2018) essentially document a slightly decreasing and even sometimes stable intergenerational reproduction in the French elite school over the 20th century. Using a sample of schools quasi-identical to the present study, Benveniste (2021) shows that the dynastical reproduction among graduates was mostly stable for all cohorts born since 1916. This stability matters for the reading of our results, as a significant social opening of the *Grandes Écoles* during our period of analysis would have interacted with disparities in returns to education among their graduates, possibly widening the differentials. In this stable context, we do not presume the evolution of potential differences in the attainment of elite positions.

2.3.3 Matching: the *Grandes Écoles* as the royal way to elite positions

In this section, we describe our approach to match the different nominative datasets of elite positions and graduates, and provide some descriptive statistics documenting that the *Grandes Écoles* are predominant in the training of those occupying elite positions in France.

To ensure consistency between the different sources and properly identify individuals, we implement fuzzy matching on surnames as well as first names.[17] We proceed to a first matching between the different datasets on elite positions including politicians (executive power, *Assemblée Nationale*, Senate, or European Parliament), as well as business directors (*BoardEx* or *Mint Global*). This matching precedes the descriptive statistics provided in sub-section 2.3.1. Any match is discarded when birthdates or gender differ. Thereby, we identify 59 individuals born between 1931 and 1975, who occupied positions both in

[16] Admissions to *ENA* are peculiar because this is a school attended after a preliminary master degree (graduate studies). Indeed, 60% of ENA's students previously attended at least one of the 11 other *Grandes Écoles*, which allows us to identify their birthyear through the year of first admission to a school. We assume that the remaining 40% did enroll at the same average age (of 27 years old) than those with multiple curricula within our sample.

[17] We use token and bigram fuzzy matchings, which allow to detect shortened and mis-spelled surnames. For example, *de Margerie* is similar to *de Jacquin de Margerie* and is matched *via* token fuzzy matching, while the non-existing surname *Benoitcattin* is matched to *Benoit-Cattin* thanks to bigram fuzzy matching.

firms' boards and in politics. While the period covered by the samples of politicians and business directors is not completely congruent, we still identify 2.7% of the politicians of our sample with a practice of *pantouflage*. This consists for public agents to work for the private sector and is particularly developed in France (rather among senior civil servants for whom we would probably find higher figures than for elected politicians).[18]

A similar approach of fuzzy matching is applied to link the universe of individuals who held elite positions to the graduates from the *Grandes Écoles*. As we do not know the precise day of birth for schools' graduates, we rather discard matches with more than 10 years difference in birthyears if the approximate birthyear from the schools follows the one from the elite positions, and only a 5-year difference if the birthyear from the schools precedes the one from the elite positions.[19] Then, we verify the positions-graduates matches using directors' biographies available online to minimize the number of false positive matches.[20]

Table 2.1: Descriptive statistics by cohort on the holders of elite positions.

	All elite positions			Politicians			Business directors		
Birth cohort	Number of individuals	Average age at first position	Share who studied in a GE	Number of individuals	Average age at first position	Share who studied in a GE	Number of individuals	Average age at first position	Share who studied in a GE
all cohorts	17,822	49.6	26.2%	2,211	47.8	16.0%	15,670	50.0	27.6%
1931-1935	561	57.3	26.6%	283	50.4	13.1%	280	65.0	40.0%
1936-1940	906	56.6	26.6%	353	49.0	13.0%	563	62.1	35.0%
1941-1945	1,456	56.0	25.8%	415	47.8	14.0%	1,056	59.7	30.6%
1946-1950	2,275	54.5	27.1%	435	48.3	17.7%	1,852	56.1	29.5%
1951-1955	2,267	52.4	26.8%	267	48.2	15.7%	2,013	53.1	28.4%
1956-1960	2,853	50.3	25.6%	181	46.9	22.1%	2,674	50.6	25.8%
1961-1965	3,195	46.7	25.7%	144	44.9	15.3%	3,053	46.8	26.2%
1966-1970	2,552	43.4	25.1%	77	42.4	19.5%	2,477	43.4	25.2%
1971-1975	1,757	39.9	27.5%	56	40.9	28.6%	1,702	39.9	27.5%

Notes: This table reports by cohort the number of individuals holding elite positions, the average age at which they first accessed such positions, as well as the share with a diploma from one of the 12 *Grandes Écoles* in our sample. Appendix Tables 2.B.2a, b and c break down the latter share by school.

Thanks to this rigorous match of graduates and careers, we confirm the propulsive

[18] At a very high degree of elite, Bauer and Bertin-Mourot (1997) argue that 47% of the CEOs of the 200 largest French firms attained these position through a "State asset", i.e. coming from civil service or being close to political power.

[19] It is indeed less likely to be admitted to a *Grande École* before 15 years old than it is to enroll between 25 and 30 years old. The time windows may appear large, but matches are then scrutinized on an ad-hoc basis.

[20] We reviewed all matches and discarded wrong ones due to homonyms by comparing education when it is provided, or alternatively exact birth dates, maiden names, middle names, or known professional activities. To this end, we used *LinkedIn*, *Wikipedia* and *Who's who in France* entries, *lesbiographies.com*, *viadeo.journaldunet.com*, *marketscreener.com/business-leaders*, *dirigeants.bfmtv.com*, *dirigeant.societe.com*, *lemoniteur.fr* and *https://www.lsa-conso.fr/annuaire-professionnels-grande-consommation* websites, biographies published by the business newspaper *Les Échos*, as well as institutional biographies available from firms' websites.

power of the *Grandes Écoles* for the access to elite positions in France.[21] Table 2.1 provides descriptive statistics on the holders of elite positions by five-year cohort: their number, the average age at which they reached the elite, and the share of *Grandes Écoles* graduates. The evolution of the number of positions was already discussed in section 2.3.1. Rather than individuals entering younger in politics and business across time, the decreasing pattern of the age of first entry underlines a life cycle bias. Younger individuals, at the end of the period, are less likely to have already entered a political or business top position. Across cohorts, the average age of entry in such positions is 49.6 years old, while the age of the very last cohort (1971-1975) in 2019, the last year over which we observe elite positions, spans from 44 to 48 years old. For the business elite, this life cycle bias is completed by a selection on observables for the first cohorts: those who are still observed in function between 1995 and 2019 are more enduring. For those born in 1931-1935, they cannot be observed before 60 years old. There is no such selection for the political representatives, for which we observe elections and nominations from 1958 to 2019. For the businessmen of the first cohorts, the age at first position is therefore mechanically observed older. They are also more likely to be graduates from a *Grande École*.[22] Besides their peculiar case, whereas only 0.33% of the French population born between 1931 and 1975 studied in one of the 12 elite schools, 26.2% of those occupying an elite position are among their graduates, confirming the central role of these relatively small schools in reaching elite positions. The share of politicians who studied in a *Grande École* (16.0%) is lower than the share of business directors who did (27.6%). Yet, as many as 40% of politicians in the executive power (members of governments or Presidents of the Republic) graduated from one of those 12 schools, against 29.5% for business directors with executive positions. The share of graduates among political representatives is even increasing, a phenomenon which was previously described by Bourdieu (1981) as a rising importance of "professional politicians" as opposed to militants.

2.4 Empirical strategy

In this section, we first detail the construction of our main independent variables with a method inspired by Benveniste (2021): the probability that a graduate's father held a given type of elite position. To that end, we use surnames to link generations, in

[21] Analogous patterns of reduced pool for elite recruitment were documented for example in the United Kingdom (see Reeves et al., 2017 on secondary education in 9 elite schools including *Eton*, as well as at *Oxford* or *Cambridge*) or the United States (Jalbert et al., 2002).

[22] We could think that board members are less likely to have graduated from an elite school in the more recent cohorts. François and Lemercier (2016) focus on CEOs and multiple boards' members of firms in the SBF120, a major French stock index. Among this even higher degree of elite, they rather find that the share of graduates from *ENA* and *École Polytechnique* increased between 1979 and 2009. This confirms that the apparent decrease we observe is an artefact of sample selection in the first cohorts.

the continuity of an increasing number of social science studies, which take advantage of the rich informational content of surnames (Güell et al., 2007, 2015; Collado et al., 2012; Chetty et al., 2020b; Geys, 2017; Barone and Mocetti, 2020; Basso et al., 2021; Benveniste, 2021). In a second sub-section, we present our baseline specification to estimate the intergenerational occupational following.

2.4.1 Using surnames to infer the probability of having a father in the elite

All bearers of a given surname are descendants of a father sharing the same surname.[23] However, simply observing the surnames in the data and not information on proper familial linkages, the likelihood of a direct link for men of different cohorts sharing a last name depends on names' frequencies. We therefore use a census providing the number of births in France per surname per cohort, produced by the French National Statistics Institute (INSEE). Appendix Figure 2.A.1 reports that the distribution of surnames is fortunately highly skewed in France, with an abundance of rare surnames, which makes surnames a powerful and effective intergenerational tracker.

The census provides the number of births in the French territory, and it is valid to inform on surnames' frequencies over time only for surnames, which are not associated with important immigration flows. Indeed, surnames may appear in the lists of board members in French firms, although individuals are born abroad. We cannot precisely measure the surname frequency in such a situation, and therefore we restrict our analysis to graduates of the *Grandes Écoles* with surnames, which are not associated with immigration over the period of study.[24] Appendix 2.C.1 explains how we identify "foreign" surnames. Thereby, we dismiss individuals born abroad or whose fathers are born abroad. In addition to being motivated by data considerations, this choice alleviates the issue constituted by self-selection in migration, namely the fact that unobserved characteristics differ between natives and migrants (Borjas, 1987). Indeed, Meurs et al. (2006) document higher unemployment rates and a reduced access to high-status occupations for immigrants and children of immigrants in 1999 in France.

We then construct for each student a time-window for the probable birthyear of his father. The average age of paternity, whatever the order of the child, was 31.7 years in

[23] In France, surnames were hereditarily transmitted through the patriarchal line until two laws of 2003 and 2008 allowed to choose between the father's name, the mother's name, or a combination of both. Patronyms therefore constitute a reliable link of fathers and children born between 1931 and 1975.

[24] All descriptive statistics in the paper are provided for surnames considered as "native". The difference remains however limited. For example, there are 2,211 politicians with "native" surnames, against 2,333 when we include those with "foreign" surnames. Robustness of our results is also provided without the exclusion of "foreign" surnames.

1946 and 29.5 years in 1966. Indeed, in the middle of the 20th century, more than 90% of fathers were between 20 years old and 40 years old at the birth of their child (Mazuy et al., 2015). Therefore, we use each individual approximate birthyear in the data from the *Grandes Écoles* and define the probable birthyear of his father as being 20 to 40 years before. A student born in 1965 is therefore assumed to have a father born between 1925 and 1945, which represents 21 complete years. This allows us to count at the individual level the number of bearers of the same last name, in the political and business elites, who are potential fathers of each graduate in our sample. The number of masculine (M) bearers of surname S in a given type of elite position e (politics, business, or both) born 40 to 20 years before year y (y_f are potential birthyears of the father) is noted:

$$Elite^{M}_{e,S,y_f \in [y-40;y-20]}$$

We follow Benveniste (2021) in defining as explanatory variables the probability that the father belonged to the elite by relating $Elite^{M}_{e,S,y_f \in [y-40;y-20]}$ to the distribution of births per surname in the general population. We adjust the methodology by constructing $N_{S,y_f \in [y-40;y-20]}$, as the number of births of bearers of the surname S in the French population in the paternal cohort, i.e. 40 to 20 years before year y.[25]. With the simplifying and acceptable assumption that for each surname in each 21-year period, there are as many masculine births as feminine ones, we may compute the probability for an individual i born in year y that his father held an elite position as:

$$FatherElite_{i,e}(S, y(i)) = \frac{Elite^{M}_{e,S,y_f \in [y-40;y-20]}}{N_{S,y_f \in [y-40;y-20]}/2}$$

While the data does not provide a definite father–child link, our independent variable $FatherElite_{i,e}$ takes the value 0 for the graduates i whose surnames have no bearer holding an elite position of type e born 20 to 40 years before them. It takes the probability of a value 1 of having a father holding such a position for the others. The latter probability is a function of $Elite^{M}_{e,S,y_f \in [y-40;y-20]}$ the number of bearers of the surname S who held an elite position e and were born 20 to 40 years before the birthyear y of the graduate i, and of $N_{S,y_f \in [y-40;y-20]}$ the number of births of bearers of the surname S in the paternal cohort y_f. Appendix Table 2.B.3 provides detailed descriptive statistics on the explanatory variables for both types of elites, as well as political representatives and businessmen separately.[26]

[25] In the census, the number of births is structured by decades for most surnames, or only by 25 years cohorts for a limited set of surnames. We therefore compute for each observation a weighted average depending on the number of years overlapping with each cohort or decade. As an example, to compute the number of births between 1925 and 1945 of a given surname, we may use the number of births for the decades 1921-1930, 1931-1940 and 1941-1950 with factors $\frac{6}{10}$, 1, and $\frac{5}{10}$ respectively.

[26] The table confirms the selection of the first cohorts, for which we observe less fathers in the elite. We also show in section 2.5 that our results are robust to the restriction to values of $Elite^{M}_{e,S,y_f \in [y-40;y-20]}$ above different thresholds.

2.4.2 Baseline specification

Our baseline empirical equation, in which subscripts refer to graduate i, the type of elite e or e' is as follows:

$$Elite_{i,e'} = \alpha + \beta.FatherElite_{i,e} + \gamma.School_i + \theta.Cohort_i + \epsilon_i$$

Our specification simplifies the analysis by reducing the time-dimension to its intergenerational component. Indeed, $Elite_{i,e'}$ is a dummy variable for access to the elite at any moment during the career of individual i, whatever the tenure. Similarly, $FatherElite_{i,e}$ is defined as the father having held an elite position at least once across the career, whatever the potential simultaneity with having a son in the elite. A first reason is that our sample size would be too small for us to capture the dynamics of the dynastical advantage, with respect to the timing of positions. A second reason is that while data on political mandates is very accurate, the coverage of business positions is cohort-varying. In addition, dates of entries and exits of positions in the boards are not always precisely provided by *BoardEx* and *Mint Global*. As our main interest focuses on the intergenerational process and as careers in these elite positions are quite stable, we find it both convenient and reasonable to consider an individual as a member of the elite, as long as he occupied at least once an elite position. A drawback of this data structure is that we are not able to fully correct for life cycle biases.[27]

In our baseline analysis, we pool together political and business elites, where e (in the independent variable) and e' (in the dependent variable) are defined as both types of elites. In France, these two types of ruling elite were documented as being highly interpenetrated (Suleiman, 1978 using his own surveys; Birnbaum et al., 1978 with data from the *Who's Who in France*; Bourdieu, 1989). The French specificity of *pantouflage*, i.e. public agents working in the private sector, also rationalizes such global definition of the French occupational elite. As presented in subsection 2.4.1, the main independent variable $FatherElite_e$ equals 0 when there is no chance that the father of graduate i occupied a position of type e, and it otherwise equals the probability of a value 1 corresponding to having a father who occupied a position of type e. Therefore, parameter β estimates among graduates from the *Grandes Écoles* the difference in probabilities to reach an elite position between children of the elite and the others. $School_i$ are school fixed effects, which accomodate for differential probabilities to attain elite positions between the schools. Cohort fixed effects $Cohort_i$ capture the variation over time in our data of the sphere of

[27] Grawe (2006) discusses the bias from age-dependence of earnings both in the paternal and the child generation. In our framework, the belonging to the elite is achieved once and for all, as long as an individual occupied at least one position. However, as discussed in section 2.3.3, graduates from the more recent cohorts had less time to access an elite position. The inclusion of cohort fixed effects partly accounts for it, but more advanced techniques would be available if we observed outcomes and age at given times (Lefranc, 2018).

elite positions, and notably the time-varying coverage of the business-elite and the lifecycle bias. To that end, we defined 5-year births' cohorts, the first one being 1931-1935 and the last one 1971-1975. The heterogeneity analysis applies the same equation to subsample of schools (without schools' controls), or using specific types of position e or e' that may alternatively be political positions, business positions, or its more restrictive subset of business executive positions. Finally, to investigate heterogeneity across time, we group cohorts over three periods of 15 years: 1931-1945, 1946-1960 and 1961-1975. We add to our main specification interactions terms of the main independent variable and a vector of indicators variables $Period_i$ for the period of birth:

$$Elite_{i,e'} = \alpha + \beta.FatherElite_{i,e} + \beta_P.FatherElite_{i,e} \times Period_i + \gamma.School_i + \theta.Period_i + \epsilon_i$$

2.5 Main results

In this section, we first quantify among graduates from the *Grandes Écoles* the advantage of children of the elite for the recruitment or election in elite positions, pooling political and business elites together. We then verify the robustness of our estimates to distinctive weighting methods and data choices.

Our main result relates to intergenerational reproduction in the access to political and business elite positions for people born between 1931 and 1975. Table 2.2 reports risk-ratios from log-binomial regressions. All specifications ensure an equal weight to each five-year cohort to provide more meaningful results across time. This neutralizes the variations of graduates' cohort sizes across time. Column (2) introduces cohort fixed effects. Thereby, we take into account the time-varying coverage of our data on elite positions. Column (3) circumscribes the analysis within school, with the introduction of school fixed effects. Our preferred specification from column (4) combines *Grande École* and cohort fixed effects. We find that among the *Grandes Écoles*' masculine graduates born between 1931 and 1975, those whose fathers were either a politician or a business board member had 2.4 times more chances to access these elite positions than their peers. On top of the better prospects to be admitted to the *Grandes Écoles* documented by Benveniste (2021), the present paper shows that there is a double dividend, with higher returns to such education for children of the elite.

Appendix Table 2.B.5 shows the robustness of our result to different sample adjustments and estimation methods. We show that both the significance and the magnitude of the point estimates are very similar with unweighted regressions, not mitigating the evolution of the number of graduates over time. As the first cohorts are the ones for which we observe less ancestors, and virtually no business ancestor, as documented by Figure 2.1, we also confirm that our results are robust to the exclusion of the first or the two first cohorts (1931-1935 and 1936-1940). Moreover, our estimates are robust to

Table 2.2: Dynastical presence in the elite, among *Grandes Écoles* graduates: sons of members of the elite relatively to their peer graduates.

Dependent variable	Dummy variable for entering an elite position			
	(1)	(2)	(3)	(4)
Father in elite position	3.463***	3.182***	2.944***	2.408***
	(1.028)	(0.861)	(0.816)	(0.642)
Observations	103,309	103,309	103,309	103,309
Cohort weights	Yes	Yes	Yes	Yes
Cohort fixed effects		Yes		Yes
School fixed effects			Yes	Yes

Notes: *** p<0.01, ** p<0.05, * p<0.1. Standard errors, clustered at the cohort level, are in parentheses. Each column displays estimates from a separate regression. Observations are graduates from the 12 *Grandes Écoles*, among whom we identify those who attained an elite position after graduation. The table reports risk ratios from log-binomial estimations. Risk ratios above 1 reflect an increased probability to reach an elite position (positive coefficients of row estimates), while risk ratios below 1 would indicate a reduced probability (negative coefficients of row estimates). Using a continuous variable (the probability of having a father in the elite) as an independent variable, estimates refer to the risk-ratios for the independent variable at the value 1, i.e. having a father who is a member of the elite. The weighting scheme used for all estimations ensures that each 5-year cohort has the same weight whatever its number of observations. Cohort fixed effects are dummy variables for each cohort, except cohort 1951-1955, which serves as a reference because it is the middle of our period of study. School fixed effects are dummy variables for each school, except *Sciences Po Paris*, which serves as a reference because it is the school with more students. See Appendix Table 2.B.4 for the estimated risk ratios on all control variables.

restrictions of the sample to more precisely tracked parental belonging to the elite. For this test, we impose that the values of the probability that the father was a member of the elite is either null, either over 10 or even over 25%. Finally, we show that our results hold, even if we do not restrict our analysis to "native" surnames, for which we more precisely track the number of births across generations.

2.6 Heterogeneity analysis

This section explores the heterogeneity in the intergenerational elite reproduction along three dimensions: schools, the type of elite—be it in politics or business—, and time.

2.6.1 Differences between *Grandes Écoles*

The *Grandes Écoles* constitute the royal way to elite positions in the French society as discussed in section 2.1 and documented in section 2.3.3. However, we show that grad-

uation from one of these elite schools does provide different careers prospects depending on one's social background. We now investigate whether there are differences between schools, with some being able to level the playing field among their students, and others not offering their graduates comparable professional opportunities in reaching elite positions, as paternal resources remain influential.

Table 2.3: Heterogeneity of dynastical reproduction by school of graduation.

Dependent variable	Dummy variable for entering an elite position					
	EM Lyon	ENA	ENS Cachan	ENS Ulm	ESPCI	ESCP
	(1)	(2)	(3)	(4)	(5)	(6)
Father in elite position	6.490***	5.756***	1.908	1.227	3.97e-07	2.191***
	(2.179)	(1.341)	(1.880)	(1.489)	(6.35e-06)	(0.637)
Observations	3,664	4,365	6,946	4,158	1,611	11,905
Weights (graduates per cohort)	Yes	Yes	Yes	Yes	Yes	Yes
Cohort fixed effects	No	No	No	No	No	No
School fixed effects	N/A	N/A	N/A	N/A	N/A	N/A

	ESSEC	Mines Paris	Polytech -nique	Ponts et chaussées	Sciences Po Paris	Télécom
	(7)	(8)	(9)	(10)	(11)	(12)
Father in elite position	1.898	2.214	3.376**	9.965**	3.009***	0.00858***
	(1.705)	(2.245)	(1.882)	(10.01)	(1.102)	(0.0148)
Observations	11,570	4,302	12,675	5,705	40,914	5,121
Cohort weights	Yes	Yes	Yes	Yes	Yes	Yes
Cohort fixed effects	No	No	No	No	No	No
School fixed effects	N/A	N/A	N/A	N/A	N/A	N/A

Notes: *** p<0.01, ** p<0.05, * p<0.1. Standard errors, clustered at the cohort level, are in parentheses. Each column from each sub-panel displays estimates from a separate regression. The weighting scheme in this analysis is constructed by school and ensures that each 5-year cohort has the same weight independently of the evolution of the number of graduates at the school level. Appendix Table 2.B.6 provides similar outcomes with the inclusion of cohort fixed effects.

We find that the inequality of returns to education for the access to elite positions varies widely between schools. Table 2.3 reports estimates of risk-ratios from distinctive regressions on sub-samples for each of the 12 schools.[28] *Télécom Paris* is the only school for which our main finding is reversed: graduates whose fathers held elite positions did themselves attain such positions with much lower prospects than their peers. This school-specific result may come as a surprise, but it nevertheless remains isolated and may be

[28] In this analysis, the weights by cohort are computed for each school individually, with respect to the evolution of its own number of graduates.

a statistical exception due to a small number of graduates. Results are not significant for graduates of *ESPCI*, for which the sample size is particularly small. We find point estimates suggesting higher prospects of entry in the elite for graduates from the 10 other schools, whose fathers were members of the elite. However, accession to elite positions does not significantly differ from their peers for the children of politicians and businessmen graduating from *ENS Ulm*, *ESSEC*, *ENS Cachan*, or *Mines Paris*. By contrast, children of the elite have 2.2 times significantly more chances than their peers to access political or business elite positions when graduating from *ESCP*, 3.0 times more chances when graduating from *Sciences Po Paris*, 3.4 when graduating from *Polytechnique*, as much as 5.8 at *ENA*, 6.5 for *EM Lyon*, and up to 10.0 times for graduates of *Ponts et chaussées*.[29]

We conclude from this analysis that some school manage to provide comparable opportunities to their graduates, while graduates from a few other institutions—notably *Ponts et chaussées*, *EM Lyon*, or *ENA*—are offered very distinctive careers' opportunities, depending on their social origin.[30] It is not possible to untangle what are the precise mechanisms for these differences with the present data. That may well be a conjunction of parental and graduates' characteristics (which are, to some degree, still under the control of each school through its admission process), as well as differences between schools in the curricula, the specific preparation for labour markets, or the reach and effectiveness of the schools' networks in comparison to familial ones.

2.6.2 Political versus business elites

Our main analysis, as well as the heterogeneity between schools, rely on a comprehensive definition of the elite, which pools together both political and business elites. However, they are not perfectly homogeneous.[31] We therefore distinguish between these two types of elites. We also focus on business executives, which are more comparable than all businessmen to politicians, notably in terms of the share of the population attaining these positions.

[29] Except for the statistical power and therefore their significance, these results do not relate to the importance of each school in training members of the elite. As it appears in Appendix Table 2.B.2a, among the schools with significant differential returns, only 1.1% of those in an elite position are graduates from *EM Lyon*, against 3.3% from *ENA*. Likewise, these shares also vary between the schools for which differences are not significant, for example with 0.7% of those in an elite position who graduated from *ENS Ulm* and 3.6% from *ESSEC*.

[30] It is notable that admissions to *Ponts et chaussées* and to *ENA* are already among the most influenced by the parental graduation from a *Grande École* (Benveniste, 2021), suggesting that a high origin–destination association mediated by education may operate pairwise with a high direct effect of origin on destination.

[31] Indeed, Bourdieu (1979) develops the concepts of economic and cultural capitals and ranks social agents within this typology. Businessmen and public agents both are well-endowed, but business leaders are rather associated with economic capital, and public agents with cultural capital. Bourdieu (1981) more particularly characterizes political leaders as having very peculiar codes, which are not easily accessible to outsiders.

We construct a matrix of intergenerational occupational reproduction, which relates each type of elite positions occupied by fathers, to different risk ratios for the access of their sons to each type of elite positions. Results are reported in Table 2.4, in which all specifications use an equal weight for each five-year cohort and include school and cohort fixed effects. The first line concerns children of business directors. Among graduates from the *Grandes Écoles*, they have almost 3 times more chances to also become a business director, about 5.6 times more chances to become a business executive, and up to 7.6 times more chances to become a politician, with a function at the national level. Businessmen with an executive role provide even greater prospects to their kins, who graduate from an elite school relatively to their peers. They have about 4.8 times more chances to become business directors, and up to 8.5 times to occupy an executive function.[32] Interestingly, children of politicians become business directors with no distinctive prospects than the rest of the graduates from the *Grandes Écoles* but experience as much as 37 times more chances to become a politician with functions at the national level.

Table 2.4: Heterogeneity by type of elite: type of position of the father – type of position of the child matrix of occupational dynasties.

		Risk ratio for the child to become		
		Business elite	Business executive	Political elite
Father's position	Business elite	2.957*** (0.619)	5.612*** (1.902)	7.582** (7.218)
	Business executive	4.761*** (2.588)	8.530*** (4.233)	- -
	Political elite	1.144 (0.378)	1.068 (0.714)	36.66*** (3.620)

Notes: *** p<0.01, ** p<0.05, * p<0.1. Standard errors, clustered at the cohort level, are in parentheses. All cells display estimates from a separate regression. All estimations include equal weights per 5-year cohort, as well as school and cohort fixed effects. This heat matrix reports, for graduates of the 12 *Grandes Écoles*, their risk ratios for the appointment or election to different types of positions (business, business executive, or politics) depending on the position occupied by their fathers. The darker the cell the higher the risk ratio.

If there are intergenerational linkages between business and political elites, the intergenerational political following is particularly high, and children of politicians do not particularly turn into businessmen.[33] We should recall that due to measurement errors

[32] Due to the smaller sample sizes of business executives and politicians, and to limited number of children of executive businessmen who became politicians, the convergence of the log-binomial regression for the estimation of the chances of a child of a business executive to become a politician fails.

[33] The latter result contrasts with findings for Italy by Gagliarducci and Manacorda (2020), who find

in the sample of business directors, with some missing data on directors, estimates involving the fathers holding business positions are downward-biased. Therefore the true gap between the intergenerational political and business following is likely to be smaller, although it seems unlikely that the entire difference would be explained by these measurement errors.

Besides, the *Grandes Écoles* in our sample do not equally train politicians, or businessmen, as documented in Appendix Table 2.B.2. Businessmen are more frequently graduates from business and engineering schools, and in particular from *École Polytechnique* (see Table 2.B.2c). By contrast, 12.3% of the politicians in our sample graduated from *Sciences Po Paris* and 4.9% from *ENA*, against only 1.3% from *Polytechnique*, the third school of importance for becoming a politician (see Table 2.B.2b). Therefore, we complete the analysis by investigating heterogeneity between political and business elites through a focus on the schools, which are the most important for the training of each category.

Table 2.5: Heterogeneity by type of elite and school: access to the political elite for sons of politicians graduating from *ENA* or *Sciences Po Paris*, and access to the business elite for sons of businessmen graduating from *Polytechnique*.

Dependent dummy for entering:	Politics				Business		Executive business	
	ENA		Sciences Po Paris		Polytechnique			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Father in politics	42.29***	37.50***	19.44***	22.69***				
	(10.37)	(2.122)	(7.157)	(5.243)				
Father in business					3.378*	3.029**		
					(2.205)	(1.672)		
Father in business (executive)							11.35***	9.509***
							(5.488)	(3.116)
Observations	4,365	4,365	40,914	40,914	12,675	12,675	12,675	12,675
Cohort weights	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cohort fixed effects	No	Yes	No	Yes	No	Yes	No	Yes
School fixed effects	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Notes: *** p<0.01, ** p<0.05, * p<0.1. Standard errors, clustered at the cohort level, are in parentheses. Each column displays estimates from a separate regression. The weighting scheme in this analysis is constructed by school and ensures that each 5-year cohort has the same weight regardless of the evolution of the number of graduates at the school level.

that having a family member in political office results in higher earnings and employment in the labor market. However, they do not focus on the elite as their study covers all politicians from the local to the national level, and a representative sample of all jobs in the private sector through matched employer-employee.

Intergenerational political elite reproduction among *Sciences Po Paris* and *ENA*'s graduates, and intergenerational business elite reproduction among *Polytechnique*'s graduates are reported in Table 2.5. All estimations weight cohorts similarly across the sample, while even-numbered columns add cohort fixed effects to account for the time-varying coverage of elite positions. We find that a graduate from *ENA* has 37.5 times more chances than his peers to reach a national political position at a given point of his career if his father also occupied one. Benveniste (2021) shows that someone born between 1941 and 1990 has about 250 times more chances to be admitted to *ENA* if his father studied at the school too. We show that on top of this large inequality for admission, once someone outside the elite enters the school, studying at *ENA* still do not open similar careers opportunities. Similarly, students at *Sciences Po Paris*, whose fathers were in politics have 22.7 times more chances than their peers to follow in their footsteps. By contrast, students graduating from *Polytechnique*, whose fathers were business directors had about 3 times more chances than their peers to become business directors themselves. This remains a large difference as it occurs net of education in an elite institution. Yet, if we consider a more restrictive definition, children of business executives who graduated from *Polytechnique* had 9.5 times more chances than their peers to also become a business director with executive functions.

2.6.3 Evolution over time

Our study emphasizes significant levels of intergenerational occupational reproduction among the French elite for those born between 1931 and 1975. Yet, we may investigate the evolution of this phenomenon across cohorts. Figure 2.1 outlines that the structure of the sample between political and business elites has evolved over the period. To overcome this peculiarity, we document distinctively the evolution of the intergenerational occupational reproduction for the two types of elites. As we are rather interested in the general trend than temporary variations, and in order to increase statistical power—especially for the beginning of the period with a limited number of business ancestors born before 1931—, we group cohorts in three periods of 15 years: 1931-1945, 1946-1960, and 1961-1975. Table 2.6 reports regressions estimates for business intergenerational reproduction—columns (1) to (3)—and political intergenerational reproduction—columns (4) to (6). We include interaction terms of the probability of the father to be a member of the occupational elite with 15-year periods indicators, as detailed in section 2.4.2. Columns (1) and (4) include 15-year period fixed effects. Columns (2) and (5) supplement it with school fixed effects, and columns (3) and (6) also include the weighting scheme of our main specification.

The results suggest a decrease of intergenerational reproduction among the elite across time. Intergenerational reproduction for graduates born in the most recent period 1961-1975 serves as a reference point. Columns (3) and (6) of Table 2.6, which include the

Table 2.6: Heterogeneity across time: business or political dynasties.

Dependent dummy variable	Entering business			Entering politics		
	(1)	(2)	(3)	(4)	(5)	(6)
Father in business	2.473***	2.346***	2.379***			
	(0.493)	(0.444)	(0.468)			
Father in business						
× Period 1931-1945	1.050***	2.873***	3.042***			
	(460.7)	(1,134)	(1,249)			
× Period 1946-1960	1.245	0.943	0.918			
	(0.946)	(0.590)	(0.582)			
× Period 1961-1975	reference	reference	reference			
Father in politics				3.241***	2.623**	2.687**
				(1.229)	(1.194)	(1.191)
Father in politics						
× Period 1931-1945				19.36***	28.35***	28.95***
				(15.22)	(13.12)	(13.62)
× Period 1946-1960				10.78***	13.31***	12.90***
				(4.859)	(6.627)	(6.159)
× Period 1961-1975				reference	reference	reference
Observations	103,309	103,309	103,309	103,309	103,309	103,309
Cohort weights			Yes			Yes
Period fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
School fixed effects		Yes	Yes		Yes	Yes

Notes: *** p<0.01, ** p<0.05, * p<0.1. Standard errors, clustered at the cohort level, are in parentheses. Each column displays estimates from a separate regression.

weighting scheme and all controls, report that children of business directors born in 1961-1975 graduating from one of the 12 *Grandes Écoles* had 2.4 times more chances than their peers to follow in their fathers' footsteps, against 2.7 times more chances for children of the political elite to themselves enter politics. We find no significant difference of the business reproduction for those born in 1946-1960, while it appears that intergenerational business reproduction was significantly different for those born between 1931 and 1945, about 3 times higher. Yet, we recall that those from the most ancient cohorts, as well as their fathers, were positively selected on observables, while those in the most recent period had less time to access elite positions. This may induce at least part of the decreasing

pattern of intergenerational reproduction in business, although we include period fixed effects.

The decline of the importance of political dynasties in France appears much more pronounced.[34] Compared to its level for cohorts born between 1961 and 1975, political reproduction was 12.9 times higher for those born in 1946-1960, and as much as 29.95 times higher for those born in 1931-1945, as compared to 1961-1975.[35] This implies that among graduates from the *Grandes Écoles*, those born in 1931-1945 who had a father in politics had 77.8 times more chances to become national politicians than their peers. This felt by a factor 2.25 for those born in 1946-1960, who still had 34.7 times more chances to attain such position. It fell more sharply by a factor 12.90 for those born in 1961-1975, with 2.687 times more chances than their peers to enter politics, a level which is indeed of comparable magnitude than intergenerational occupational reproduction among business directors. In conclusion, the clear difference in the levels of occupational dynasties between political and business elites outlined in Table 2.4 seems driven by differences for cohorts born before 1960.

These findings are consistent with results for France by Falcon and Bataille (2018) who find a decreasing origin-destination association among students from the *Grandes Écoles* between cohorts born in 1918-1940 and cohorts born in 1950-1969. They however underline a clear increase for the subsequent cohort born in 1970-1984, with which we only partly overlap. Obviously, their broader definition of occupational categories in social classes is not entirely comparable to our focus on elite occupations.

2.7 Implications: less educated and experienced elite

We conclude our analysis by investigating the implications of these dynasties on the composition of the elite. We use the sample of 15,670 business directors and 2,211 political representatives and test two potential consequences: the education and the age of first position of dynastical elite members. Comparable outcomes of analysis were previously used, notably by Geys (2017) for education, and by Laband and Lentz (1985) for the age of entry. The analysis remains descriptive, not causal.

[34] A decline of political dynasties was also documented over a much longer timeframe for the United States by Clubok et al. (1969) and Dal Bó et al. (2009). The former study reports a share of Congresspersons, who had legislator relatives falling from 24.2% in 1790 to 15.1% in the late 1850s, 10.0% in 1920, and 5.0% in 1960. The latter work provides similar insights from 1789 to 1994, with a fall from 11% of dynastic legislators between 1789 and 1858 to 7% over 1966-1994.

[35] In spite of period fixed effects, results for politicians born in the most recent cohorts are also partly affected by the aforementioned lifecycle bias.

2.7.1 Education in the *Grandes Écoles*

To analyze the association of dynasties with the level of education, we estimate the following empirical model:

$$GrandeEcole_i = \alpha + \gamma.FatherElite_{i,e} + \beta.X_{i,e} + \theta.Cohort_i + \epsilon_i$$

The dependent variable ($GrandeEcole_i$) is a dummy variable indicating the education of individual i in an elite school. It alternatively captures education in any of the schools, in an engineering school, in a business school, or in a school of administration or research (*ENA*, *Sciences Po*, *ENS Ulm* or *ENS Cachan*). $FatherElite_{i,e}$ is the probability that the father of individual i held an elite position of type elite e (politics or business). As we restrict the analysis to men, there is no need to control for gender. The controls X are dummy variables, which depend on the type of elite e, and identify positions as a member of the executive power for political representatives, and positions as business executives for businessmen. We include cohort fixed effects to account for potential variations in the educational structure of the political or business elites across time. The estimates are separately computed for individuals in politics or in business.

We know that children of the elite are over-represented in the *Grandes Écoles* (Benveniste, 2021), and we may expect that, among politicians and business directors, this naturally translates into a more frequent education in such a school for children of the elite. If this is not the case, it implies that the advantage on the labor market for children of the elite is even greater than the advantage they have in admissions to the *Grandes Écoles*. And indeed, we find that business dynasties are associated with less education of elite members in the elite schools. Table 2.7 reports the risk-ratios of the probability to have graduated from any of the *Grandes Écoles* (columns 1 and 2), an engineering school (columns 3 and 4), a business school (columns 5 and 6) or a school of administration or research (columns 7 and 8) with respect to having a father in politics (odd columns) or business (even columns). Panel (a) relates to the political representatives, and panel (b) to business directors.

Among the national political representatives, the existence of dynasties does not reduce the education in the *Grandes Écoles* as a classical pathway for political careers. To the contrary, as children of the elite are more likely to study in these elite institutions, they are also more likely to have done so among the pool of political representatives. In particular, they are about 15 times more likely to have studied in an engineering school. However, the frequency of graduation from the *Grandes Écoles* is not significantly different for children of businessmen, who enter politics than for other politicians, although point estimates suggest that they more frequently study in business schools.

A more critical conclusion is reached among the business elite. Interestingly, sons of politicians, who end up in the boards of French firms are more likely to have graduated

Table 2.7: Consequence of dynasties: *Grande École* graduation.

(a) Of those acceding the political elite.

Dependent variable: graduated from	any of the 12 Grandes Ecoles		any engineering school		any business school		administration or research school	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Father in politics	3.404***		14.80***		0		2.986***	
	(1.082)		(11.45)		(0)		(0.925)	
Father in business		1.241		0		4.745		1.489
		(0.664)		(0)		(8.402)		(0.861)
Observations	2,211	2,211	2,211	2,211	2,211	2,211	2,211	2,211
Cohort weights	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cohort fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Positions controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

(b) Of those acceding the business elite.

Dependent variable: graduated from	any of the 12 Grandes Ecoles		any engineering school		any business school		administration or research school	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Father in politics	1.120		0.186		0.311		2.397*	
	(0.558)		(0.293)		(0.311)		(1.172)	
Father in business		0.488***		0.145**		0.787		0.451
		(0.115)		(0.121)		(0.360)		(0.281)
Observations	15,670	15,670	15,670	15,670	15,670	15,670	15,670	15,670
Cohort weights	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cohort fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Positions controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: *** p<0.01, ** p<0.05, * p<0.1. Estimates are risk ratios from log-binomial regressions. Standard errors, clustered at the cohort level, are in parentheses. Each column from each sub-panel displays estimates from a separate regression. Observations are individuals, who held at least one elite position. Each 5-year cohort has the same weight, whatever the number of members of the elite. Cohort fixed effects are dummy variables for each cohort, except cohort 1951-1955, which serves as a reference. See Appendix Table 2.B.7 for the estimated risk ratios on all control variables.

from an administration or research school, and point estimates suggest that they are rather less likely to have graduated from engineering or business schools, although this is not significant for the latter schools. This may suggest that the choice of school strongly depends on the parental occupation. In that case, sons of politicians would be much more likely to study at *Sciences Po Paris* or *ENA*, but then these graduates may pursue different types of careers either in business or in politics. But what may probably be the most important of our findings regards the sons of businessmen, who are members of the business elite: they are twice less likely to have graduated from a *Grande École*. They are even 7 times less likely to have graduated from an engineering school, which constitutes solid evidence that it is not required for them to have the standard level of education to enter the board of a French firm. As alternative aspirants with this standard level of education are consequently not recruited, what we emphasize could constitute a misallocation of resources.

If graduation from a *Grande École* should not constitute a social objective *per se*, it was well documented that they serve as a validation process for the access to top positions in France, as previously discussed. Although there may obviously be assets (such as job-specific skills, Laband and Lentz, 1983) that serve as substitutes to education and while our empirical strategy does not allow to decisively conclude, the fact that the children of the business elite tend to bypass the traditional passthrough of the *Grandes Écoles* to access the elite suggests favoritism. Indeed, there is no reason to think that such assets could not be obtained otherwise, and no reason to argue that a curriculum in a *Grande École* would be detrimental to those skills.

2.7.2 Age of first entry in elite position

Finally, we investigate whether dynastical members of the elite enter their first position at a distinctive age, through the following descriptive empirical model:

$$AgeAtFirstPosition_i = \alpha + \gamma.FatherElite_{i,e} + \beta.School_i + \theta.Cohort_i + \epsilon_i$$

The dependent variable ($AgeAtFirstPosition_i$) is simply the age at which the individual i attained his first elite position. $FatherElite_{i,e}$ is similar as in all previous specifications, and $School_i$ are school fixed effects. Cohort fixed effects $Cohort_i$ are particularly important in the analysis of age at first position, due to the time-varying coverage of positions and the life cycle bias previously discussed. We also estimate the equation separately for individuals in politics and in business, as well as for business executives only.

The average age of entry observed in the data is 49.6 years old. First and third quartiles are 43 and 56, which then constitute the age interval of half of the entries in an elite position. Entry in national politics happens slightly younger, at 47.8 years old [Q1: 41; Q3: 55], against 50.0 [Q1: 43; Q3: 56] for businessmen. Table 2.8 reports results from an OLS regression for our analysis of the association of dynasties with the age of entry in the elite. We find that children of politicians enter politics at a comparable age than first-generation politicians. This result may seem surprising. Indeed, anecdotal evidence sometimes reports precocious careers of children of politicians with nepotistic practices (Turchi, 2009), but this may rather concern local mandates. Although children of politicians do not reach business positions significantly more than the rest of the graduates from the *Grandes Écoles* (as shown in Table 2.4), those who become board members reach these positions 5.7 years younger.

Again, the most striking difference regards the children of businessmen. Their access to elite positions is accelerated for all types of positions: they become politicians with a national function 9.3 years before their colleagues, board members 5.4 years younger, and business executive 7.7 years younger. The children of business executives are even

Table 2.8: Consequence of dynasties: age at first elite position.

Dependent variable	Age of entry in politics			Age of entry in business			Age of entry in business (executive)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Father in politics	0.956			-5.665***			0.614		
	(2.753)			(1.594)			(4.501)		
Father in business		-9.335***			-5.407**			-7.739***	
		(2.227)			(1.747)			(2.074)	
Father in business (executive)			-11.22***			-7.982**			-9.003**
			(0.407)			(2.618)			(3.205)
R^2	0.062	0.063	0.063	0.535	0.536	0.535	0.259	0.261	0.260
Observations	2,206	2,206	2,206	13,920	13,920	13,920	3,734	3,734	3,734
Cohort weights	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cohort fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
School fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: *** p<0.01, ** p<0.05, * p<0.1. Standard errors, clustered at the cohort level, are in parentheses. Each column displays estimates from a separate OLS regression. Observations are individuals, who held at least one elite position. Each 5-year cohort has the same weight, whatever the number of members of the elite. School fixed effects are dummy variables for each school, except *Sciences Po Paris*, which serves as a reference. Cohort fixed effects are dummy variables for each cohort, except cohort 1951-1955, which serves as a reference. R^2 among business directors are highly inflated by the cohort fixed effects, due to the data time-varying coverage documented in section 3.3. See Appendix Table 2.B.8 for the estimated risk ratios on all control variables.

propelled much younger to top positions: 8.0 years in companies' boards, up to 9 years for those with an executive position, and even 11.2 years in politics.

May an early attainment of elite positions simply entail specific assets, or to what extent is it a sign of favoritism? It appears difficult to explain that individuals born in the same cohort and studying in the same *Grande École* enter politics at 38 years old if their father was a business executive, and 49 years old if he was not, only because sons of businessmen have higher aspirations, or receive a familial education that makes them so much more able to explain such a difference. Although our analysis cannot provide a final answer, this suggests that at least part of these differences arise from familial social network, financial assets, or favoritism, rather than simple differences in abilities.

2.8 Concluding remarks

This paper investigates political and business dynasties in France for men born between 1931 and 1975. We first confirm the hegemony of the *Grandes Écoles* in reaching the positions we define as corresponding to the French elite, namely politicians with national-level missions and board members of French firms. Indeed, 26.2% of our sample of elite members graduated from 12 small schools, which train in comparison only 0.33% of the French population. Yet, the graduates from these elite schools do not face similar careers' opportunities. Over the period 1958-2019, those whose father served as a political or

business leader had higher chances to also become a member of the elite, which constitutes evidence of differential returns to education.

On top of the advantages that benefit the children of the elite in the admissions to the *Grandes Écoles* emphasized by Benveniste (2021), this paper uncovers an additional leverage for advantaged families in securing elite positions over generations. These successive advantages constitute what we refer to as a "double-dividend", first in the educational system and then on the labor market. Moreover, this could well not be the end of the story. Indeed, using a web survey and including a wide range of controls notably for the level of education and schooling at *Oxford* or *Cambridge*, Friedman et al. (2015) show that, in Great Britain, the upwardly mobile who reach elite occupations receive £6,500 to £8,000 lower annual earnings.

We also show that the dynasties highlighted in this study have consequences, which may be considered adverse, on the composition of the French elite. Among all businessmen, dynastical ones are twice less likely to have graduated from a *Grande École*, and up to 7 times less likely to have graduated from an engineering school. They are also nominated at the boards of French firms up to 9 years younger. It seems reasonable to argue that this constitutes a lack of experience in comparison to their colleagues. Nonetheless, it does not necessarily imply that dynastical elite members are less qualified or less performing. They still could exploit more valuable networks or benefit from specific skills or assets transferred within the family. As defended by Geys (2017), our findings demand to further assess the performance of second-generation elite members. A worst performance would decisively demonstrate the presence of nepotistic practices, partly suggested by our results. Whatever the outcome of such analysis, the present work establishes that social origin constitutes a gatekeeper for careers in the elite, even among *Grandes Écoles*' graduates.

We should recall that our data on business elites unfortunately suffer from a few weaknesses. In particular, the coverage of our sources varies across cohorts. This could alter some of our conclusions regarding intergenerational reproduction within the business elite. In particular, we may underestimate its importance relatively to political dynasties.

Finally, due to data constraints, this analysis sets aside the increasing importance of women over the period, both in educational attainment and to a lesser extent in the access to top positions. Bertrand et al. (2010) and Sullivan et al. (2018) suggest that gender gaps prevail among graduates of similar institutions, programs, and even fields of specialization. As intergenerational occupational following was shown to run along similar gender lines, it may be an important channel to study, notably to further apprehend gender gaps.

References for Chapter 2

Aaker, D. A. (1991). *Managing brand equity*. New York: Free Press.

Adams, R. B. and Kirchmaier, T. (2016). Women on boards in finance and STEM industries. *American Economic Review*, 106(5):277–81.

Ahn, Daniel P. and Ludema, Rodney (2017). Measuring smartness: Understanding the economic impact of targeted sanctions. Technical report, United States Department of State.

Aina, C. and Nicoletti, C. (2018). The intergenerational transmission of liberal professions. *Labour Economics*, 51:108–120.

Albouy, V. and Wanecq, T. (2003). Les inégalités sociales d'accès aux grandes écoles. *Économie et statistique*, 361(1):27–52.

Anelli, M. (2020). The returns to elite university education: A quasi-experimental analysis. *Journal of the European Economic Association*, 18(6):2824–2868.

Anger, S. (2012). Intergenerational transmission of cognitive and noncognitive skills. In Ermisch, J., Jäntti, M., and Smeeding, T., editors, *From Parents to Children: The Intergenerational Transmission of Advantage*, pages 393–421. Russell Sage Foundation.

Barone, G. and Mocetti, S. (2020). Intergenerational mobility in the very long run: Florence 1427–2011. *The Review of Economic Studies*.

Basso, G., Brandimarti, E., Pellizzari, M., and Pica, G. (2021). Quality and selection in regulated professions. *CEPR Discussion Papers*. n°15674.

Bauer, M. and Bertin-Mourot, B. (1987). *Les deux cents, comment devient-on un grand patron ?* Seuil, Paris.

Bauer, M. and Bertin-Mourot, B. (1997). *Radiographie des grands patrons français: les conditions d'accès au pouvoir, 1985-1994 [A Radiography of French CEOs. The Conditions of Access to Power]*. Editions L'Harmattan.

Beller, E. (2009). Bringing intergenerational social mobility research into the twenty-first century: Why mothers matter. *American Sociological Review*, 74(4):507–528.

Bennedsen, M., Nielsen, K. M., Pérez-González, F., and Wolfenzon, D. (2007). Inside the family firm: The role of families in succession decisions and performance. *The Quarterly Journal of Economics*, 122(2):647–691.

Benveniste, S. (2021). Like father, like child: Social reproduction in the French Grandes Écoles throughout the 20th century. *First chapter of the dissertation*.

Bernardi, F. and Ballarino, G. (2016). *Education, occupation and social origin: A comparative analysis of the transmission of socio-economic inequalities*. Edward Elgar Publishing.

Bertrand, M., Goldin, C., and Katz, L. F. (2010). Dynamics of the gender gap for young professionals in the financial and corporate sectors. *American economic journal: applied economics*, 2(3):228–55.

Birnbaum, P., Barucq, C., Bellaiche, M., and Marié, A. (1978). *La classe dirigeante française: Dissociation, interpénétration, intégration*. Presses universitaires de France.

Blanden, J., Gregg, P., and Macmillan, L. (2007). Accounting for intergenerational income persistence: noncognitive skills, ability and education. *The Economic Journal*, 117(519):C43–C60.

Bloom, N. and Van Reenen, J. (2007). Measuring and explaining management practices across firms and countries. *The quarterly journal of Economics*, 122(4):1351–1408.

Bonneau, C., Charrousset, P., Grenet, J., and Thebault, G. (2021). Quelle démocratisation des grandes écoles depuis le milieu des années 2000? *Rapport Institut des politiques publiques (IPP)*, N°30.

Borjas, G. J. (1987). Self-selection and the earnings of immigrants. *The American economic review*, 77(4):531–553.

Bouchet-Valat, M. (2014). Les évolutions de l'homogamie de diplôme, de classe et d'origine sociales en France (1969-2011): ouverture d'ensemble, repli des élites. *Revue française de sociologie*, 55(3):459–505.

Bourdieu, P. (1979). *La Distinction. Critique sociale du jugement*. Les Éditions de Minuit, Paris.

Bourdieu, P. (1981). La représentation politique. *Actes de la recherche en sciences sociales*, 36(1):3–24.

Bourdieu, P. (1989). *La noblesse d'État: Grandes écoles et esprit de corps*. Éditions de Minuit, Paris.

Bourdieu, P. and Passeron, J.-C. (1964). *Les Héritiers. Les étudiants et la culture.* Les Éditions de Minuit.

Bovens, M. and Wille, A. (2017). *Diploma democracy: The rise of political meritocracy*. Oxford University Press.

Breen, R. and Müller, W. (2020). *Education and intergenerational social mobility in Europe and the United States*. Stanford University Press.

Chetty, R., Friedman, J. N., Saez, E., Turner, N., and Yagan, D. (2020a). Income segregation and intergenerational mobility across colleges in the United States. *The Quarterly Journal of Economics*, 135(3):1567–1633.

Chetty, R., Friedman, J. N., Saez, E., Turner, N., and Yagan, D. (2020b). Income segregation and intergenerational mobility across colleges in the United States. *The Quarterly Journal of Economics*, 135(3):1567–1633.

Clubok, A. B., Wilensky, N. M., and Berghorn, F. J. (1969). Family relationships, congressional recruitment, and political modernization. *The Journal of Politics*, 31(4):1035–1062.

Collado, M. D., Ortuño-Ortín, I., and Romeu, A. (2012). Intergenerational linkages in consumption patterns and the geographical distribution of surnames. *Regional Science and Urban Economics*, 42(1-2):341–350.

Colombier, N. and Masclet, D. (2008). Intergenerational correlation in self employment: some further evidence from French ECHP data. *Small Business Economics*, 30(4):423–437.

Corak, M. and Piraino, P. (2011). The intergenerational transmission of employers. *Journal of Labor Economics*, 29(1):37–68.

Crawford, C., Gregg, P., Macmillan, L., Vignoles, A., and Wyness, G. (2016). Higher education, career opportunities, and intergenerational inequality. *Oxford Review of Economic Policy*, 32(4):553–575.

Dal Bó, E., Dal Bó, P., and Snyder, J. (2009). Political dynasties. *The Review of Economic Studies*, 76(1):115–142.

De Paola, M. (2013). The determinants of risk aversion: the role of intergenerational transmission. *German Economic Review*, 14(2):214–234.

Dickson, M. and Harmon, C. (2011). Economic returns to education: What we know, what we don't know, and where we are going—some brief pointers. *Economics of education review*, 30(6):1118–1122.

DiPrete, T. A. and Eirich, G. M. (2006). Cumulative advantage as a mechanism for inequality: A review of theoretical and empirical developments. *Annual Review of Sociology*, 32:271–297.

Dohmen, T., Falk, A., Huffman, D., and Sunde, U. (2012). The intergenerational transmission of risk and trust attitudes. *The Review of Economic Studies*, 79(2):645–677.

Dunn, T. and Holtz-Eakin, D. (2000). Financial capital, human capital, and the transition to self-employment: Evidence from intergenerational links. *Journal of labor economics*, 18(2):282–305.

Duru-Bellat, M., Kieffer, A., and Reimer, D. (2008). Patterns of social inequalities in access to higher education in France and Germany. *International journal of comparative sociology*, 49(4-5):347–368.

Dustmann, C., Glitz, A., Schönberg, U., and Brücker, H. (2016). Referral-based job search networks. *The Review of Economic Studies*, 83(2):514–546.

Erikson, R. and Goldthorpe, J. H. (1992). *The constant flux: A study of class mobility in industrial societies*. Oxford University Press.

Erikson, R. and Jonsson, J. O. (1998). Social origin as an interest-bearing asset: family background and labour-market rewards among employees in Sweden. *Acta Sociologica*, 41(1):19–36.

Euriat, M. and Thélot, C. (1995). Le recrutement social de l'élite scolaire en France: évolution des inégalités de 1950 à 1990. *Revue française de sociologie*, pages 403–438.

Evans, D. S. and Jovanovic, B. (1989). An estimated model of entrepreneurial choice under liquidity constraints. *Journal of political economy*, 97(4):808–827.

Fairlie, R. W. and Robb, A. (2007). Families, human capital, and small business: Evidence from the characteristics of business owners survey. *Industrial and Labor Relations Review*, 60(2):225–245.

Falcon, J. and Bataille, P. (2018). Equalization or reproduction? Long-term trends in the intergenerational transmission of advantages in higher education in France. *European Sociological Review*, 34(4):335–347.

Feinstein, B. D. (2010). The dynasty advantage: Family ties in congressional elections. *Legislative Studies Quarterly*, 35(4):571–598.

Folke, O., Persson, T., and Rickne, J. (2017). Dynastic political rents? economic benefits to relatives of top politicians. *The Economic Journal*, 127(605):F495–F517.

François, P. and Lemercier, C. (2016). Une financiarisation à la française (1979-2009). Mutations des grandes entreprises et conversion des élites. *Revue française de sociologie*, 57(2):269–320.

Frémeaux, N. and Lefranc, A. (2020). Assortative mating and earnings inequality in France. *Review of Income and Wealth*, 66(4):757–783.

Friedman, S., Laurison, D., and Miles, A. (2015). Breaking the 'class' ceiling? social mobility into Britain's elite occupations. *The Sociological Review*, 63(2):259–289.

Gagliarducci, S. and Manacorda, M. (2020). Politics in the family: Nepotism and the hiring decisions of Italian firms. *American Economic Journal: Applied Economics*, 12(2):67–95.

Geys, B. (2017). Political dynasties, electoral institutions and politicians' human capital. *The Economic Journal*, 127(605):F474–F494.

Goux, D. and Maurin, E. (2003). Who marries whom in France? In Blossfeld, H.-P. and Timm, A., editors, *Who Marries Whom? Educational Systems as Marriage Markets in Modern Societies*, pages 57–78. Springer.

Grawe, N. D. (2006). Lifecycle bias in estimates of intergenerational earnings persistence. *Labour economics*, 13(5):551–570.

Güell, M., Rodríguez Mora, J. V., and Telmer, C. I. (2007). Intergenerational mobility and the informative content of surnames. *CEPR Discussion Papers*. nÂ° 6316.

Güell, M., Rodríguez Mora, J. V., and Telmer, C. I. (2015). The informational content of surnames, the evolution of intergenerational mobility, and assortative mating. *The Review of Economic Studies*, 82(2 (291)):693–735.

Guyon, N. and Huillery, E. (2021). Biased aspirations and social inequality at school: Evidence from French teenagers. *The Economic Journal*, 131(634):745–796.

Hartmann, M. (2000). Class-specific habitus and the social reproduction of the business elite in Germany and France. *The Sociological Review*, 48(2):241–261.

Hoekstra, M. (2009). The effect of attending the flagship state university on earnings: A discontinuity-based approach. *The review of economics and statistics*, 91(4):717–724.

Hout, M. (1988). More universalism, less structural mobility: The American occupational structure in the 1980s. *American Journal of sociology*, 93(6):1358–1400.

Jalbert, T., Rao, R. P., and Jalbert, M. (2002). Does school matter? an empirical analysis of CEO education, compensation, and firm performance. *International Business and Economics Research Journal*, 1(1):83–98.

Jayet, C. (2021). L'approche de la mobilité sociale par les microclasses: une application sur données françaises. *Revue francaise de sociologie*, 62(1):63–104.

Jennings, M. K., Stoker, L., and Bowers, J. (2009). Politics across generations: Family transmission reexamined. *The Journal of Politics*, 71(3):782–799.

Kadushin, C. (1995). Friendship among the French financial elite. *American Sociological Review*, pages 202–221.

Kramarz, F. and Skans, O. N. (2014). When strong ties are strong: Networks and youth labour market entry. *Review of Economic Studies*, 81(3):1164–1200.

Kramarz, F. and Thesmar, D. (2013). Social networks in the boardroom. *Journal of the European Economic Association*, 11(4):780–807.

Laband, D. N. and Lentz, B. F. (1983). Like father, like son: Toward an economic theory of occupational following. *Southern Economic Journal*, pages 474–493.

Laband, D. N. and Lentz, B. F. (1985). Favorite sons: Intergenerational wealth transfers among politicians. *Economic Inquiry*, 23(3):395–414.

Laband, D. N. and Lentz, B. F. (1992). Self-recruitment in the legal profession. *Journal of Labor Economics*, 10(2):182–201.

Laferrere, A. and McEntee, P. (1996). *Self-employment and Intergenerational Transfers: Liquidity Constraints or Family Environment?* INSEE.

Lefranc, A. (2018). Intergenerational earnings persistence and economic inequality in the long run: Evidence from French cohorts, 1931–75. *Economica*, 85(340):808–845.

Lentz, B. F. and Laband, D. N. (1989). Why so many children of doctors become doctors: Nepotism vs. human capital transfers. *Journal of Human Resources*, pages 396–413.

Lentz, B. F. and Laband, D. N. (1990). Entrepreneurial success and occupational inheritance among proprietors. *Canadian Journal of Economics*, pages 563–579.

Lindquist, M. J., Sol, J., and Van Praag, M. (2015). Why do entrepreneurial parents have entrepreneurial children? *Journal of Labor Economics*, 33(2):269–296.

Mare, R. D. (1993). Educational stratification on observed and unobserved components of familiy background. aus: Blossfeld, hans-peter; shavit, yossi (eds.)(hrsg.): Persistent inequality. changing educational attainment in thirteen countries. In Shavit, Y. and

Blossfeld, H.-P., editors, *Persistent Inequality: Changing Educational Attainment in Thirteen Countries*. Westview Press.

Marmaros, D. and Sacerdote, B. (2006). How do friendships form? *The Quarterly Journal of Economics*, 121(1):79–119.

Mazuy, M., Barbieri, M., Breton, D., and d'Albis, H. (2015). L'évolution démographique récente de la France et ses tendances depuis 70 ans. *Population*, 70(3):417–486.

Meurs, D., Pailhé, A., and Simon, P. (2006). The persistence of intergenerational inequalities linked to immigration: Labour market outcomes for immigrants and their descendants in France. *Population*, 61(5):645–682.

Mocetti, S. (2016). Dynasties in professions and the role of rents and regulation: Evidence from Italian pharmacies. *Journal of Public Economics*, 133:1–10.

Mosca, G. (1896). *Elementi di scienza politica*. Fratelli Bocca.

Niess, A. (2012). Nepotism and family confiscation in the electoral system of the Third Republic. *French History*, 26(3):325–343.

Pérez-González, F. (2006). Inherited control and firm performance. *American Economic Review*, 96(5):1559–1588.

Piketty, T. (2014). *Capital in the twenty-first century*. Harvard University Press.

Putnam, R. (1976). *The comparative study of political elites*. Prentice-Hall.

Reeves, A., Friedman, S., Rahal, C., and Flemmen, M. (2017). The decline and persistence of the old boy: Private schools and elite recruitment 1897 to 2016. *American Sociological Review*, 82(6):1139–1166.

Rivera, L. (2015). Pedigree: How elite students get elite jobs.

Rivera, L. A. (2012). Hiring as cultural matching: The case of elite professional service firms. *American sociological review*, 77(6):999–1022.

Rossi, M. A. (2017). Self-perpetuation of political power. *The Economic Journal*, 127(605):455–473.

Sacerdote, B. (2011). Nature and nurture effects on children's outcomes: What have we learned from studies of twins and adoptees? In *Handbook of social economics*, volume 1, pages 1–30. Elsevier.

Savage, M. (2015). *Social class in the 21st century*. Penguin UK.

Sørensen, J. B. (2007). Closure and exposure: Mechanisms in the intergenerational transmission of self-employment. In Ruef, M. and Lounsbury, M., editors, *Research in the Sociology of Organizations. The sociology of entrepreneurship. Vol. 25*. Emerald Group Publishing Limited.

Sraer, D. and Thesmar, D. (2007). Performance and behavior of family firms: Evidence from the French stock market. *Journal of the european economic Association*, 5(4):709–751.

Suleiman, E. N. (1978). *Elites in French society: the politics of survival*. Princeton University Press, Princeton, NJ.

Sullivan, A., Parsons, S., Green, F., Wiggins, R. D., and Ploubidis, G. (2018). The path from social origins to top jobs: social reproduction via education. *The British journal of sociology*, 69(3):776–798.

Torche, F. (2011). Is a college degree still the great equalizer? intergenerational mobility across levels of schooling in the United States. *American journal of sociology*, 117(3):763–807.

Torche, F. (2018). Intergenerational mobility at the top of the educational distribution. *Sociology of Education*, 91(4):266–289.

Turchi, M. (2009). Jean Sarkozy ravive les divisions de la droite dans les Hauts-de-Seine. *Mediapart.fr*. retrieved 24 August 2021.

Vallet, L.-A. (2004). Change in intergenerational class mobility in France from the 1970s to the 1990s and its explanation: an analysis following the CASMIN approach. In Breen, R., editor, *Social Mobility in Europe*. Oxford University Press.

van Aaken, D., Göbel, M., and Meindl, D. (2020). Monitor or advise? how family involvement affects supervisory board roles in family firms. *Schmalenbach Business Review*, 72(2):193–224.

Villalonga, B. and Amit, R. (2006). How do family ownership, control and management affect firm value? *Journal of financial Economics*, 80(2):385–417.

Vion, A., Joly, H., Grémont, É., and Dudouet, F.-X. (2014). Retour sur le champ du pouvoir économique en France: l'espace social des dirigeants du CAC 40. *Revue Française de Socio-Economie*, 1(13):23–48.

Wakeling, P. and Savage, M. (2015). Entry to elite positions and the stratification of higher education in Britain. *The Sociological Review*, 63(2):290–320.

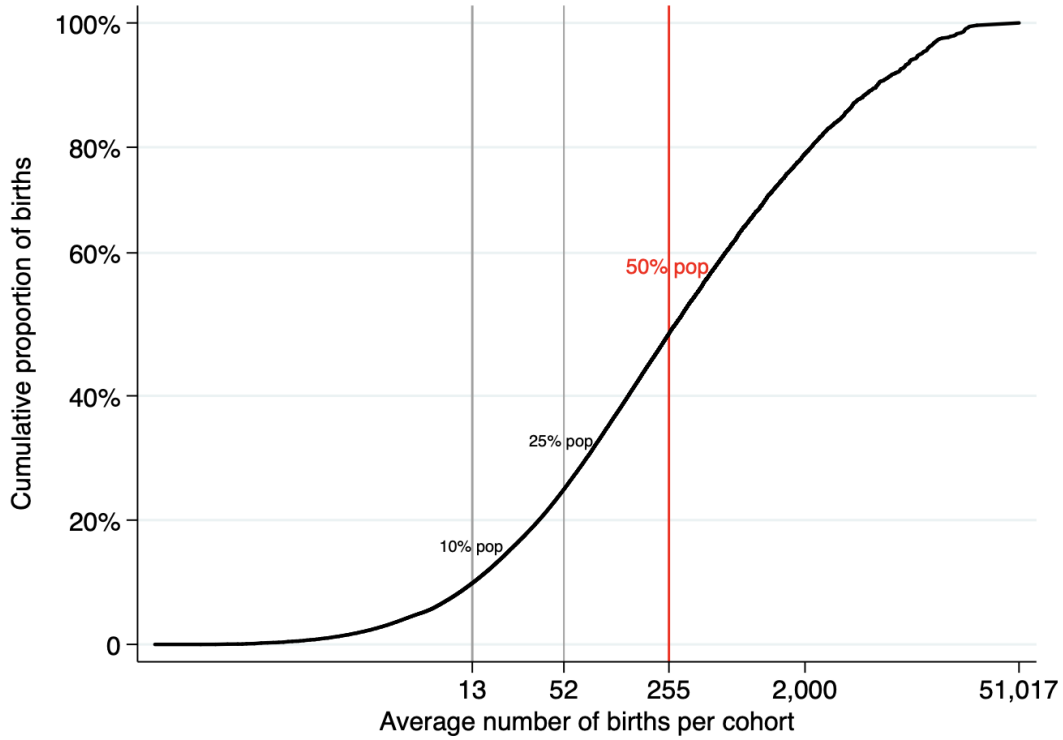
Weeden, K. A. and Grusky, D. B. (2005). The case for a new class map. *American Journal of Sociology*, 111(1):141–212.

Zimmerman, S. D. (2019). Elite colleges and upward mobility to top jobs and top incomes. *American Economic Review*, 109(1):1–47.

Appendices to Chapter 2

2.A Complementary figure

Figure 2.A.1: Surnames' frequency in France (1901-1975).



Notes: The figure is based on the number of births by surname per generation of 21 years over the period 1901-1975. We use a logarithmic scale for the abscissa to emphasize the importance of rare surnames. While the number of births per cohort for a single surname goes up to 51,017 (*Martin*), the figure shows that surnames with less than 13 births per cohort account for 10% of all births over the period (*10% pop* vertical line). Surnames with at most 52 births per cohort account for 25% of the population(*25% pop* vertical line), whereas half of the population born between 1901 and 1975 had a surname with less than 255 births per cohort (*50% pop* vertical line). This only includes "native" surnames, as defined in section 2.4.1. Including all surnames, the 10%, 25% and 50% cut-offs would correspond to even rarer surnames, respectively an average of 11, 46 and 230 births per cohort.

2.B Complementary tables

Table 2.B.1: Number of students per *Grande École* per cohort.

birth cohort	EM Lyon	ENA	ENS Cachan	ENS Ulm	ESCP	ESPCI	ESSEC	Mines Paris	Polytech -nique	Ponts et chaussées	Sciences Po Paris	Télécom Paris	all schools
1931-1935	228	272	566	296	823	156	515	265	1,134	281	3,118	269	7,341
1936-1940	297	445	715	390	1,070	168	538	330	1,442	413	3,743	357	9,026
1941-1945	424	507	600	412	1,132	159	705	340	1,461	470	4,065	337	9,727
1946-1950	336	674	684	450	1,120	189	839	432	1,452	624	6,352	427	12,428
1951-1955	342	687	959	493	857	174	1,183	483	1,360	706	5,384	596	11,885
1956-1960	377	684	854	492	915	172	1,333	519	1,383	645	4,647	616	11,325
1961-1965	466	401	815	458	1,563	160	1,834	545	1,385	719	6,284	713	14,212
1966-1970	485	341	813	573	2,041	206	1,986	664	1,430	882	3,784	883	12,947
1971-1975	709	354	940	594	2,384	227	2,637	724	1,628	965	3,537	923	14,418
all cohorts	3,664	4,365	6,946	4,158	11,905	1,611	11,570	4,302	12,675	5,705	40,914	5,121	103,309

Notes: This table reports the number of masculine students in each of the 12 schools as well as in all schools together, by 5-year birth cohort as well as for all cohorts together. This restricts to "native" surnames as defined in section 2.4.1

Table 2.B.2: Share of *Grandes Écoles*' graduates among those with an elite position, by cohort and school.

(a) All elite positions.

Birth cohort	all schools	EM Lyon	ENA	ENS Cachan	ENS Ulm	ESCP	ESPCI	ESSEC	Mines Paris	Polytech -nique	Ponts et chaussées	Sciences Po Paris	Télécom	Number of individuals
all cohorts	26.2%	1.1%	3.3%	0.3%	0.7%	2.7%	0.2%	3.6%	1.8%	6.1%	2.1%	10.5%	1.4%	17,822
1931-1935	26.6%	0.5%	5.5%	0.5%	0.7%	1.6%	0.0%	0.7%	1.2%	6.6%	1.6%	14.6%	1.4%	561
1936-1940	26.6%	1.0%	5.0%	0.2%	0.4%	1.0%	0.0%	1.1%	2.0%	8.1%	1.4%	14.7%	0.6%	906
1941-1945	25.8%	0.3%	5.3%	0.2%	0.7%	1.9%	0.1%	1.6%	1.9%	7.3%	1.6%	13.1%	0.4%	1,456
1946-1950	27.1%	0.5%	4.9%	0.4%	0.5%	1.7%	0.4%	2.4%	1.8%	5.6%	2.0%	14.2%	0.8%	2,275
1951-1955	26.8%	0.8%	4.3%	0.3%	0.6%	2.4%	0.3%	3.4%	2.2%	6.1%	2.5%	11.9%	1.5%	2,267
1956-1960	25.6%	1.2%	3.4%	0.5%	0.6%	2.0%	0.1%	4.4%	1.7%	6.3%	1.8%	10.3%	1.7%	2,853
1961-1965	25.7%	1.3%	1.9%	0.3%	0.7%	3.0%	0.3%	3.9%	1.8%	5.2%	1.7%	9.4%	1.8%	3,195
1966-1970	25.1%	1.0%	1.5%	0.2%	0.9%	4.4%	0.1%	4.6%	1.6%	6.0%	2.5%	6.9%	1.8%	2,552
1971-1975	27.5%	2.3%	1.5%	0.5%	1.0%	4.6%	0.2%	5.6%	1.8%	6.0%	2.9%	6.0%	1.3%	1,757

(b) Political elite.

Birth cohort	all schools	EM Lyon	ENA	ENS Cachan	ENS Ulm	ESCP	ESPCI	ESSEC	Mines Paris	Polytech -nique	Ponts et chaussées	Sciences Po Paris	Télécom	Number of individuals
all cohorts	16.0%	0.2%	4.9%	0.2%	0.6%	0.5%	0.0%	0.6%	0.3%	1.3%	0.5%	12.3%	0.0%	2,211
1931-1935	13.1%	0.4%	4.6%	1.1%	0.0%	0.0%	0.0%	0.4%	0.0%	1.1%	0.7%	8.5%	0.4%	283
1936-1940	13.0%	0.6%	3.7%	0.0%	0.8%	0.0%	0.0%	0.3%	0.8%	2.5%	0.0%	8.8%	0.0%	353
1941-1945	14.0%	0.2%	5.1%	0.0%	0.7%	0.7%	0.0%	0.2%	0.5%	1.7%	0.5%	10.4%	0.0%	415
1946-1950	17.7%	0.2%	5.3%	0.2%	0.5%	0.5%	0.0%	0.2%	0.2%	0.9%	0.7%	14.5%	0.0%	435
1951-1955	15.7%	0.0%	6.0%	0.0%	0.4%	1.1%	0.0%	0.7%	0.4%	0.7%	0.4%	12.4%	0.0%	267
1956-1960	22.1%	0.0%	8.3%	0.6%	0.6%	1.1%	0.0%	1.1%	0.0%	1.1%	0.0%	18.8%	0.0%	181
1961-1965	15.3%	0.0%	2.8%	0.0%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	14.6%	0.0%	144
1966-1970	19.5%	0.0%	2.6%	0.0%	1.3%	0.0%	0.0%	1.3%	0.0%	1.3%	1.3%	15.6%	0.0%	77
1971-1975	28.6%	0.0%	3.6%	0.0%	1.8%	1.8%	0.0%	7.1%	0.0%	0.0%	1.8%	21.4%	0.0%	56

(c) Business elite.

Birth cohort	all schools	EM Lyon	ENA	ENS Cachan	ENS Ulm	ESCP	ESPCI	ESSEC	Mines Paris	Polytech -nique	Ponts et chaussées	Sciences Po Paris	Télécom	Number of individuals
all cohorts	27.6%	1.2%	3.1%	0.3%	0.7%	3.0%	0.2%	4.0%	2.0%	6.8%	2.3%	10.3%	1.6%	15,670
1931-1935	40.0%	0.7%	6.4%	0.0%	1.4%	3.2%	0.0%	1.1%	2.5%	12.1%	2.5%	20.7%	2.5%	280
1936-1940	35.0%	1.2%	5.9%	0.4%	0.2%	1.6%	0.0%	1.6%	2.8%	11.5%	2.3%	18.3%	0.9%	563
1941-1945	30.6%	0.4%	5.5%	0.3%	0.7%	2.3%	0.2%	2.2%	2.4%	9.4%	2.1%	14.5%	0.6%	1,056
1946-1950	29.5%	0.5%	5.0%	0.4%	0.5%	2.1%	0.4%	2.9%	2.1%	6.7%	2.3%	14.4%	1.0%	1,852
1951-1955	28.4%	0.9%	4.1%	0.3%	0.6%	2.5%	0.3%	3.7%	2.5%	6.8%	2.7%	12.0%	1.7%	2,013
1956-1960	25.8%	1.2%	3.0%	0.4%	0.6%	2.0%	0.1%	4.6%	1.8%	6.6%	1.9%	9.7%	1.8%	2,674
1961-1965	26.2%	1.4%	1.9%	0.3%	0.7%	3.2%	0.3%	4.1%	1.9%	5.5%	1.8%	9.2%	1.9%	3,053
1966-1970	25.2%	1.0%	1.5%	0.2%	0.8%	4.6%	0.1%	4.7%	1.7%	6.2%	2.5%	6.6%	1.8%	2,477
1971-1975	27.5%	2.4%	1.5%	0.5%	0.9%	4.7%	0.2%	5.5%	1.8%	6.2%	2.9%	5.6%	1.4%	1,702

Notes: These tables report by cohort the number of individuals holding elite positions, as well as their share with a diploma from each of the 12 *Grande École* in our sample. Panel (a) relates to both political and business elites, while panel (b) relates to political elite only, and panel (c) to business elite only.

Table 2.B.3: Explanatory variables of paternal presence in the elite: descriptive statistics.

(a) All elite positions.

	Average	Average (among positive)	Obs. Total	Obs. Null values	Obs. 0.00 to 0.01	Obs. 0.01 to 0.05	Obs. 0.05 to 0.10	Obs. 0.10 to 0.25	Obs. 0.25 to 0.50	Obs. 0.50 to 0.100
All	0.0027	0.0183	103,309	88,171	12,855	1,463	295	257	131	137
1931-1935	0.0002	0.0057	7,341	7,117	213	8	1	1	0	1
1936-1940	0.0003	0.0053	9,026	8,545	467	7	1	5	0	1
1941-1945	0.0007	0.0080	9,727	8,850	834	22	4	11	4	2
1946-1950	0.0016	0.0132	12,428	10,942	1,378	49	15	22	15	7
1951-1955	0.0029	0.0222	11,885	10,323	1,264	198	41	27	12	20
1956-1960	0.0012	0.0080	11,325	9,686	1,508	83	17	21	5	5
1961-1965	0.0041	0.0231	14,212	11,688	2,006	362	57	48	16	35
1966-1970	0.0027	0.0124	12,947	10,158	2,498	182	41	34	21	13
1971-1975	0.0074	0.0300	14,418	10,862	2,687	552	118	88	58	53

(b) Political elite.

	Average	Average among positive	Obs. Total	Obs. Null values	Obs. 0.00 to 0.01	Obs. 0.01 to 0.05	Obs. 0.05 to 0.10	Obs. 0.10 to 0.25	Obs. 0.25 to 0.50	Obs. 0.50 to 0.100
All	0.0010	0.0102	103,309	93,222	9,174	607	121	94	47	44
1931-1935	0.0002	0.0058	7,341	7,119	211	8	1	1	0	1
1936-1940	0.0003	0.0053	9,026	8,547	465	7	1	5	0	1
1941-1945	0.0006	0.0067	9,727	8,886	808	16	4	8	3	2
1946-1950	0.0012	0.0112	12,428	11,045	1,299	38	14	14	12	6
1951-1955	0.0021	0.0181	11,885	10,533	1,133	150	27	19	12	11
1956-1960	0.0005	0.0047	11,325	10,088	1,177	43	6	7	2	2
1961-1965	0.0017	0.0151	14,212	12,636	1,344	166	28	19	7	12
1966-1970	0.0003	0.0028	12,947	11,542	1,349	42	7	6	1	0
1971-1975	0.0014	0.0128	14,418	12,826	1,388	137	33	15	10	9

(c) Business elite.

	Average	Average among positive	Obs. Total	Obs. Null values	Obs. 0.00 to 0.01	Obs. 0.01 to 0.05	Obs. 0.05 to 0.10	Obs. 0.10 to 0.25	Obs. 0.25 to 0.50	Obs. 0.50 to 0.100
All	0.0017	0.0202	103,309	94,485	7,487	815	167	173	93	89
1931-1935	0.0000	0.0005	7,741	7,736	5	0	0	0	0	0
1936-1940	0.0000	0.0003	9,026	9,011	15	0	0	0	0	0
1941-1945	0.0002	0.0202	9,727	9,648	67	7	0	4	1	0
1946-1950	0.0004	0.0171	12,428	12,164	237	11	1	11	3	1
1951-1955	0.0010	0.0236	11,885	11,363	444	41	14	12	3	8
1956-1960	0.0007	0.0081	11,325	10,495	758	37	12	17	4	2
1961-1965	0.0025	0.0204	14,212	12,480	1,475	165	29	29	12	22
1966-1970	0.0024	0.0134	12,947	10,645	2,068	140	32	29	20	13
1971-1975	0.0060	0.0280	14,418	11,343	2,418	414	79	71	50	43

Notes: *Obs.* stands for number of observations. The upper panel (a) provides statistics for the explanatory variables related to having a father in both types of elite, while the central panel (b) relates to fathers in politics and the lower panel (c) to fathers in business. We provide statistics for all cohorts together, as well as for each five-year cohort. The *Average among positive* computes the average of the variable among non-null observations. We also report the number of observations, in total, with null values, as well as for different brackets.

Table 2.B.4: Complementary results: detailed estimates for the baseline regression.

Dependent variable	Dummy variable for entering an elite position			
	(1)	(2)	(3)	(4)
Father in elite position	3.463***	3.182***	2.944***	2.408***
	(1.028)	(0.861)	(0.816)	(0.642)
School EM Lyon			1.636***	1.664***
			(0.222)	(0.247)
School ENA			4.503***	4.311***
			(0.617)	(0.578)
School ENPC ("Ponts")			1.427***	1.381***
			(0.0739)	(0.0713)
School ENS Cachan			0.267***	0.270***
			(0.0362)	(0.0378)
School ENS Ulm			0.849	0.848
			(0.0923)	(0.0937)
School ESCP			1.305***	1.350***
			(0.134)	(0.147)
School ESPCI			0.693*	0.726
			(0.137)	(0.146)
School ESSEC			1.831***	1.769***
			(0.0801)	(0.121)
School Mines Paris			2.028***	1.977***
			(0.127)	(0.0992)
School Polytechnique			2.455***	2.564***
			(0.138)	(0.128)
School Télécom			1.073	1.024
			(0.101)	(0.0881)
Cohort 1931-1935		0.343***		0.353***
		(0.000563)		(0.00492)
Cohort 1936-1940		0.517***		0.518***
		(0.000810)		(0.00489)
Cohort 1941-1945		0.738***		0.727***
		(0.00103)		(0.00580)
Cohort 1946-1950		0.870***		0.881***
		(0.000746)		(0.00242)
Cohort 1956-1960		1.079***		1.032***
		(0.00134)		(0.00182)
Cohort 1961-1965		1.065***		1.126***
		(0.000766)		(0.0195)
Cohort 1966-1970		0.859***		0.864***
		(0.000384)		(0.0226)
Cohort 1971-1975		0.606***		0.601***
		(0.00141)		(0.0171)
Constant	0.0431***	0.0548***	0.0283***	0.0360***
	(0.00470)	(9.45e-05)	(0.00308)	(0.000984)
Observations	103,309	103,309	103,309	103,309
Cohort weights	Yes	Yes	Yes	Yes
Cohort fixed effects		Yes		Yes
School fixed effects			Yes	Yes

Notes: *** p<0.01, ** p<0.05, * p<0.1. Standard errors, clustered at the cohort level, are in parentheses. This table provides details estimates for the main analysis presented in section 2.5. See notes of Table 2.2 for additional explanations on the regressions. Cohort fixed effects are dummy variables for each cohort, except cohort 1951-1955, which serves as a reference. School fixed effects are dummy variables for each school, except *Sciences Po Paris*, which serves as a reference.

Table 2.B.5: Complementary results: robustness analysis of our baseline regression to sample restrictions and alternative estimation methods.

Dependent variable Independent variable	Dummy variable for entering an elite position Probability of having a father in an elite position			
	no control	cohorts controls	schools controls	cohorts and schools controls
No weighting scheme	3.102*** (0.823)	3.030*** (0.753)	2.748*** (0.670)	2.456*** (0.550)
Excluding the first cohort	3.164*** (0.922)	3.194*** (0.873)	2.693*** (0.729)	2.414*** (0.650)
Excluding the first two cohorts	2.978*** (0.888)	3.229*** (0.900)	2.584*** (0.715)	2.566*** (0.634)
FatherElite only over 10%	3.352*** (0.925)	3.152*** (0.815)	2.859*** (0.750)	2.386*** (0.650)
FatherElite only over 25%	2.925*** (0.829)	2.772*** (0.720)	2.579*** (0.693)	2.208*** (0.562)
Not excluding "immigrant" surnames	3.418*** (1.045)	3.193*** (0.838)	2.903*** (0.910)	6.318*** (1.816)

Notes: *** p<0.01, ** p<0.05, * p<0.1. Standard errors, clustered at the cohort level, are in parentheses. All cells display estimates from a separate regression. Estimates reported in the first line are computed with unweighted regressions, while the three others use the same weighting scheme as our baseline regression, which ensures that each 5-year cohort has the same weight whatever the number of observations. All regressions include cohort and school fixed effects, constructed as detailed in Table 2.2. The number of observations is as follows: still 103,309 in the absence of weighting scheme, 95,968 when we exclude the first cohort, 86,942 when we exclude the two first cohorts, 88,696 when $FatherElite_{i,e}$ is floored at 10%, 88,447 when it is floored at 25%, and 122,075 when we also include "immigrant surnames". When restricting $FatherElite_{i,e}$ to a certain threshold, we withdraw from the sample observations with non-null values that are below the threshold, rather than considering them as null values.

Table 2.B.6: Complementary results: inclusion of cohort fixed effects for the heterogeneity analysis by school of graduation.

Dependent variable	Dummy variable for entering an elite position					
	EM Lyon	ENA	ENS Cachan	ENS Ulm	ESPCI	ESCP
	(1)	(2)	(3)	(4)	(5)	(6)
Father in elite position	5.301***	-	1.284	0.937	2.71e-10	1.757*
	(2.147)	-	(1.457)	(1.194)	(6.00e-09)	(0.560)
Observations	3,664	4,365	6,946	4,158	1,611	11,905
Cohort weights	Yes	Yes	Yes	Yes	Yes	Yes
Cohort fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
School fixed effects	N/A	N/A	N/A	N/A	N/A	N/A

	ESSEC	Mines Paris	Polytech -nique	Ponts et chaussées	Sciences Po Paris	Télécom
	(7)	(8)	(9)	(10)	(11)	(12)
Father in elite position	1.528	2.283	2.850**	11.75**	3.123***	0.00893**
	(1.450)	(2.534)	(1.380)	(11.26)	(1.111)	(0.0215)
Observations	11,570	4,302	12,675	5,705	40,914	5,121
Cohort weights	Yes	Yes	Yes	Yes	Yes	Yes
Cohort fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
School fixed effects	N/A	N/A	N/A	N/A	N/A	N/A

Notes: *** p<0.01, ** p<0.05, * p<0.1. Standard errors, clustered at the cohort level, are in parentheses. Each column from each sub-panel displays estimates from a separate regression. The log-binomial regression does not converge when restricting to *ENA*'s graduates and including cohort fixed effects. Results vary to a limited extent for other schools, with respect to those in Table 2.3, without the inclusion of cohort fixed effects.

Table 2.B.7: Complementary results: detailed estimates for the regressions on the consequences of dynasties on education among the elite.

(a) For those acceding the political elite.

Dependent variable: graduated from	any of the 12 Grandes Ecoles		any engineering school		any business school		administration or research school	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Father in politics	3.404***		14.80***		0		2.986***	
	(1.082)		(11.45)		(0)		(0.925)	
Father in business		1.241		0		4.745		1.489
		(0.664)		(0)		(8.402)		(0.861)
Executive power	3.622***	3.594***	5.959***	5.852***	1.016	1.025	3.541***	3.517***
	(0.450)	(0.453)	(2.064)	(2.079)	(0.594)	(0.616)	(0.481)	(0.481)
Cohort 1931-1935	0.873***	0.854***	1.744***	1.527***	0.344***	0.386***	0.795***	0.783***
	(0.0101)	(0.00357)	(0.139)	(0.0111)	(0.00527)	(0.0166)	(0.00784)	(0.00410)
Cohort 1936-1940	0.892***	0.872***	2.519***	2.211***	0.416***	0.464***	0.757***	0.745***
	(0.0101)	(0.00355)	(0.202)	(0.0199)	(0.00546)	(0.0201)	(0.00751)	(0.00417)
Cohort 1941-1945	0.863***	0.851***	1.610***	1.477***	0.601***	0.657***	0.808***	0.801***
	(0.00728)	(0.00609)	(0.108)	(0.0468)	(0.00819)	(0.0263)	(0.00763)	(0.00647)
Cohort 1946-1950	1.136***	1.119***	1.148***	1.034***	0.460***	0.502***	1.176***	1.164***
	(0.0100)	(0.00520)	(0.0600)	(0.0120)	(0.00750)	(0.0243)	(0.00867)	(0.00628)
Cohort 1956-1960	1.234***	1.212***	0.914	0.816***	1.144***	1.203***	1.352***	1.335***
	(0.0230)	(0.0229)	(0.0899)	(0.0362)	(0.0372)	(0.0501)	(0.0311)	(0.0292)
Cohort 1961-1965	0.966***	0.962***					1.099***	1.097***
	(0.00404)	(0.00347)					(0.00656)	(0.00657)
Cohort 1966-1970	1.078***	1.056***	2.096***	1.878***	0.647***	0.708***	1.024	1.008
	(0.0170)	(0.0159)	(0.215)	(0.0924)	(0.0187)	(0.0298)	(0.0179)	(0.0156)
Cohort 1971-1975	1.955***	1.915***	1.579***	1.564***	4.622***	4.842***	1.571***	1.547***
	(0.0623)	(0.0646)	(0.0817)	(0.0510)	(0.0562)	(0.140)	(0.0230)	(0.0221)
Constant	0.116***	0.119***	0.00648***	0.00746***	0.0206***	0.0183***	0.103***	0.105***
	(0.00652)	(0.00632)	(0.000914)	(0.00115)	(0.00167)	(0.00177)	(0.00567)	(0.00572)
Observations	2,211	2,211	2,211	2,211	2,211	2,211	2,211	2,211
Cohort weights	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cohort fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Position controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: *** p<0.01, ** p<0.05, * p<0.1. See second part of the table and details on the reading on the next page.

(b) For those acceding the business elite.

Dependent variable: graduated from	any of the 12 Grandes Ecoles		any engineering school		any business school		administration or research school	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Father in politics	1.120		0.186		0.311		2.397*	
	(0.558)		(0.293)		(0.311)		(1.172)	
Father in business		0.488***		0.145**		0.787		0.451
		(0.115)		(0.121)		(0.360)		(0.281)
Business executive	1.137**	1.139**	1.482***	1.485***	0.805**	0.805**	1.170*	1.172*
	(0.0697)	(0.0697)	(0.142)	(0.143)	(0.0685)	(0.0679)	(0.0970)	(0.0971)
Cohort 1931-1935	1.415***	1.411***	1.348***	1.347***	0.691***	0.693***	1.685***	1.672***
	(0.00431)	(0.00377)	(0.00809)	(0.00655)	(0.00307)	(0.00294)	(0.00936)	(0.00669)
Cohort 1936-1940	1.238***	1.235***	1.356***	1.356***	0.619***	0.620***	1.450***	1.439***
	(0.00254)	(0.000518)	(0.00257)	(0.00127)	(0.000944)	(0.000670)	(0.00636)	(0.00158)
Cohort 1941-1945	1.086***	1.084***	1.163***	1.163***	0.669***	0.670***	1.237***	1.228***
	(0.00301)	(0.00271)	(0.00569)	(0.00491)	(0.00238)	(0.00233)	(0.00622)	(0.00426)
Cohort 1946-1950	1.044***	1.043***	0.925***	0.925***	0.767***	0.768***	1.206***	1.200***
	(0.00171)	(0.000952)	(0.00238)	(0.00155)	(0.00140)	(0.00106)	(0.00413)	(0.00156)
Cohort 1956-1960	0.905***	0.904***	0.867***	0.867***	1.106***	1.107***	0.803***	0.799***
	(0.00176)	(0.00115)	(0.00175)	(0.00199)	(0.00130)	(0.00119)	(0.00305)	(0.00145)
Cohort 1961-1965	0.917***	0.918***	0.827***	0.831***	1.220***	1.223***	0.753***	0.751***
	(0.00263)	(0.00222)	(0.00304)	(0.00335)	(0.00281)	(0.00447)	(0.00373)	(0.00254)
Cohort 1966-1970	0.885***	0.887***	0.885***	0.892***	1.443***	1.448***	0.565***	0.565***
	(0.00191)	(0.00141)	(0.00194)	(0.00247)	(0.00162)	(0.00462)	(0.00232)	(0.00149)
Cohort 1971-1975	0.967***	0.973***	0.955***	0.971***	1.753***	1.760***	0.521***	0.522***
	(0.00116)	(0.00170)	(0.000590)	(0.00388)	(0.00132)	(0.00807)	(0.00156)	(0.00249)
Constant	0.275***	0.275***	0.0894***	0.0894***	0.0753***	0.0752***	0.131***	0.132***
	(0.00466)	(0.00473)	(0.00296)	(0.00288)	(0.00139)	(0.00137)	(0.00305)	(0.00308)
Observations	15,670	15,670	15,670	15,670	15,670	15,670	15,670	15,670
Cohort weights	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cohort fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Positions controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: *** p<0.01, ** p<0.05, * p<0.1. See first part of the table on previous page. This table provides detailed estimates for all explanatory variables on the analysis of schooling. Summary results are presented in Table 2.7). Estimates report risk ratios from log-binomial regressions. Standard errors, clustered at the cohort level, are in parentheses. Each column displays estimates from a separate regression. Observations are individuals, who held at least one elite position. Each 5-year cohort has the same weight, whatever the number of members of the elite. Cohort fixed effects are dummy variables for each cohort, except cohort 1951-1955, which serves as a reference.

Table 2.B.8: Complementary results: detailed estimates for the regressions on the consequences of dynasties on age at first position among the elite.

Dependent variable	Age of entry in politics			Age of entry in business			Age of entry in business (executive)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Father in politics	0.956			-5.665***			0.614		
	(2.753)			(1.594)			(4.501)		
Father in business		-9.335***			-5.407**			-7.739***	
		(2.227)			(1.747)			(2.074)	
Father in business (executive)			-11.22***			-7.982**			-9.003**
			(0.407)			(2.618)			(3.205)
School EM Lyon	-1.898	-1.899	-1.899	-0.960**	-0.897*	-0.969**	-2.128**	-1.962**	-2.147**
	(4.310)	(4.309)	(4.309)	(0.399)	(0.411)	(0.400)	(0.749)	(0.714)	(0.746)
School ENA	-5.919***	-5.918***	-5.923***	-3.256***	-3.292***	-3.289***	-1.659***	-1.686***	-1.669***
	(1.002)	(1.004)	(1.001)	(0.390)	(0.383)	(0.382)	(0.460)	(0.474)	(0.470)
School ENPC ("Ponts")	1.351	1.387	1.390	0.506	0.510	0.521	0.680	0.698	0.725
	(1.808)	(1.722)	(1.722)	(0.517)	(0.519)	(0.518)	(0.748)	(0.760)	(0.761)
School ENS Cachan	1.403	1.403	1.403	0.738	0.732	0.736	-3.933*	-3.908*	-3.959*
	(0.855)	(0.854)	(0.855)	(1.352)	(1.347)	(1.350)	(1.964)	(1.993)	(1.954)
School ENS Ulm	-5.332***	-5.345***	-5.339***	-2.280***	-2.281***	-2.279***	-1.268	-1.316	-1.290
	(1.221)	(1.223)	(1.221)	(0.563)	(0.561)	(0.562)	(0.845)	(0.830)	(0.838)
School ESCP	-0.465	-0.382	-0.422	-0.296	-0.286	-0.274	-0.585	-0.586	-0.576
	(1.925)	(1.973)	(1.960)	(0.464)	(0.462)	(0.463)	(0.835)	(0.828)	(0.843)
School ESPCI	-	-	-	-0.401	-0.417	-0.403	2.086	2.042	2.062
	-	-	-	(1.139)	(1.140)	(1.140)	(1.872)	(1.869)	(1.877)
School ESSEC	-1.158	-1.182	-1.175	-0.824	-0.844	-0.835	0.186	0.165	0.168
	(1.438)	(1.432)	(1.433)	(0.465)	(0.459)	(0.464)	(0.703)	(0.679)	(0.704)
School Mines Paris	-1.979	-1.999	-1.999	-1.834**	-1.852***	-1.846**	-1.263	-1.291	-1.278
	(2.469)	(2.465)	(2.465)	(0.549)	(0.550)	(0.551)	(0.707)	(0.710)	(0.707)
School Polytechnique	0.0812	0.0946	0.0946	-2.205***	-2.210***	-2.199***	-0.855	-0.875	-0.857
	(0.823)	(0.797)	(0.797)	(0.273)	(0.274)	(0.276)	(0.505)	(0.502)	(0.502)
School Télécom	15.34***	15.32***	15.32***	0.00140	-0.0148	-0.00822	1.638	1.609	1.621
	(0.845)	(0.820)	(0.820)	(0.532)	(0.527)	(0.529)	(1.578)	(1.577)	(1.576)
Cohort 1931-1935	1.996***	1.919***	1.914***	12.14***	12.14***	12.15***	5.185***	5.117***	5.150***
	(0.0498)	(0.0263)	(0.0146)	(0.0290)	(0.0257)	(0.0260)	(0.0483)	(0.0383)	(0.0363)
Cohort 1936-1940	0.661***	0.585***	0.580***	9.112***	9.117***	9.124***	5.481***	5.419***	5.454***
	(0.0495)	(0.0313)	(0.0271)	(0.0285)	(0.0260)	(0.0258)	(0.0403)	(0.0272)	(0.0274)
Cohort 1941-1945	-0.467***	-0.539***	-0.544***	6.717***	6.721***	6.725***	2.671***	2.622***	2.636***
	(0.0344)	(0.0204)	(0.0159)	(0.0218)	(0.0193)	(0.0195)	(0.0481)	(0.0373)	(0.0402)
Cohort 1946-1950	0.0106	-0.0629**	-0.0674***	3.017***	3.026***	3.021***	0.456***	0.417***	0.422***
	(0.0389)	(0.0211)	(0.0130)	(0.0145)	(0.0129)	(0.0138)	(0.0416)	(0.0285)	(0.0265)
Cohort 1956-1960	-1.145***	-1.209***	-1.224***	-2.547***	-2.544***	-2.537***	-1.608***	-1.658***	-1.623***
	(0.0428)	(0.0373)	(0.0328)	(0.00959)	(0.0116)	(0.00997)	(0.0396)	(0.0344)	(0.0313)
Cohort 1961-1965	-3.503***	-3.563***	-3.575***	-6.368***	-6.337***	-6.350***	-3.620***	-3.654***	-3.631***
	(0.0404)	(0.0371)	(0.0356)	(0.0148)	(0.0111)	(0.0137)	(0.0511)	(0.0429)	(0.0409)
Cohort 1966-1970	-5.969***	-6.041***	-6.050***	-9.729***	-9.687***	-9.703***	-6.326***	-6.330***	-6.335***
	(0.0776)	(0.0563)	(0.0516)	(0.0164)	(0.0155)	(0.0153)	(0.0408)	(0.0285)	(0.0300)
Cohort 1971-1975	-7.303***	-7.307***	-7.355***	-13.26***	-13.19***	-13.23***	-10.02***	-9.963***	-10.02***
	(0.0733)	(0.0720)	(0.0732)	(0.0203)	(0.0241)	(0.0196)	(0.0354)	(0.0270)	(0.0347)
Constant	48.59***	48.66***	48.67***	53.48***	53.48***	53.47***	52.73***	52.81***	52.77***
	(0.0738)	(0.0592)	(0.0580)	(0.0544)	(0.0580)	(0.0564)	(0.115)	(0.102)	(0.0973)
R^2	0.062	0.063	0.063	0.535	0.536	0.535	0.259	0.261	0.260
Observations	2,206	2,206	2,206	13,920	13,920	13,920	3,734	3,734	3,734
Cohort weights	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cohort fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
School fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: *** p<0.01, ** p<0.05, * p<0.1. Standard errors, clustered at the cohort level, are in parentheses. This table provides detailed estimates for all explanatory variables on the analysis of age at first position. See notes of Table 2.8 for additional details on the regressions. Cohort fixed effects are dummy variables for each cohort, except cohort 1951-1955, which serves as a reference. School fixed effects are dummy variables for each school, except *Sciences Po Paris*, which serves as a reference.

2.C Complementary information

2.C.1 Description of the identification of "foreign" surnames

This section is mostly common to Benveniste (2021), who completes this method, with an additional coefficient of variation, tracking especially immigration in the early 20$^{\text{th}}$ century. We identify foreign surnames in two ways. First, we use the evolution of births by surname in the national census. Then, we compare the frequency of surnames among students to their frequency in the French births' records.

Using the complete birth census with 25-year cohorts divides, we qualify as "foreign" the 490,565 surnames with only one birth in the births' registers over period 1891-1990. Out of the 786,531 remaining surnames, we classify as foreign those for which there is no birth on the timeframe of the two first generations (1891 to 1940). We also consider foreign the surnames, whose natality is 10 times higher in the last cohort (1966-1990), as compared to the mean of the first two cohorts (1891-1940), or whose natality is 10 times higher from one cohort to the previous one (e.g. in 1941-1965 compared to 1916-1940). Finally, we compute by surname S a coefficient of variation of the number of births per cohort. A surname for which the number of births experiences notable volatility between cohorts is understood as a process of immigration in a specific generation, followed by children born in France in the following generations. We compute $CV^s_{1891-1990}$ for the four generations between 1891 and 1990.[36] Surnames with an average number of births per cohort μ^s_t above 30 and a coefficient of variation above 0.6 over the period t are classified as immigrants. These choices are based on visual inspection at different potential thresholds. We complete these conditions using the *Grandes Écoles* data and classify a surname as foreign if there are more students than there are births in France bearing this surname in any given cohort.

[36] $CV^s_t = \frac{\mu^s_t}{\sigma^s_t}$ where μ^s_t stands for the average number of births of bearers of the surname s over the timeframe t—here either 3 or 4 cohorts—and σ^s_t for the standard deviation.

Chapter 3

The (Market) Value of Prestige

This chapter is a joint work with Renaud Coulomb and Marc Sangnier.

Abstract

Manifestations of prestige such as awards and titles are socially valued and are often sought for by individuals, yet measuring their economic value is complex. This paper quantifies the impact of state awards given to directors on their firms' stock value. We link a comprehensive dataset of recipients of the *Légion d'honneur*—the most prestigious official award in France—over the 1995–2019 period to board positions in French listed firms. We document large abnormal returns in the stocks of recipients' firms at award dates. We report indirect evidence suggesting that these awards are interpreted by traders as signals of connection to politicians in office rather than as public recognition of recipients' past performance, or as a government's communication channel about industrial policy.

> "Instances may be found, in most courts, of splendid decorations of stars and garters in double and triple range, which do not even give a favourable turn to public opinion. They are considered as proofs of favour, but not as signs of merit."
>
> The Rationale of Reward—Jeremy Bentham, 1830

3.1 Introduction

Prestige and reputation are major routes to gain influence in social hierarchies and are often materialized by manifestations such as titles and awards.[1] Across space, time, and political systems, sovereign entities make great use of these honors to signal the state's recognition of an individual's merit or performance. State awards are found in republics (e.g. the *Légion d'honneur* in France), constitutional monarchies (e.g. the Order of the Garter in the UK), absolute monarchies (e.g. the Order of King Abdulaziz in Saudi Arabia), and under government systems with contrasted political and economic views (e.g. the Presidential Medal of Freedom in the US, the Order of Kim Il-Sung in North Korea, or the Order of the Republic in China).[2]

As a form of symbolic capital (Bourdieu, 1979), the prestige associated to awards enhances the value of cultural, economic, and social capitals of individuals. These forms of capital usually yield economic returns for individuals and their organizations. Estimating the value of symbolic capital could help understanding individuals' career choices—e.g. incentives to comfort to role models promoted by governments—, as well as firms' benefits in hiring prestigious directors. Though prestige and reputation, and their manifestations, are socially valued and often sought for by individuals (Huberman et al., 2004), quantifying their economic value is complex as there is no observed market for state awards. In addition, the value of awards may vary with the underlying reasons governing awards' attribution that are themselves ambiguous. For instance, it is a priori unclear whether state awards are mostly "signs of merit" or "proofs of favour" as highlighted by Jeremy Bentham in 1830.

Our approach to explore this question consists in quantifying the economic value of an individual's social recognition, as proxied by state awards, for the organization she works

[1] These manifestations constitute a flourishing social phenomenon present in many sectors of activity (e.g. arts, business, military). They are bestowed by a large array of entities such as the general public, experts, governments, or even universities (English, 2005, Best, 2008). Examples are numerous with titles such as "Doctor", "Professor", "Lord", decorations such as military medals, or awards such as "Employee of the month", "Academy Award for Best Director".

[2] As documented in Appendix 3.C.4, state awards to civilians are attributed in almost all countries. Their ubiquity reflects their importance for ruling entities, as they participate in the concentration of symbolic power into the state's hands (Bourdieu and Guibert, 1995) and can thus be used to reinforce the power of the state (Ihl, 2006). In addition, as they have no direct material value, they serve well their assumed purpose to reward recipients for priceless services as noted by Frey (2007).

for. We undertake this approach in the context of French listed firms and of the *Légion d'honneur*, the most prestigious award distributed by the French government to reward its citizens. To this end, we first relate the comprehensive list of civilian recipients of the *Légion d'honneur* over the 1995–2019 period to board positions in French listed firms. We then estimate the value of the *Légion d'honneur* for a firm by quantifying the impact of an award being attributed to one of its directors on its stock market value in the days that follow the award's announcement.[3]

Our approach addresses the challenge that awards are not distributed randomly. Recipients are likely to exhibit specific characteristics that make them more likely than non-recipients to receive a *Légion d'honneur* award, and these characteristics may be correlated with that of recipients' firms. However, under the (semi-strong) market-efficiency hypothesis by Fama (1970), all the pre-award observable characteristics of firms and recipients are already incorporated in stock prices by the time the award is announced. As a consequence, any exceptional market reaction following awards' announcements indicates that awards do include new information on the future performance of recipients' firms. Following MacKinlay (1997), we thus use stocks' abnormal returns to track market reaction to directors' awards.

Our analysis proceeds in two steps. In a first step, we document positive and significant abnormal returns of firms in the days following the attribution of a *Légion d'honneur* to one of their directors. The two-day compound abnormal return averaged across awarded firms amounts to about 0.2%. As the average (median) market capitalization of recipients' firms at the date of the award across the 1995—2019 period is about 10.4 billion € (3.5 billion €), in 2000 constant euros, this estimate suggests that a *Légion d'honneur* awarded to a director increases her firm's value by 20.8 million € (7.0 million €). We conduct a series of falsification tests that demonstrate the robustness of reported estimates. In particular, we show that stocks of recipients' firms do not evolve atypically before the award, nor at times of *Légion d'honneur* cohorts' announcements at which none of their directors are decorated or other government-related events. We also provide evidence that the market reaction is all the larger as the media coverage of awards is important or as the recipients' pre-award media visibility is low, which suggests that media matter in publicizing information.

Overall, results indicate that state awards represent positive news shocks on future firms' performance. Such information shocks could affect firms' value by making firms' and recipients' *pre-award* characteristics more salient. For instance, our analysis of *Légion d'honneur*'s attributions reveals that directors' political connections and their firms'

[3] An approach relying on directors' hiring would suffer from the fact that firms might strategically hire prestigious directors at specific periods as documented by Chen et al. (2008). In contrast, our approach takes advantage of award-induced changes in directors' prestige while sitting on a firm's board.

recent past performance increase their chances to receive an award. Market participants could thus posit that awards constitute signals of these or of correlated characteristics. Hence, in a second step, we examine the heterogeneity in the market's reaction along the characteristics of awardees and those of their firms to indirectly disentangle the plausible interpretations of the market's reaction to *Légions d'honneur*.

We first consider the possibility that awards mostly signal directors' political connections. Under this interpretation, awards could impact firms' returns in different ways. As an award is a piece of information about pre-existing connections, its impact on a firm's stock value is expected to vary with pre-award public information about directors' political connections. More precisely, assuming that political connections are valuable for firms, connections that were visible before the award should be already priced by the time of the announcement and the market should not react to awards attributed to business people already known as connected to politicians. In contrast, ties revealed by a *Légion d'honneur* are expected to be associated with positive abnormal returns.[4]

To assess the likelihood of the interpretation of *Légion d'honneur* awards as signals of ties between business people and politicians, we construct a pre-award measure of connections between recipients and politicians that are a priori known before the award is announced. We define a director as connected to the government if she belongs to the same elite school graduation cohort as a member of the current central government. These schools—the *Grandes Écoles*—are strongly tied to the State (Van Zanten and Maxwell, 2015) and are described as key places in the construction of the French elites' network (Suleiman, 1978, Bourdieu, 1989 and Kadushin, 1995). We show that market reaction to awards is stronger for directors who are not from the same graduation cohorts as members of the government, i.e. for recipients whose connections were less visible before their award. This evidence is consistent with awards signaling some hidden proximity between recipients and politicians.

We then explore whether evidence supports the interpretation of awards as being signals of recipients' merits, as the *Légion d'honneur* is supposed to. We examine the role played by pre-award firm performance and show that market reaction is stronger for recipients who work in firms that performed worst before the award is announced. This suggests that an award does not constitute a signal of public recognition of past

[4] An award is also a political gesture that may alter the value of connections, in particular if it increases their visibility. Indeed, visible connections are more easily priced but enhanced visibility may alter their value if ties between business people and politicians need to be hidden to be valuable. The literature on political connections does not tackle the question of the visibility of the connections. An exception is Hope et al. (2019) who provide evidence that the loss of connections due to President Xi Jinping's anti-corruption campaign in China only impacted firms whose connections were covered by media. In the context we study, *Légions d'honneur* are attributed by politicians to directors and thus connections are *voluntarily* made more visible. This specificity may increase their value if market participants interpret this chosen visibility as a mean for politicians to communicate about strong connections with directors.

performance. Instead, it seems to restore the confidence of market participants in a firm despite its relatively poor past performance.

All in all, while we cannot fully disentangle between the different possible interpretations, the evidence is coherent with awards being interpreted by traders as a signal of proximity to politicians, and more generally, as symbolic manifestations of directors' network.

The French context has several merits to investigate the value of official awards for firms. First, the *Légion d'honneur* is a prestigious and well-established award, created in 1802, by Napoléon Bonaparte, to reward individual merits of civil and military people. This award is discretionary, i.e. its attribution is not automatic conditionally on satisfying some clear criteria. This feature leaves room for different interpretations of the reasons for which a recipient is decorated, which can in turn generate heterogeneity in the market's reaction to awards. In addition, this award is not directly accompanied with any material advantage, so that we can isolate the pure effect of prestige and public recognition it provides. Second, the *Légion d'honneur* is granted to a relatively large number of recipients, while maintaining its prestige. On average, 2,000 civilians of various backgrounds (e.g. arts, academia, public administration, business) receive the award each year. This allows us to observe a total of 1,074 recipients who had received 1,240 awards since 1995 while seating on the boards of French listed firms. Eventually, our event study relies on 72 distinct *Légion d'honneur* cohorts, which ensures that we identify the impact of award announcements, and not that of some events concurrent to specific cohorts. Third, attribution rules were remarkably stable over the 1995–2019 period. In particular, the names of future recipients are not disclosed until the award announcement. Using media coverage of recipients in the five most popular daily newspapers in France, we verify that *Légion d'honneur* cohorts constitute genuine information shocks. Finally, France is a well-suited setting to investigate directors' social ties to politicians as the country's elites are very concentrated and politically connected, as documented by Birnbaum (1977), Bauer and Bertin-Mourot (1987), Dudouet and Grémont (2007) and Kramarz and Thesmar (2013). Political and business elites are trained in the same higher education institutions—the *Grandes Écoles*. This feature is central to our construction of directors' visible connections to government members.

This paper's findings contribute to several strands of literature. Our results first speak to the literature on awards. Building on seminal theories on prestige, conspicuous consumption and generosity by Veblen (1899) and Mauss (1924), studies in sociology have extensively studied awards (see for instance Goode, 1978 and Bourdieu, 1979, 1985). However, the attention of economists to this topic is relatively recent (see Frey and Gallus, 2017 for a survey of the literature). The literature has uncovered contradictory evidence

about the impact on firm performance of business awards granted by experts.[5] Koh (2011) shows that firms whose CEO receives "CEOs of the Year"-style awards exhibit higher stock performance and improve their financial reporting quality after the award. This could be explained by increased efforts from recipients who want to live up to the award's expectations (Neckermann et al., 2014 and Gallus, 2017) or by extra resources flowing to them due to focal attention (a phenomenon coined as the "Matthew effect" by Merton, 1968). The change in status should improve the recipients' firm performance as long as the recipients' efforts and accrued resources are oriented in the firm's interests. Wade et al. (2006) find that the impact of a "CEO of the Year" certification on firms' market value varies with the time horizon, generating a positive impact in the short term, but a negative impact in the long term. In contrast, Malmendier and Tate (2009) show that CEOs who receive prestigious business awards under-perform after the award, that they are better at capturing revenues from their firms and dedicate more time to activities outside the firm. Awards could increase the CEO's confidence and perceived ability, shifting the negotiation equilibrium between CEOs and other board members in favor of awarded CEOs (see Hermalin and Weisbach, 1998 for a modelling of the negotiation outcomes between CEOs and other board members). Finally, evidence exists that award-induced self-confidence can increase the probability for directors to engage in financial misconduct (Li et al., 2020), which could in turn harm a firm's reputation and its market valuation.

In contrast to these papers, we study awards granted by governments—not by the media, peers or experts—, and elicit the contribution to the heterogeneity in market reactions to awards of recipients' media visibility, of their political ties, and of their firms' observed pre-award performance. Our context allows us to show that state awards can boost firm value as they may signal recipients' proximity to politicians. Although we do not observe the private benefits from awards, the increase in recipients' firms value suggests that awarded directors do not fully convert their enhanced prestige in rents thanks to the shift in their bargaining power (Malmendier and Tate, 2009). If this was the case, the stock market value of firms would be left unchanged, or would even decrease.

Our second contribution is to the growing literature on the value of political con-

[5]The literature has also studied individuals' post-award performance in various contexts (see for instance Ginsburgh and Van Ours, 2003 for a musical competition, Brunt et al., 2012 and Moser and Nicholas, 2013 for innovation awards, Azoulay et al., 2014, Chan et al., 2014 and Borjas and Doran, 2015 for academic prizes, Neckermann et al., 2014 in a firm, and Gallus, 2017 in a field experiment in a non-for-profit organization), as well as the incentive effect generated by non-financial rewards (see Gneezy and Rustichini, 2000 in the context of a lab experiment, Kosfeld and Neckermann, 2011 and Ashraf et al. 2014 in the context of field experiments in an international non-governmental organization and a public health organization, respectively, and Neckermann et al., 2014 in the context of a firm). Awards can generate spillovers to non-recipients. Ager et al. (2018) show that awards to WWII German pilots push their former peers to engage in more risk-taking behaviour and to increase their performance. In contrast, competing with prestigious individuals can reduce other competitors' performance in tournaments (Brown, 2011).

nections. The suspicion of connivance that often surrounds discretionary attribution of awards raises the issue of the political connections of recipients. The literature has shown that a firm's political connections are valued by financial markets (see Fisman, 2001, Jayachandran, 2006, Knight, 2007, Ferguson and Voth, 2008, Cooper et al., 2010, Dube et al., 2011, Coulomb and Sangnier, 2014 and Acemoglu et al., 2016, among others).[6][7]

We contribute to this literature in showing that national awards increase directors' firm value only if these directors were not previously identifiable as connected to government members. Our results are coherent with the interpretation that awards constitute signals of political connections. The abnormal returns due to awards are positive and of large magnitude, about 0.2% over the first two post-award days. As a comparison, Coulomb and Sangnier (2014) estimated that Sarkozy's victory in the 2007 French presidential election increased the value of firms connected to him by about 3%. The impact of a national award on a firm stock value is thus about one fifteenth of that of the victory of a presidential candidate on a firm's stock tied to this candidate. As for those recipients that could be identified before the award as connected to politicians via their *Grandes Écoles* educational background, awards are not found to increase the value of their political connections as these recipients' firms do not exhibit specific returns on awards.

Our paper finally speaks to the literature that studies how top management attributes impact firms' performance and actions. Lieberman et al. (1990) show that changes in management affect firm growth and productivity. Bertrand and Schoar (2003) use a panel of managers and firms to provide evidence that managers fixed effect explain a significant part of the heterogeneity in firms' policies. The literature has also shown that directors' education (Barker and Mueller, 2002 and Bertrand and Schoar, 2003), overconfidence (Malmendier and Tate, 2005 and Malmendier and Tate, 2008), age or experience (Barker and Mueller, 2002), tenure (Davidson et al., 2007), gender (Adams and Ferreira, 2009 and Faccio et al., 2016) and social network (Braggion, 2011, Kramarz and Thesmar, 2013 and Fan et al., 2021) matter.

The results we report show that changes in directors' prestige due to awards are priced by market participants. We also provide evidence that directors' attributes also matter for the pricing of awards, in particular their media visibility and educational background

[6] Politically connected firms can receive preferential treatment from public institutions (Gordon and Hafer, 2005, Correia, 2014 and Tahoun and van Lent, 2018), obtain more or more profitable government contracts (Goldman et al., 2013, Boas et al., 2014 and Baltrunaite, 2020) and enjoy preferential access to finance and bank loans (Khwaja and Mian, 2005, Braggion and Moore, 2013) or financial assistance (Faccio et al., 2006). Connections also generate private benefits (Fafchamps and Labonne, 2017, Folke et al., 2017, Cruz et al., 2020, Gagliarducci and Manacorda, 2020, Bourveau et al., 2021).

[7] The literature has used different measures of political connections, such as friendship (Coulomb and Sangnier, 2014 and Bourveau et al., 2021), donations (Ferguson and Voth, 2008, Akey, 2015 and Bourveau et al., 2021), directors' experience in politics (Faccio, 2006, Acemoglu et al., 2016 and Bertrand et al., 2018), and employees' appointments at local government (Cingano and Pinotti, 2013).

with respect to that of politicians in office. Market participants tend to react more to awards given to directors who are less visible on media before the award, which suggests that media play an important role in transmitting information about directors' attributes to market participants. However, we do not observe significant heterogeneity alongside directors' experience or executive status. Finally, firms with female directors that receive an award—a de facto small group of observations—do not react positively to the awards.

The remainder of this paper is organized as follows. Section 3.2 describes the organization of the *Légion d'honneur* Order and the awarding process. Section 3.3 presents *Légion d'honneur* recipients and our approach to match awardees to board positions in French listed firms. It also studies the determinants of the *Légion d'honneur* attribution, reviews media coverage of award and awardees, and describes the construction of firms' abnormal returns following *Légion d'honneur* cohorts, which we use to quantify the market reaction to awards' announcements. Section 3.4 presents, challenges, and discusses the results. Finally, section 3.5 contains concluding remarks.

3.2 The *Légion d'honneur*

This section describes the organization of the Order of the *Légion d'honneur*, the recipients' nomination and promotion processes and the prestige attached to the award. Appendix 3.C presents additional details.

3.2.1 History, ranks and cohorts

The *Légion d'honneur* is the most prestigious state decoration in France and the oldest still given on behalf of the Head of State. Founded on May 19, 1802 by Napoléon Bonaparte, it articulates the *Ancien Régime* tradition of awards and titles (e.g. chivalry orders and ennoblement) and equality concerns made more prevalent after the French Revolution: all citizens, either from the civilian society or the military, regardless of their religion or whether they are of a noble descent, are eligible to receive a *Légion d'honneur* if they have demonstrated remarkable individual merits when serving the nation.

The *Code de la Légion d'honneur* formalizes the organization of the Order, its general philosophy, the criteria for nomination and promotion, the process of attribution and the possible sanctions. Rules have been remarkably stable over the past six decades, with minor changes concerning posthumous attributions, foreign recipients, or caps on recipients' number. The most substantial change dates from 2007 when gender parity in each *Légion d'honneur* cohort was implemented.

The *Légion d'honneur* Order is made of three ranks and two dignities, whose increasing order of prestige is as follows: *Chevalier* (Knight), *Officier* (Officer), *Commandeur*

(Commander), *Grand officier* (Grand officer), and *Grand'croix* (Grand cross).

Abstracting from military cohorts and special civilian cohorts, the *Légion d'honneur* is awarded to three cohorts of recipients per year: on January 1st, on Easter's Sunday and on Bastille Day (July 14). Annual quotas on the number of recipients are set every three years in a presidential decree.[8]

3.2.2 Awarding process

As detailed in the *Code de la Légion d'honneur*, recipients must satisfy a series of prerequisites. First, nominees must have exhibited outstanding merits in the service of the nation. There is, however, no formal definition of such merits. Second, they must have no criminal record. Third, they must be French.[9] Finally, a minimum of 20 years of activities is necessary to enter the *Légion d'honneur* Order.[10] The field of activity of awardees is a priori not restricted: civilian cohorts include artists, academics, politicians, civil servants, entrepreneurs, and employees of the private sector.

Entry in the *Légion d'honneur* Order occurs at the *Chevalier* rank. Promotions to higher ranks require new merits to be documented and are possible only after a minimum number of years in the preceding rank: eight years from *Chevalier* to *Officier*, five years from *Officier* to *Commandeur*, and three years from *Commandeur* to *Grand officier* or from *Grand officier* to *Grand'croix*.

Individuals cannot request an award for themselves. Propositions for awards are sent to ministries by prefects, i.e. the highest administrative representatives of the central government in the local administrative units that are *régions* and *départements*. They rely on inputs from ministers themselves, cabinet members, leaders of unions or professional and social organizations, members of the parliament and mayors. Ministers and secretaries of state write down a case for each nominee and pass it on to the Grand Chancellor of the *Légion d'honneur*. Cases are reviewed to assess the nominees' merits and to ensure nominees satisfy the selection criteria. Then, the Council of the Order of *Légion d'honneur* constructs a list of potential recipients that is sent to the President of the Republic for approval. Under the current regulation, the President, who is also the Grand Master of the Order, has the right to remove names from the list but is not allowed to add any. Nominations and promotions in the Order are finally transcribed in a decree and officially published in the *Journal officiel de la République française*.

[8] A 2018 decree suppressed the Easter cohort and reduced the annual cap on the number of recipients.
[9] Foreign citizens can occasionally be "decorated" but cannot be full members of the Order.
[10] There are a few exceptional awards each year for people killed or wounded when serving, such as military personnel, fire-fighters, rescuers, or police officers for which the 20-year requirement of activity does not apply. In addition, successful individuals who have short careers due to the specificity of their field (e.g. Olympic gold medalists or FIFA World Cup winners) may also be exempted from this rule.

3.2.3 Non-tangible benefits and prestige

Receiving the *Légion d'honneur* comes with no material privileges, nor tangible remunerations, and the membership cannot be inherited or transferred.[11] The main direct benefit of the award is the prestige it confers. This prestige can partly be explained by the exceptional longevity of the *Légion d'honneur*, which spans over more than two centuries and has survived a variety of political systems (The Consulate, First Empire, Bourbon Restoration, July Monarchy, Second Republic, Second Empire, Third Republic, Vichy Regime, Fourth Republic, and Fifth Republic). *Légion d'honneur* recipients are often considered as members of the social elite (Daniel, 1948 and Ihl, 2006). For instance, 35.5% of the *Who's Who in France*—a listing of prominent people living in France—profiles mention the *Légion d'honneur*.[12]

Recipients have the right to wear the Order's insignia and ribbon (see Appendix Figure 3.C.1) associated to their rank. As shown by Appendix Figure 3.C.2, a *Légion d'honneur* decoration is systematically worn by Presidents of the Republic for their official portrait. The low-key ribbons are frequently worn by decorated politicians as distinctive signals in other circumstances, as well as by other awardees as illustrated by Appendix Figure 3.C.3, which displays pictures of some of the CEOs of France's largest listed firms.

As the main reward associated with the *Légion d'honneur* is prestige and social recognition, the State enforces strict rules regarding the wearing of insignia and ribbons. For instance, unduly wearing a *Légion d'honneur* is punishable by law with a sentence of up to one year imprisonment and a fine of 15,000 €. The creation of any award that could mislead the public due to its proximity with official ones can also be prosecuted.

Public reactions to *Légion d'honneur* awards that are perceived as unjustified (see for example news articles in Le Point, Le Figaro, Vanity Fair and Le Républicain Lorrain) and scandals about politicians or civil servants trading awards for their private interests constitute further indirect evidence of the prestige associated with the award.[13]

To the best of our knowledge, there is no publicly available comprehensive record of refusals by awardees. Anecdotal evidence suggests that only a very small number of

[11] Though recipients initially received annual stipends associated with each rank, nowadays only military recipients receive a symbolic yearly stipend (6.10 €, 9.15 €, 12.20 €, 24.39 € and 36.59 € for *Chevalier*, *Officier*, *Commandeur*, *Grand officier* and *Grand'croix* ranks, respectively). Awardees have to pay for the award's certificate issuing fees and to buy their own insignia and ribbons.

[12] 8,508 out of the 23,970 *Who's Who in France* profiles contain "*légion d'honneur*" according to queries made via *Factiva* on March 16, 2021.

[13] In 1887, the *Légions d'honneur* trafficking scandal, in which Daniel Wilson—a member of Parliament and son-in-law of the then President of the Republic—was involved, led to the resignation of President Jules Grévy. See Appendix Figure 3.C.4 for a sample of political cartoons published in *L'Assiette au beurre* at the time of the scandal. Another major scandal occurred in 1926, when it was discovered that a civil servant was selling nominations in the *Légion d'honneur* Order. Nowadays, this behavior is recognized as a crime of undue influence peddling.

recipients ever refused the award after being officially nominated, as illustrated by the facts that the Wikipedia page about *Légion d'honneur* refusals since the creation of the Order only lists 37 people, and that those who refused are mostly artists, researchers or intellectuals as exemplified by a Le Figaro news article.

3.3 Data

In this section, we first describe the universe of civilian *Légion d'honneur* cohorts over the 1995–2019 period and our approach to match recipients to business people who hold board positions in French listed firms. We then study the determinants of award attribution, with a focus on directors' connections to politicians that are signaled by graduation from French elite schools. We next document media coverage of *Légion d'honneur* cohorts to illustrate that their announcements constitute information shocks. Finally, we describe the construction of firms' abnormal returns at *Légion d'honneur* cohorts' dates, which constitute our measure of the market reaction to awards.

3.3.1 *Légion d'honneur* recipients in French listed firms

Légion d'honneur recipients

We collected the universe of the civilian *Légions d'honneur* awarded from April 1995 to July 2019.[14] To this end, we downloaded official decrees available from the websites of the *Journal officiel de la République française* and of the *Chancellerie de la Légion d'honneur*. From these materials, we extracted the following information for each recipient: her first and last names, gender, occupation description, the number of years of service from which we infer her age, the entity on behalf of which the award is granted (the President of the Republic, the Prime Minister, or a ministry), and whether the award is a nomination in the Order or a promotion to a higher rank. In total, 46,570 decorations were awarded to 43,044 individuals during the period we observe. 37,881 awards (i.e. 81.3%) are appointments to the rank of *Chevalier*. The remaining 8,689 awards are promotions to *Officier*, *Commandeur*, *Grand officier* or *Grand'croix* ranks.

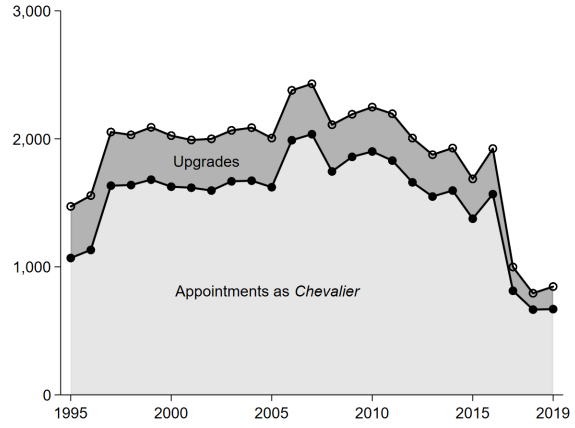
Figure 3.1a displays the number of *Légions d'honneur* awarded by year (see Appendix Figure 3.A.1a for the number of recipients by cohort). The number of awards does vary from one year to the next, reflecting different approaches in distributing official awards across governments. Until 2017, each year traditionally comprises three cohorts of 657 recipients on average, such that about 2,000 individuals are either appointed or promoted

[14] We exclude extraordinary civilian cohorts deemed to reward sport champions and civilians wounded or killed in terrorist attacks or while serving the nation.

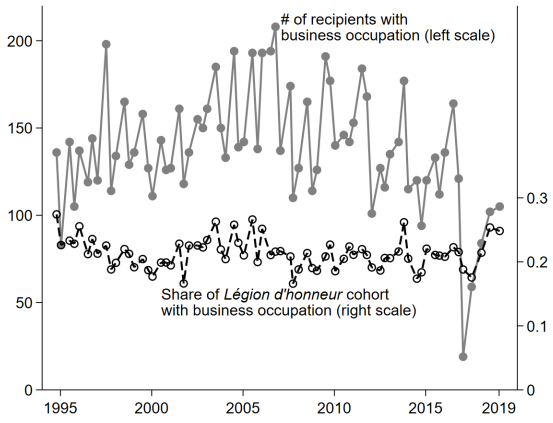
annually. Starting in 2018, the Easter cohort was suppressed and the average cohort size was reduced to 406 (see Appendix 3.C.1 for more details).

Figure 3.1: *Légion d'honneur* recipients by year.

(a) All recipients.



(b) Recipients with a business occupation.



Notes: On Figure 3.1a, lines plot the total number of *Légion d'honneur* recipients by year from January 1995 to July 2019. Appointments as *Chevalier* are entries in the *Légion d'honneur* Order. Upgrades include promotions to *Officier*, *Commandeur*, *Grand officier* and *Grand'croix* ranks. The following two modifications have been implemented for graphical representation: first, data points for 2019 are multiplied by 2 to account for the fact that only 1 cohort is observed in 2019 due to our period of analysis, against 2 in the preceding year; second, the exceptional January 30, 2008 cohort is counted as a 2007 cohort as it corresponds to a postponed cohort, originally set to be announced on December 31, 2007. See Appendix Figure 3.A.1a for the number of recipients by cohort, and Appendix Figure 3.A.1b for the graphical representation by year without the aforementioned modifications. On Figure 3.1b, lines plot the total number and the share of *Légion d'honneur* recipients with a business occupation by cohort from January 1995 to July 2019. Report to the text for details about the identification of business occupations.

We use the unformatted occupation descriptors available from official decrees to identify recipients who hold a business-related job. To this end, we construct ad-hoc lists of keywords to categorize occupation descriptors in non-mutually exclusive categories. Appendix Table 3.B.1 lists the 19 created occupation categories and the share of awards they apply to. In total, we qualify 9,940 awards (i.e. 21.3% of the total number of awards) as being allocated to an individual who holds a business-related occupation.[15] As shown by Figure 3.1b, the number of recipients with a business-related occupation substantially varies across cohorts but their share within each cohort is however quite stable (the standard deviation of this quantity is 2.4%). In total, we identify 9,353 recipients as business people.

[15]The business-related occupation is the unique identified category for 7,050 observations (i.e. 15.1% of the total number of awards).

Board composition

We use *BoardEx* and *Mint Global (Orbis, Bureau van Dijk)* to track the composition of the boards of French listed firms across time.[16] Information on board members includes the first and last names, gender, date of birth, and additional observables per position held including its start and end dates, its status (e.g. executive or non-executive), as well as the name and identification number of the firm. Appendix Figure 3.A.2a plots the monthly number of listed firms for which some board composition information is available from these data sources. Both sources exhibit increasing coverage over time. While *Mint Global* coverage starts low, it then sharply increases and eventually exceeds the number of listed firms covered by *BoardEx*.[17] In contrast, coverage by *BoardEx* varies less across time. It is nonetheless increasing from about 200 by 1995 to 480 firms by the end of the observation period. Appendix Figure 3.A.2b further helps to assess the coverage of the two sources by plotting the number of positions (i.e. the number of firms $\times$ individual) for which information is available from *BoardEx* and *Mint Global* datasets. It suggests that within-firm coverage is larger in *BoardEx* than in *Mint Global*. Overall, this indicates incomplete and increasing coverage of boards' datasets, especially for *Mint Global*'s data. Appendix 3.D provides evidence that this incomplete coverage does not threaten our findings.

To account for the fact that the same individual can hold multiple positions in a firm, we collapse the different job descriptions available at the firm $\times$ individual $\times$ date-level. All in all, *BoardEx* contains information about 680 firms and 22,379 individuals, among which we observe some board position information for 22,201 business people. In contrast, *Mint Global* data contain 31,742 individuals and 1,674 firms, but board position information is only available for 21,933 individuals in 1,635 firms. To maximize directors' coverage, we made the most of both information sources to construct the information set of boards' positions.

Matching *Légion d'honneur* recipients and board positions

Appendix Figure 3.A.3 offers a graphical summary on the different steps followed to match *Légion d'honneur* awards to board positions. We first use perfect matching on

[16] These are well-established data sources for boards' composition used in the academic literature (see use by Huang et al., 2014, Adams and Kirchmaier, 2016 and Ahn, Daniel P. and Ludema, Rodney, 2017 among others).

[17] The number of firms categorized as listed in *Mint Global* may actually be larger than the number of listed firms reported in *Datastream*. Indeed, the queries made to retrieve data from *Mint Global* only allow to specify that a firm has been listed at some point in time. In other words, the collected data do include firms for which board composition information is available at some point in time while the firm is not yet or not any longer listed. Therefore, we account at each date only for the firms that have already been listed and will still be listed. The latter condition is verified using *Datastream*'s quotations.

family names and fuzzy matching (Raffo and Lhuillery, 2009) on first names to link the full population of *Légion d'honneur* recipients to individuals identified in *BoardEx* and *Mint Global*. We then check the recipients-directors matches using directors' biographies available online to minimize the number of false positive matches.[18] Out of the 9,353 *Légion d'honneur* recipients categorized as having a business-related occupation, 1,877 (i.e. 20.1%) were eventually linked to an individual record in *Mint Global* and/or *BoardEx*.[19] Together, they received 2,278 *Légions d'honneur* over the April 1995–July 2019 period.

We next use board positions information to identify firms in which *Légion d'honneur* recipients were involved by the time they were awarded the *Légion d'honneur*. These final data are made of 1,997 individual × firm observations that correspond to 1,240 awards received by 1,074 individuals acting as board members of 409 firms. The 1,240 awards are composed of 818 (66.0%) appointments as *Chevalier* and 422 (34.0%) promotions to higher ranks. On average, each individual is linked to 1.6 firm by the time she receives the *Légion d'honneur* or is promoted in the Order. Conditional on receiving at least one award, the average number of awards indirectly received by a firm over the period is 4.9. This figure however hides large differences in exposure to the *Légion d'honneur*. Indeed, the median number of awards received by recipients' firms is actually 2, while 58 firms received more than 10 *Légions d'honneur* in 25 years.

3.3.2 Determinants of the *Légion d'honneur* attribution

This subsection first builds on the outcome of the matching process between *Légion d'honneur* recipients and business people to study how awarded business people compare to other awardees. We then introduce an education-based measure of directors' political connections in order to investigate whether such connections play a role in the attribution of awards. Finally, we take advantage of information on board positions of business people to explore whether recipients of the *Légion d'honneur* belong to firms that are different from others.

[18] We reviewed all matches and discarded wrong ones due to homonyms by comparing birth dates, maiden names, middle names and known professional activities. To this end, we used *LinkedIn*, *Wikipedia* and *Who's who in France* entries, *lesbiographies.com*, *viadeo.journaldunet.com*, *marketscreener.com/business-leaders*, *dirigeants.bfmtv.com*, *dirigeant.societe.com* and *lemoniteur.fr* websites, biographies published by the business newspaper *Les Échos*, as well as institutional biographies available from firms' websites.

[19] 1,152 (61.4%) were matched to observations in both information sources, 451 (24.0%) to *BoardEx* only, and 274 (14.6%) to *Mint Global* only.

Individuals' characteristics

The left part of Table 3.1 decomposes the number of *Légion d'honneur* recipients matched to *Mint Global* or *BoardEx* individuals across the different ranks of award and displays their share in all awards. Board members amount for 4% of entries in the Order but receive up to 11% of the most prestigious awards (i.e. *Commandeur*, *Grand officier*, *Grand'croix*). They are also younger than other recipients by 7 and 4 years when decorated as *Chevalier* and *Officier*, respectively, as shown by the middle part of Table 3.1. Besides, the right part of Table 3.1 shows that females account for a lower share of awardees among the group of awarded board members.

Table 3.1: Frequency and average age at award date of, and share of female awardees in, *Légion d'honneur*-awarded business people compared to other *Légion d'honneur* recipients.

	Observations			Age at award date			Share of female awardees		
	Board members	Others	Share of board members	Board members	Others	Difference (p-value)	Board members	Others	Difference (p-value)
Chevalier	1,623	36,258	0.04	55.2	62.2	-7.0 (0.000)	0.20	0.36	-0.16 (0.000)
Officier	459	6,384	0.07	62.4	66.5	-4.1 (0.000)	0.11	0.20	-0.09 (0.000)
Commandeur	157	1,308	0.11	68.1	68.9	-0.9 (0.272)	0.06	0.18	-0.12 (0.000)
Grand officier	29	260	0.10	72.8	72.8	0.0 (0.985)	0.03	0.27	-0.23 (0.006)
Grand'croix	10	82	0.11	79.0	77.0	2.0 (0.691)	0.00	0.27	-0.27 (0.061)

Notes: *Board members* are *Légion d'honneur* recipients matched to *Mint Global* or *BoardEx* individuals.

Directors' connections to politicians

In order to investigate whether personal connections between business people and politicians in office can partly explain *Légion d'honneur* attribution decisions, we construct different measures of connections between recipients and politicians based on shared background in the most prestigious French higher education schools, in the spirit of Kramarz and Thesmar (2013). This approach builds on the fact that, in France, business and political elites are trained in the same institutions: the *Grandes Écoles* (Suleiman, 1978). An essential dimension of these elite institutions is the very small size of students' cohorts compared to non-elite universities or elite institutions in other developed countries.[20] This contributes to the *esprit de corps* within the *Grandes Écoles* (Bourdieu, 1989) and makes them central to the formation of social networks within the French elite.

[20]There are for example only 51 students per year on average at *ESPCI Paris*, about 100 at *ENA*, *Mines Paris* or *ENS Ulm*, and no more than 300 at *École Polytechnique*. Only *Sciences Po Paris* has significantly larger cohorts, with an average of about 1,500 students. In contrast the French universities, as well as most foreign elite institutions, have been training much more students over the past decades. For instance, about 5,000 students enroll annually at *Oxford*, *Cambridge* (Clark and Cummins, 2014), or *Harvard*.

We employ nominative lists of graduates from the 15 most prestigious *Grandes Écoles* (Suleiman, 1978 and Bourdieu, 1989).[21] We first collected these data from alumni associations and schools' libraries for 12 elite schools. The assembled dataset covers all students born in the 20th century who studied at *École Polytechnique*, *EM Lyon*, *ENA*, *ENS Cachan*, *ENS Ulm*, *ESCP*, *ESPCI Paris*, *ESSEC*, *Mines Paris*, *Ponts et chaussées*, *Sciences Po Paris*, or *Télécom Paris*. We observe a total of 313,858 individuals and 332,491 curricula.[22] We complement these data with 5,960 curricula of students at three other elite schools: *École Centrale Paris*, *ENS Lyon* and *HEC*. As the universe of alumni was not available for these three institutions, we collected the curricula of students who bear the same first and last names as directors who held a position in a French listed firm according to *BoardEx* and *Mint Global* or as members of the French government over the 1995–2019 period. These data were obtained directly from harvesting the websites of the alumni associations of these three schools.

We use perfect matching on family names and fuzzy matching on first names to link *Grandes Écoles* graduates to the directors from *BoardEx* and *Mint Global* and to members of the government.[23] We then verify matches using recipients' biographies available online.[24] As illustrated by Appendix Figure 3.A.4, 8,222 out of the 42,368 (19.4%) board members from *Mint Global* and *BoardEx* studied in one of these 15 elite schools according to the outcome of the matching process. So did 133 out of the 333 (39.6%) members of the executive over the 1995–2019 period, and even 12 out of the 15 Presidents of the Republic and Prime Ministers. In comparison, less than 1% of French students graduated from these institutions.[25] 972 out of the 1,877 directors who received a *Légion d'honneur* graduated from one of the 15 elites schools. As a result, 11.8% of the observed *Grandes Écoles*-graduated directors were awarded a *Légion d'honneur* during the period we study. In contrast, it was awarded to only 2.7% of the directors who did not graduate from one of these institutions.[26] This preliminary descriptive evidence suggests that there is a positive correlation between being awarded a *Légion d'honneur* and graduating from an elite school.

[21] Anecdotally, six of these schools were awarded institutional *Légions d'honneur*.

[22] Collected data are restricted to schools' main education tracks and do not include programs such as PhDs, MBAs, executive or specialized masters.

[23] Information on government members since 1995 was retrieved from the government official website and archives.

[24] We use the same biography sources as those listed in footnote 18.

[25] According to historical population records and to collected data, the 12 schools for which we obtained comprehensive lists of graduates hosted 0.51% of the population of French students over the 1966–1990 period. According to online information, *École Centrale Paris* (which merged with another institution in 2015), *ENS Lyon* and *HEC*, currently welcome cohorts of about 700, 200 and 400 students, respectively, such that the share of French students enrolled in these 15 elites schools is smaller than 1%.

[26] Out of the 8,222 directors who are *Grandes Écoles* graduates, 972 received a *Légion d'honneur*. Out of the 34,146 (=42,368 − 8,222) business people who did not graduate from one of these institutions, 905 received a *Légion d'honneur*.

Table 3.2 decomposes *Légions d'honneur* awarded to directors along awards' rank and recipients' educational background. As shown by the left part of the table, there are about the same number of *Grandes Écoles* graduates and non-graduates among *chevaliers* despite *Grandes Écoles* graduates being about 4 times less numerous than non-graduates in the full sample directors. Elite schools' graduates are appointed in the Order significantly sooner that non-graduates as shown by the age differences displayed in the right part of Table 3.2. This difference in age at award date diminishes and eventually vanishes for higher ranks while the proportion of elite schools' graduates largely exceeds that of non-graduates. This fact suggests that elite schools' graduation might be correlated with both the probability and the timing of the admissions and promotions in the Order.

Table 3.2: Average age at award date and frequency of *Grandes Écoles* graduates in *Légion d'honneur*-awarded business people.

	Observations			Age at award date		
	Grandes Écoles graduates	Others	Ratio of obs. (p-value)	*Grandes Écoles* graduates	Others	Difference (p-value)
Chevalier	808	815	0.99 (0.862)	53.6	56.7	-3.1 (0.000)
Officier	270	189	1.43 (0.000)	61.2	64.0	-2.8 (0.000)
Commandeur	106	51	2.08 (0.000)	67.7	68.8	-1.1 (0.304)
Grand officier	23	6	3.83 (0.001)	74.2	67.7	6.5 (0.066)
Grand'croix	8	2	4.00 (0.051)	80.3	74.0	6.3 (0.331)

Notes: "Obs." stands for "observations". The null hypothesis associated with the p-value of the ratio of observations is that the ratio is equal to 1. It is obtained from testing whether the share of *Grandes Écoles* graduates differs from 50%.

We construct a panel of *Légion d'honneur*-eligible board members to further study how graduation status relates to awards. To this end, we assess eligibility of each of the *Mint Global* and *BoardEx* individuals at each date of a *Légion d'honneur* cohort and observe whether they are decorated.[27] We then use a log-binomial model that includes time fixed effects to estimate the relationship between *Grandes Écoles* graduation status and the probability to receive a *Légion d'honneur*. As shown by risk ratios reported in column 1 of Table 3.3, *Grandes Écoles* graduates are 3.4 times more likely than non-graduates to be awarded. This quantity reduces to 2.9 when controlling for individuals' age and gender as shown by the estimated risk ratio reported in column 2.

[27] We construct eligibility as follows. For never or first-time awarded directors over the 1995—2019 period, we exploit the eligibility condition of a minimum of 20 years of activities. Precisely, we consider as eligible: (i) alumni of the 15 *Grandes Écoles* 20 years after they graduated; (ii) non-alumni above 44 (the average age at which alumni are first eligible); (iii) people 4 years before they first enter a board (the average time from first known position in a board and first eligibility of alumni and non-alumni). These rules fail to assess eligibility of only 5,732 (out of 40,491) never awarded directors which we remove from the sample. For those awarded before April 1995 and promoted in the Order over the 1995—2019 period, we use the date and rank of the last award compared to the required timespan for promotion between two given ranks, as detailed in subsection 3.2.2.

Then, we use the collected curricula and the official dates of appointment and resignation of government members to study whether awarded *Légions d'honneur* can be linked to individual-level connections between board members and politicians in office. To this end, we use education-based signals of connections. Namely, we construct a variable that is equal to one at a *Légion d'honneur* cohort date if a board member graduated from the same school as a current member of the government with at most one-year difference.[28] Within-individual variation in this variable is thus driven by changes in the composition of the government.

Table 3.3: Relationship between education-based connections to members of the government and *Légion d'honneur* awards.

Dependent variable: Receiving a *Légion d'honneur*

	(1)	(2)	(3)	(4)	(5)	(6)
Sample	All directors		*GÉ*-graduated directors		*GÉ*-graduated and *LH*-awarded directors	
Grande École graduate	3.429***	2.929***				
	(0.132)	(0.118)				
Graduated as member of gov.			1.914***	1.609***	1.437***	1.531***
			(0.121)	(0.125)	(0.102)	(0.143)
Observations	1,628,330	1,247,896	390,009	377,940	42,379	41,742
# of decorated people	1,877	1,750	972	972	972	972
# of never decorated people	34,759	24,498	7,094	6,892	0	0
Covariates		Yes		Yes		Yes
School fixed effects				Yes		Yes

Notes: *** p<0.01, ** p<0.05, * p<0.1. Standard errors clustered at the cohort level in parentheses. Each column displays estimates from a separate log-binomial estimation. Coefficients reported as risk ratios. "*GÉ*" and "*LH*" stand for "*Grande École*" and "*Légion d'honneur*", respectively. Observations are defined at the business person × *Légion d'honneur* cohort date level. All estimations include fixed effects for the 72 *Légion d'honneur* cohorts. In columns 1 and 2, the sample is made of all eligible directors (see footnote 27). In columns 3 and 4, the sample is restricted to directors who graduated from one of the 15 *Grandes Écoles*. In columns 5 and 6, the sample is further restricted to directors who also receive a *Légion d'honneur* over the 1995–2019 period. The dependent variable is a dummy variable that is equal to one at the date at which a director receives a *Légion d'honneur*. The "*Grande École* graduate" variable is a dummy variable equal to one for business people who graduated from one of the 15 *Grandes Écoles*. The "Graduated as member of gov." variable is a dummy variable equal to one if a director graduated from the same school as a current member of the government with at most a one-year difference. Covariates included in even-numbered columns are director's age and gender. See Online Appendix Table 3.B.3 for the estimated risk ratios of these variables and of school fixed effects.

The cross-cohorts average probability that a *Grande École*-graduated director attended the same school and graduated at the same time as at least one member of the government is 34.7%.[29] We use this variable as an explanatory variable and estimate how it re-

[28] We allow for up to one-year differences in graduation dates as the limited size of cohorts and the existence of mentoring activities of first-year students by second-year students in several schools make likely that students from adjacent cohorts know each other and/or share the same network.

[29] As a comparison, this probability jumps to 63.2% when ignoring graduation dates and therefore relying only on unrestricted alumni networks to assess connections (Kramarz and Thesmar, 2013).

lates to the probability of receiving a *Légion d'honneur* in the sample of eligible *Grandes Écoles* graduates. As shown by column 3 of Table 3.3, the probability that a *Grande École*-graduate is awarded a *Légion d'honneur* doubles when at least one member of the government attended the same elite school and graduated at the same period as she did. This probability is still 61% larger in these periods when accounting for covariates and school fixed effects as shown by column 4.

We finally isolate the intensive dimension of *Légions d'honneur* attribution decisions by focusing on directors who both graduated from an elite school and received a *Légion d'honneur* at some point in the period we study. As shown by estimated risk ratios displayed in columns 5 and 6 of Table 3.3, the probability to receive a *Légion d'honneur* increases by about 50% for *Grandes Écoles* graduates at periods when at least one government member graduated from the same elite school at the same time.[30]

This analysis shows that our education-based signals of political connections are highly associated with higher probabilities to receive an award. Indeed, politicians do not particularly try to hide these connections, as they do not hesitate to directly reward their *Grandes Écoles*-mates. We consider the politicians involved in the attribution of the award to be the President of the Republic, the Prime Minister, and the ministers and secretaries of State working in the ministry that officially attributes the *Légion d'honneur* by the time of the award.[31] Conditionally on being connected to at least one of the 36 members of the executive power (in average) in office at a *decree* date, 33.5% of directors are connected to at least one attributing politician.

Firms' characteristics

We first relate each firm that hosts a board member who is awarded a *Légion d'honneur* to its size at the time of the award, as measured by its stock market capitalization from *Thomson Reuters Datastream*. Figure 3.2a plots the cumulative distribution function of the percentile in the distribution of market capitalizations of firms in which *Légion d'honneur* recipients hold positions by the time they are decorated. It shows that directors in large firms are more likely to receive a *Légion d'honneur*. The distribution represented by a dashed line is the cumulative distribution function of the percentile in the distribution of market capitalizations of firms that are covered by *Mint Global* or *BoardEx*. It helps verify that the over-representation of large firms among the population of recipients' firms

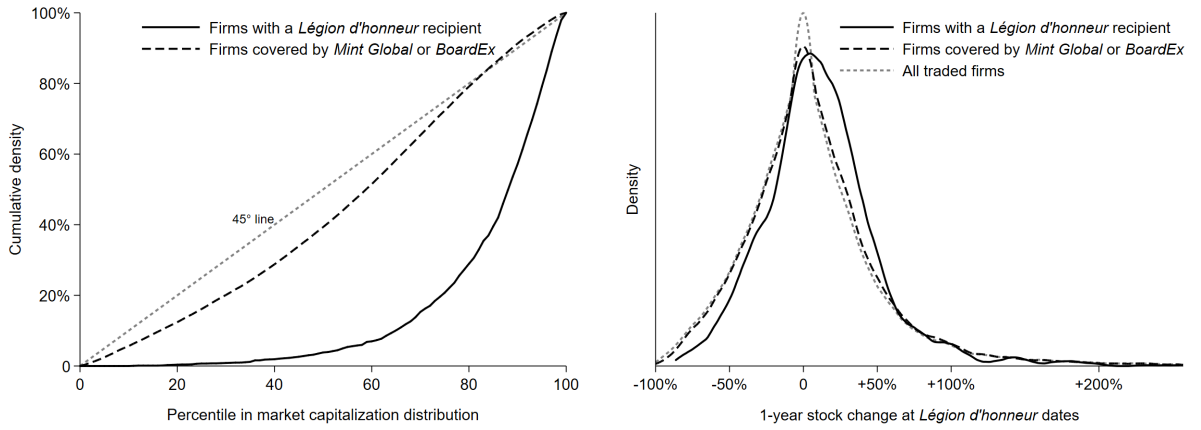
[30] Appendix Table 3.B.4 displays estimated risk ratios of interest when using alternative definitions of education-based connections of business people to members of the government, imposing the exact same graduation year or allowing for periods of study to only overlap. These more restrictive and more liberal definitions leave results qualitatively and quantitatively unaffected.

[31] We recall that the President of the Republic has a final say in excluding potential awardees, that the Prime Minister is the most influential politician in the government, and that ministers in the awarding entity document the case for the potential awardees.

is not driven by a biased coverage of these firms in the data sources used to track board positions (see Appendix 3.D for more details on board data coverage).

Figure 3.2: Determinants of the *Légion d'honneur*: firms' size and performance.

(a) Firms' size. (b) One-year firms' performance before cohorts.



Notes: Figure 3.2a plots the cumulative distribution function of firms size, measured using a firm's percentile in the distribution of the universe of stock market capitalizations from *Thomson Reuters Datastream* at the date of each *Légion d'honneur* cohort. Figure 3.2b plots the distributions of changes in firms' stock prices over the 365 calendar days that precede each *Légion d'honneur* cohort.

We next investigate whether recipients hold positions in firms that exhibit a market performance that differs from that of other firms. To this end, we compute the past one-year variation of the stock price of all listed firms at all *Légion d'honneur* cohort dates. Figure 3.2b plots the distribution across cohorts of the past one-year variation distinctly for all traded firms, for firms covered by *Mint Global* or *BoardEx*, and for the subset of firms with at least one awarded board member. Directors of firms with larger increase in their stock prices over the year preceding a cohort are more likely to receive a *Légion d'honneur* in that cohort. Again, the distribution represented with a dashed line indicates that this result is not driven by a biased coverage of firms by *Mint Global* or *BoardEx* depending on firms' recent stock market performance.

3.3.3 Media coverage of the *Légion d'honneur*

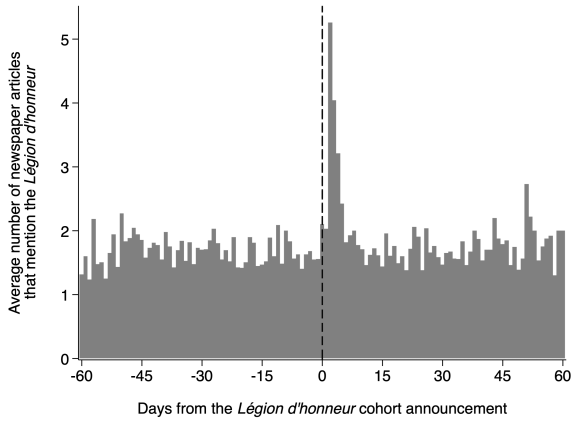
An important aspect of event studies in financial markets is to determine whether the events of interest are news shocks. This subsection shows that media report on cohorts' recipients only after decrees are signed, which suggests that the identity of upcoming recipients is not known beforehand.

To measure the press coverage of cohorts of *Légion d'honneur* recipients, we use *Cision Europresse* to retrieve print articles published between January 1, 1995 and November 1, 2019 by the following French national daily newspapers: *Le Monde*, *Le Figaro*, *Les Échos*,

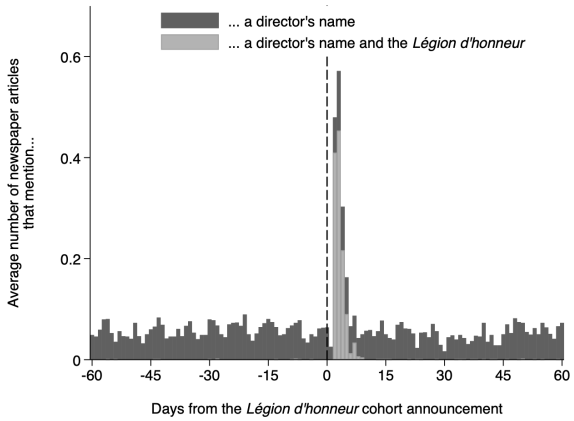
Libération and *La Croix*.[32] We downloaded two sets of articles. The first set includes 7,720 distinct articles that contain the keyword "*légion(s) d'honneur*". The second set is made of 286,714 distinct articles that contain, as a chain of characters, the first and last names of any of the 1,877 recipients who hold or held a board position in our final sample.

Figure 3.3: Press coverage of *Légion d'honneur* decrees and awarded directors.

(a) *Légion d'honneur*.



(b) Awarded directors' names.



Notes: These figures display the daily number (averaged across cohorts) of print newspaper articles published from January 1, 1995 to November 1, 2019 in the main national newspapers in France—*Le Monde*, *Le Figaro*, *Les Échos*, *Libération* and *La Croix*—, that contain distinctive keywords in the body text. Articles have been retrieved using *Cision Europresse*. We relate the date of publication of each article to the date of the closest *Légion d'honneur* decree, which serves as a reference day. We average the daily number of press articles before or after the reference day across *Légion d'honneur* cohorts. Figure 3.3a reports the average number of press articles containing the keyword "*Légion(s) d'honneur*". Figure 3.3b displays the cross-individuals average number of press articles that contain the first and last names of a business director who is also a *Légion d'honneur* recipient and the cross-individuals average number of press articles that contain an awarded-director's first and last names together with "*Légion(s) d'honneur*".

We first relate the date of publication of each newspaper article that mentions the *Légion d'honneur* to the date of the closest *Légion d'honneur* decree and construct the average media presence of the award across cohorts for each day in a 4-month window around each decree. As shown by Figure 3.3a, national newspapers publish on average 1.7 articles per day that mention the *Légion d'honneur* during the 60 days that precede a decree and over the 6 to 60 days after a decree. By contrast, 5.3, 4.0 and 3.2 articles that mention the award are published 2, 3 and 4 days after a decree, respectively. This

[32]There are seven daily national newspapers in France, excluding free newspapers. Two national daily newspapers were excluded from the articles' collection: *L'Équipe* as it is specialized in sports, and *Le Parisien / Aujourd'hui en France* as it is only partially covered by *Cision Europresse*. The other five newspapers have large circulation over the 1995–2019 period. According to the *Alliance pour les chiffres de la presse et des médias*, their joint readership amounts to 6.05 million readers in 2020. As web articles were mostly newsflashes at the beginning of our period of analysis and as the volume of web articles has increased over the period in an irregular pattern, we restrict the sample to print articles, whose number is much more stable over time.

illustrates that the *Légion d'honneur* is an important and well-known institution in the French society as it is continuously present in the media and that there is a specific press coverage of each new cohort. The 1-day delay in the starting of media coverage of cohorts is consistent with the average delay of 1.6 day between the signature of a decree and its publication in the *Journal officiel de la République française*.

Then, we use articles about awardees to show that newspapers explicitly quote the awardees after they are granted a *Légion d'honneur*. The average daily number of articles by board director mentioning her first and last names before and after the publication in the *Journal officiel* of her *Légion d'honneur* is represented by the dark grey series of Figure 3.3b. There are on average 0.06 daily articles (one article every 17 days) per recipient in the 60 days that precede a *Légion d'honneur* decree and 0.05 each day in the 6 to 60 days afterwards. By contrast, there are on average 0.48, 0.57 and 0.3 daily articles 2, 3 and 4 days after a decree, respectively. There are about 10 times more articles mentioning a director just after her *Légion d'honneur* award as compared to before her award. The light grey series of Figure 3.3b focuses on articles that also contain "*légion d'honneur*" and shows that almost all the additional articles mentioning the awarded directors after their award also contain this keyword. Therefore, the increased presence of recipients in the media after their award is driven by the *Légion d'honneur*.

All in all, media coverage suggests that the identity of upcoming awardees is not discussed in the media before information is made officially public and thus that *Légion d'honneur* cohorts' announcements are information shocks.

3.3.4 Measuring stock market reaction to the *Légion d'honneur*

Our first objective consists in measuring market reaction to awards' attribution. To this end, we collected the daily stock price of all French listed firms from January 1994 to August 2019 from *Thomson Reuters Datastream* and follow MacKinlay (1997) in constructing a firm's abnormal returns following the award of a *Légion d'honneur* to one of its board members. For each of these events, we first estimate the relationship between a firm's return and that of the market over a period of 120 trading days (i.e. roughly 2 quarters) before the date of the *Légion d'honneur* decree. We then predict the firm's returns on that day and over the next 7 days using the estimated market model and the observed market returns. Finally, we define abnormal returns as the difference between observed and predicted returns. This approach removes market-wide changes from stock returns and is used by various contributions in the literature (see Jayachandran, 2006, Knight, 2007, Coulomb and Sangnier, 2014, Luechinger and Moser, 2014, Acemoglu et al., 2016 and Bourveau et al., 2021 among others).

In detail, we run the following regression for each firm i for which a *Légion d'honneur*

is attributed to one of its board members on day t:

$$\mathbb{R}_{i\tau} = \alpha_{it} + \beta_{it} \times \bar{\mathbb{R}}_{\tau} + \varepsilon_{i\tau}, \text{ with } \tau \in [t-120, t-1]\,,$$

where $\mathbb{R}_{i\tau}$ is firm i's stock return on day τ, $\bar{\mathbb{R}}_{\tau}$ is the market return on day τ and $\varepsilon_{i\tau}$ is the error term. We use the SBF 120 index, available from *Thomson Reuters Datastream*, as the market return. The SBF 120 is a reference index composed of the 120 most actively traded stocks on the Paris Stock Exchange. We estimate the above expression separately for each firm and *Légion d'honneur* cohort, which yields stock × cohort-level estimated parameters $\hat{\alpha}_{it}$ and $\hat{\beta}_{it}$. These are used to calculate the abnormal returns of each firm over the seven following business days using the formula:

$$\tilde{\mathbb{R}}_{i\tau} = \mathbb{R}_{i\tau} - \left\{\hat{\alpha}_{it} + \hat{\beta}_{it} \times \bar{\mathbb{R}}_{\tau}\right\}, \text{ for } \tau \in [t, t+1, t+2, \ldots, t+7]\,,$$

where $\tilde{\mathbb{R}}_{i\tau}$ is the abnormal return of stock i on day τ. Finally, for each $d = 0, \ldots, 7$, we calculate the d-day compound abnormal returns as:

$$\tilde{\mathbb{R}}^{\text{com}}_{it} = \prod_{k=0}^{d} \left(1 + \tilde{\mathbb{R}}_{i,t+k}\right) - 1.$$

It proved possible to calculate the market reaction following *Légion d'honneur* decrees for 1,865 out of the 1,997 individual × firm observations that make the final sample.

By construction, abnormal returns at random dates are on average equal to zero, as they represent the error terms from returns' estimation models. If we can isolate specific events—e.g. awards' attribution—that make abnormal returns, on average, statistically different from zero, this would indicate that these events contain new information regarding firms' future performance. This echoes the semi-strong efficiency hypothesis (Fama, 1970), in which all public information is incorporated into prices, and thus markets only react to new public information relevant for firms' valuation. In our context, we thus compute the average abnormal returns of firms at dates at which one of their board members receives an award to determine whether these awards contain information on firms' future performance.

Though we documented above with media coverage that cohort announcements constitute information shocks, the market may still have expectations regarding who is likely to get the *Légion d'honneur* prior to an announcement. These expectations could lead to opposite market adjustments when the true cohort is revealed even if we posit that awards are expected to positively affect the value of firms. Indeed, firms of non-recipients who were expected to receive a *Légion d'honneur* but who did not could react negatively to the cohort announcement, which would constitute a violation of the stable unit treatment value assumption. Firms which receive a *Légion d'honneur* would observe an increase in

their market value, whose size depends on the magnitude of the surprise. These potential opposite market adjustments explain why we do not compare recipients' firms to firms in which non-recipients who were expected to get the *Légion d'honneur* hold a position. Doing so would bias upward the estimate of the effect of receiving an award. In contrast, we compare recipients' firms to the rest of the market to alleviate this issue.[33]

3.4 Results

In this section, we first quantify the average abnormal returns of recipients' firms in the days that follow the announcement of a *Légion d'honneur* awarded to one of their directors. Then, we verify the robustness of our estimates to alternative measures of abnormal returns and present several falsification exercises. Finally, we explore the heterogeneity in market reaction to awards across firms', individuals', and cohorts' characteristics. In particular, we take advantage of differences in directors' connections to politicians, media coverage and firms' pre-award performance to indirectly disentangle between concurrent interpretations of the reported results.

3.4.1 Main results

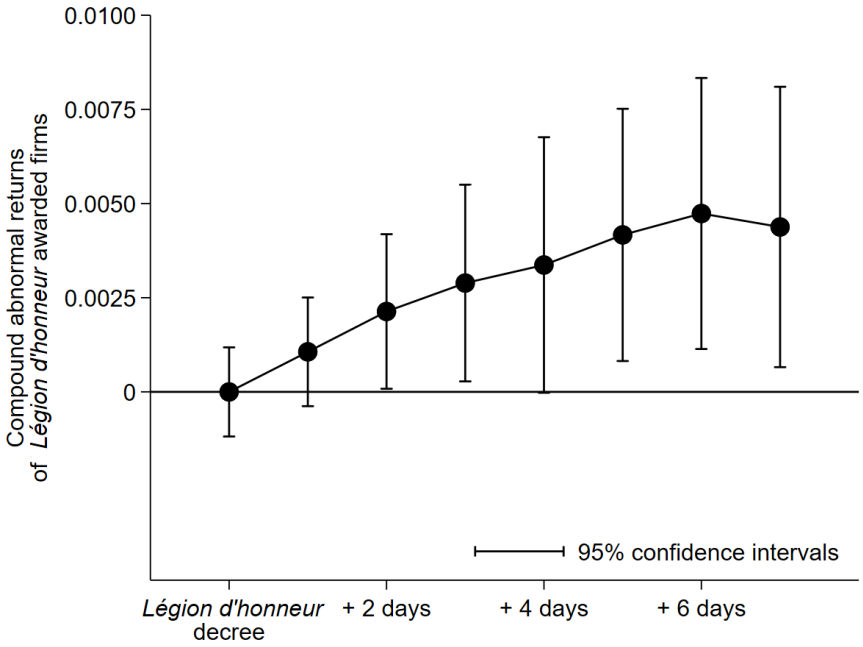
We use the average value of the compound abnormal returns at award dates presented above to quantify the market reaction to *Légion d'honneur* awards. To accommodate the time-varying availability of board composition information (see Appendix Figures 3.A.2a and b) and variations in cohort sizes (see Figures 3.1a and b), we construct weights such that each of the 72 *Légion d'honneur* cohorts has the same weight and cluster standard errors by cohort. Assuming that financial markets incorporate all publicly available information, changes in a firm's stock value should only reflect information shocks about its future financial performance (Fama, 1970). News shocks that are expected to increase (decrease) a firm's future performance translate into positive (negative) abnormal returns for this firm at the news shocks' dates—the *Légion d'honneur* decree dates in our context.

Figure 3.4 plots the 0 to 7 days compound abnormal returns of recipients' firms following the award of a *Légion d'honneur* to one of their board members. The market takes little time to incorporate the information contained in decrees: the point estimate for the 2-day compound abnormal returns is positive and statistically different from zero.

[33] Chan et al. (2014) use a synthetic control method approach to construct a control group for each recipient that matches the recipient pre-award performance in the academic context. The variable of interest they consider is research productivity as measured by publications and citations. Therefore, their approach does not suffer from the problem we highlight here and which prevails in the context of the formation of stock prices in forward-looking financial markets.

The fact that compound abnormal returns increase with the length of the period over which they are compounded suggests that markets do not *instantly* incorporate fully the information. This may reflect that decrees tend to be announced in the few days after they are signed.[34] This delay is corroborated by evidence based on media coverage of *Légion d'honneur* as Figure 3.3a shows that coverage significantly increases two days post decree. Furthermore, the lagging price adjustment may reflect that markets need time to acquire additional information to interpret awards' attribution and, thus, to price the awards.

Figure 3.4: Compound abnormal returns of firms following the award of a *Légion d'honneur*.



Notes: The figure plots the average t-day compound abnormal return at cohort dates (t between 0 and 7) of stocks of firms whose at least one board member was awarded in the cohort. See the main text for details. Observations are positions (firms × individual) at each cohort date. Each cohort has the same weight. Standard errors are clustered at the cohort level. See Appendix Table 3.B.5 for the associated point estimates.

When using the SBF 120 as the market index and a 120-day calibration period to compute abnormal returns (baseline), the 2-day compound abnormal return equals 0.21% (p-value = 0.042). Table 3.4 illustrates the robustness of this result to changes in the calculation method. First, we exclude the bottom and top 5 percent of the sample of abnormal returns. Second, we allow for different weights across cohorts depending on the

[34] On average, the decree is officially published 1.6 days after it is issued. For the 72 cohorts we observe, the decree was officially published within the next two days in 65 (90.3%) of the cases. It was published 3 or 4 days after being issued for 7 cohorts only (9.7%). Cohorts can be made public as early as the date the decree is officially signed, which is why we use the decree date as the event date in our main approach.

number of collected observations for each cohort. Third, we calculate compound abnormal returns following the date at which the *Légion d'honneur* decree is officially published in the *Journal officiel de la République française*. Fourth, we restrict our analysis to cohorts for which the decree was signed on a business day. Finally, we select only stocks for which a price is available on every day of the calibration period of abnormal returns.

Table 3.4: 2-day compound abnormal returns of firms following the award of a *Légion d'honneur*: sample restrictions and alternative calculation methods.

	2-day compound abnormal returns		
Excluding top and bottom 5%	0.0023***	Business days	0.0019*
	(0.0007)		(0.0010)
No cohort weights	0.0029***	Complete calibration period	0.0022**
	(0.0010)		(0.0010)
At publication date	0.0021**		
	(0.0010)		

Notes: *** p<0.01, ** p<0.05, * p<0.1. All cells display estimates from a separate regression. Observations are positions (firms × individual) at each cohort date. Each cohort has the same weight. Standard errors, clustered at the cohort level, are in parentheses. The table displays the average 2-day compound abnormal returns of awarded firms using the SBF 120 as the market index and a calibration period of 120 days computed with the alternative approaches described below. *Excluding top and bottom 5%*: we exclude the bottom and top 5 percent of the sample of abnormal returns. *No cohort weights*: Weights differ across cohorts depending on the number of collected observations (firms × individual) for each cohort. *At publication date*: Compound abnormal returns are calculated following the date at which the *Légion d'honneur* decree is officially published in the *Journal officiel de la République française*, instead of the decree date. *Business days*: We restrict our sample to cohorts for which the decree was signed on a business day. *Complete calibration period*: We restrict our sample to stocks for which a price is available on every day of the calibration period used to compute abnormal returns.

Appendix Table 3.B.5 displays the 0 to 7 days compound abnormal returns, as well as alternative series obtained using calibration periods of different lengths and either the SBF 120 index or the CAC 40 index as the market return to calculate abnormal returns.[35] Overall, the pattern in abnormal returns is similar across changes in the market models used to calculate abnormal returns.

3.4.2 Falsification tests

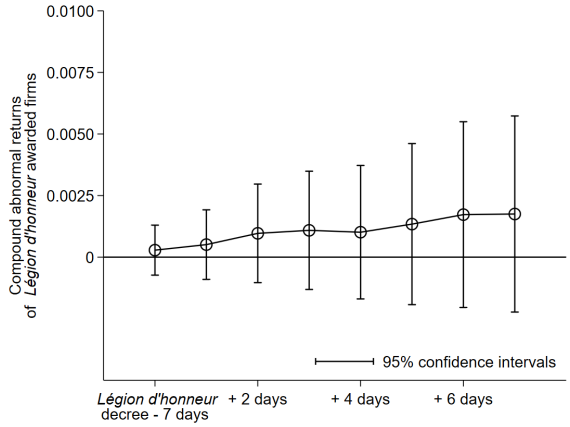
Figure 3.5a presents the 0 to 7 days compound abnormal returns of recipients' firms observed 7 days before the *Légion d'honneur* decree at which one of these firms' directors receive an award. Figure 3.5b plots the 2-day compound abnormal returns observed after each of the 7 days that precede the decree. For comparison, the estimate of the shaded grey area is the baseline average 2-day compound abnormal return at the decree date. These series of estimates demonstrate that stocks of recipients' firms do not evolve

[35] The CAC 40 index is a capitalization-weighted measure of the 40 most significant stocks of the French stock market.

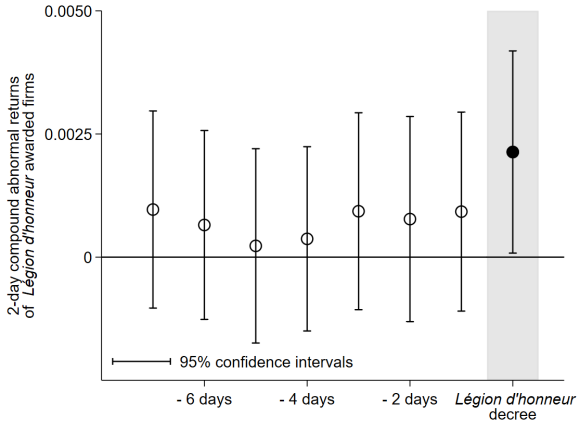
atypically before the decree, confirming that *Légion d'honneur* decrees are genuine news shocks: there is no leakage of information regarding the composition of upcoming cohorts that would be incorporated in recipients' firms stocks.

Figure 3.5: Compound abnormal returns of *Légion d'honneur* awarded firms 7 days before award; and 2-day compound abnormal returns 7–1 days before award.

(a) 7-day anticipation.



(b) 7–1 days anticipation.



Notes: Each cohort has the same weight. Standard errors are clustered at the cohort level. Figure 3.5a plots the average t-day compound abnormal return of awarded firms at 7 days before the cohort decree dates at which one of the firm's board members will be awarded (t between 0 and 7). See the main text for details. Figure 3.5b plots the 2-day compound abnormal return of awarded firms in the 7 to 1 days preceding the decree date at which one of the firm's board members will be awarded and the 2-day compound abnormal return at the decree date (grey shaded area).

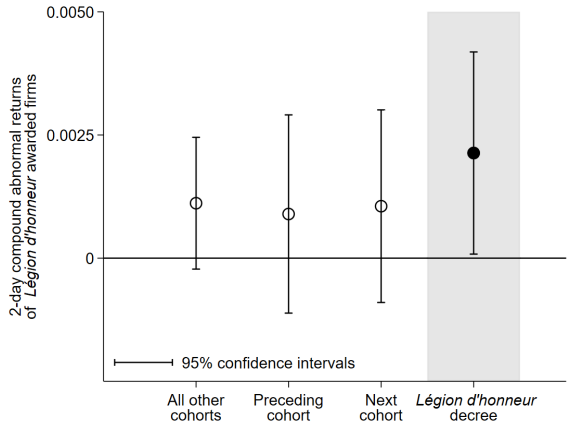
We next investigate whether firms whose board members received a *Légion d'honneur* at some date over the 1995–2019 period exhibit particular stock dynamics at *Légion d'honneur*-related events at which, however, their directors do not receive any award. We expect abnormal returns of these firms to be zero in average at these placebo events.

We first calculate the 2-day compound abnormal return for each of these stocks following each civilian *Légion d'honneur* cohort at which they do not get a board member decorated. Then, we replicate this approach but select among these cohorts in which directors are not decorated, cohorts that either immediately precede, or immediately follow a *Légion d'honneur* cohort in which a firm's board member is awarded. Figure 3.6a plots the corresponding estimates, as well as the average 2-day compound abnormal return at dates at which firms did receive an award for comparison (shaded grey area). The figure shows that firm stocks do not exhibit significant abnormal returns after *Légion d'honneur* cohorts that do not include any of their board members.

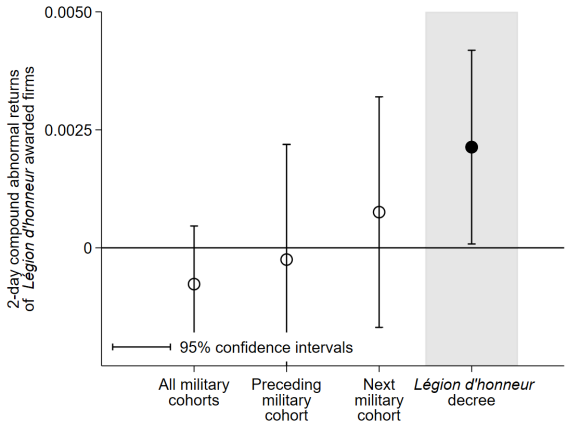
We then use the *Journal officiel de la République française* and the *FrancePhaleristique.com* website—a private website that gathers information about French official decorations—to collect all the dates at which *Légions d'honneur* for military services were awarded over the 1995–2019 period. These military cohorts do not include recipients with business oc-

Figure 3.6: 2-day compound abnormal returns of *Légion d'honneur* awarded firms following other civilian *Légion d'honneur* cohorts, military *Légion d'honneur* cohorts and political speeches; and compound abnormal returns of same-industry firms following the award of a *Légion d'honneur*.

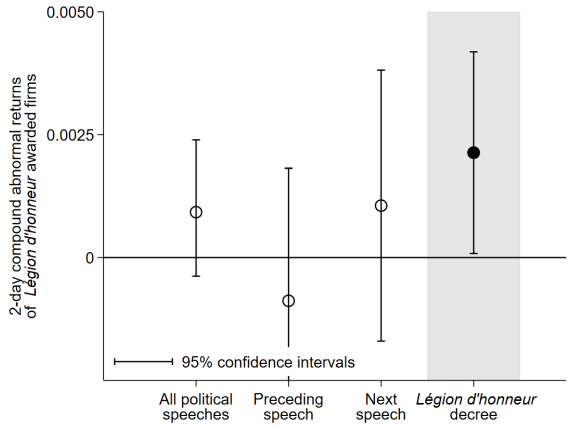
(a) Other civilian *Légion d'honneur* cohorts.



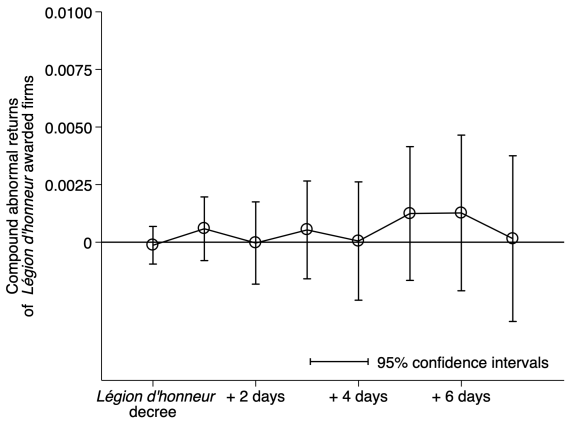
(b) Military *Légion d'honneur* cohorts.



(c) Political speeches.



(d) Same-industry firms.



Notes: Observations are positions (firms × individual) at different dates. Each cohort has the same weight. Standard errors are clustered at the cohort level. Figure 3.6a displays the average 2-day compound abnormal return of stocks of firms that receive a *Légion d'honneur* over the 1995–2019 period at civilian cohorts' dates at which none of their board members receives an award. Figure 3.6b displays the average 2-day compound abnormal return of stocks of firms that receive a civilian *Légion d'honneur* over the 1995–2019 period with abnormal returns estimated at military cohorts' dates. Figure 3.6c displays the average 2-day compound abnormal return of stocks of firms that receive a *Légion d'honneur* over the 1995–2019 period at non-cohort dates at which the President of the Republic or the Prime Minister delivered a speech. Figure 3.6d plots the 0 to 7-day compound abnormal return at decree dates of all firms with none of their board members awarded at these dates but that are of the same industry as firms with a board member awarded at these dates. See the main text for more details.

cupations and their timing does not follow that of civilian cohorts. From these 261 dates, we randomly draw a sample of 72 dates to mimic the frequency of civilian cohorts. We then calculate for each firm, for which at least one board member was awarded a civil-

ian *Légion d'honneur* over the 1995–2019 period, its 2-day compound abnormal return after each of these military cohort dates, as well as after those military cohorts that immediately precede or follow a civilian *Légion d'honneur* cohort in which a firm's board member is present. Figure 3.6b plots the corresponding estimates and shows that stocks of recipients' firms do not exhibit abnormal returns after military cohorts.

We next address the fact that for 31 out of the 72 civilian cohorts we study, there was a speech by the President of the Republic, concurrent to the *Légion d'honneur* decree's issuance or its publication in the *Journal officiel*. Indeed, July 14 or December 31 are dates at which the President frequently delivers a political speech to a broad audience. It could be possible that the stocks of awarded firms react to political talks rather than awards. This reasoning, however, would require that recipients' firms are those that are expected to benefit from policies (if any) announced during political speeches concurrent to their awards. We proceed in two steps to rule out this eventuality. In a first step, we use the *vie-publique.fr* official website to collect the dates of public interventions made by the President or the Prime Minister outside of cohort dates. These cover all the general policy speeches made by Prime Ministers, presidential interviews on the main TV channel, presidential inaugural statements and presidential speeches made before the Parliament. 87 of such events occurred between January 1995 and July 2019. Figure 3.6c displays the 2-day compound abnormal returns of recipients' firms at all these dates and after political speeches that immediately precede and follow a *Légion d'honneur* cohort in which a firm's board member is present. It shows that stocks of awarded firms do not vary much after important political speeches.

In a second step, we explore the cross-cohorts heterogeneity in market reaction at *Légion d'honneur* decree dates, depending on whether a presidential speech was concurrently delivered. The data we retrieve from the *vie-publique.fr* official website contain a series of keywords for each of the July 14 or December 31 presidential speeches. We qualify a speech as having some economic content if at least one keyword relates to business or economics.[36] Appendix Figure 3.A.5 reproduces our baseline estimates after restricting the sample to cohorts with or without a concurrent speech, or with or without a concurrent speech that includes some economic content. Overall, we do not observe significant variations in market reactions to awards across these samples. Even if we restrict the sample to cohorts where no speech was pronounced on the decree's issuance or publication

[36] Anecdotal evidence suggests that political speeches made on July 14 or December 31 do not cover much business or economic issues, and when they do, these speeches include very broad messages that are difficult to relate to the performance of specific firms or industries. These speeches are traditionally about the state of the nation and are not dedicated to announcing new economic policies or reforms. The President may however refer to current economic matters. We categorized speeches as containing some economic information if the speech's keyword list provided by *vie-publique.fr* contains at least one of the following strings: "*économie*" (economy), "*emploi*" (employment), "*fiscalité*" (tax), "*travail*" (labor), "*chômage*" (unemployment), "*dette*" (debt), "*deficit*" (deficit).

dates, we still observe a market reaction to awards similar to that with the unrestricted sample. This demonstrates that the uncovered market reaction to awards is not driven by the political speeches that may be delivered concurrently to *Légion d'honneur* civilian cohorts' announcements.

Finally, we take advantage of *Thomson Reuters Datastream*'s industry level 5 classification and select for each cohort date all the firms that do not host a director awarded that date but that are in the same industry as a firm that does.[37] We then calculate the 0 to 7 days compound abnormal returns observed for these firms after the decree. Figure 3.6d plots the associated estimates and shows that stocks of these firms do not exhibit significant abnormal returns after the *Légion d'honneur* decree. Thus, the effect of *Légion d'honneur* on recipients' firms does not extend to the rest of their industry. This indicates that any unobserved event concurrent to *Légion d'honneur* cohorts with industry-wide effect cannot explain the abnormal pattern in the stocks of recipients' firms at awards' dates. Furthermore, it indicates that market participants do not interpret awards to a board member as a governmental channel to communicate about future industrial policy.

3.4.3 Mechanisms

This subsection explores the mechanisms behind the market reaction to the attribution of the *Légion d'honneur* to directors of French listed firms and helps to indirectly disentangle between the plausible alternative interpretations.

Following Fama (1970), changes in stock value should reflect news shocks. However, the precise informational content of the awards, i.e. the signal they send, is a priori ambiguous. Indeed, our analysis of the determinants of the attribution of the *Légion d'honneur* reveals that directors' firm over-performance and their connections to politicians in office are positively associated with the probability to receive an award, but they do not fully determine awards' attribution though. As a consequence, we cannot decisively argue that an award is interpreted in a unique way. Still, anecdotal evidence of nepotism and cronyism (see news articles in Le Point, Capital, Le Parisien and Sud Ouest, among others) and the magnitude of the influence of connections on the probability to be decorated reinforce the interpretation that the market may regard a *Légion d'honneur* as a signal of a political connection. In this subsection, we first investigate the role of the media visibility of the director and of her award in influencing the market reaction to awards. We then explore the heterogeneity in market reaction alongside directors' political connections and their pre-award observable performance.

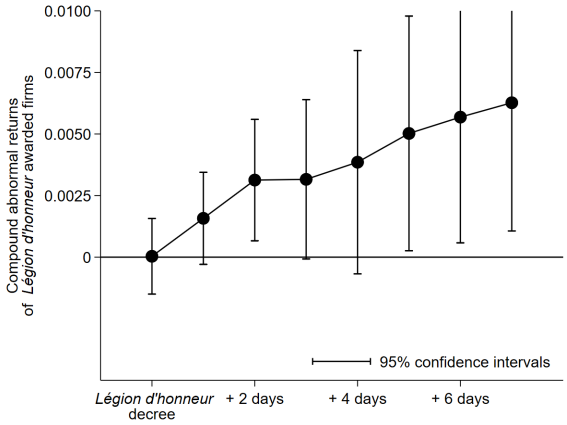
[37] The level 5 sectoral classification corresponds to 129 different industry categories.

Media coverage of directors and their awards

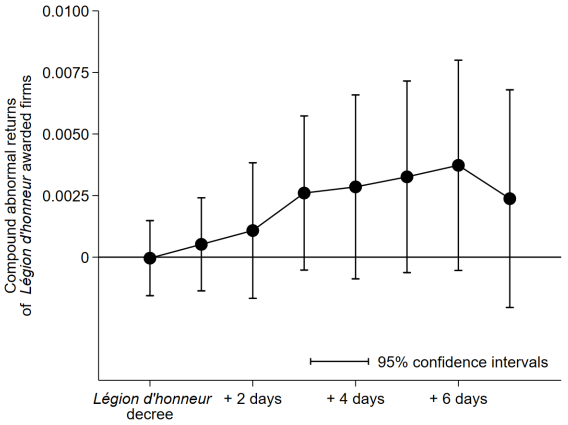
In what follows, we quantify the extent to which the market reaction to *Légions d'honneur* varies with the media visibility of business directors and with that of their awards.

Figure 3.7: Compound abnormal returns of firms following the award of a *Légion d'honneur* depending on directors' media coverage.

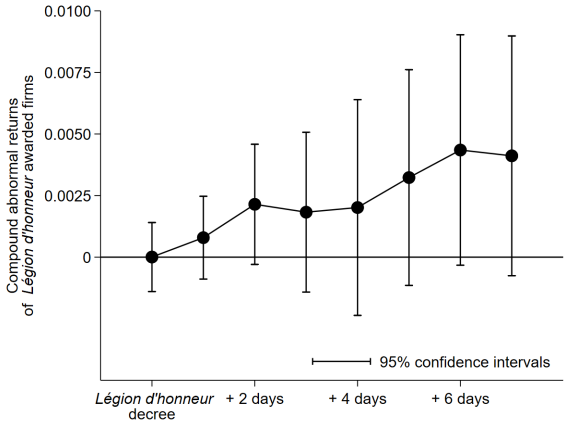
(a) Pre-award coverage: bottom 50%.



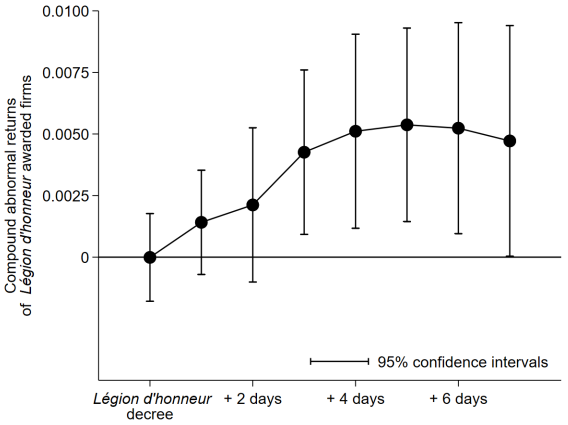
(b) Pre-award coverage: top 50%.



(c) Post-award coverage: bottom 50%.



(d) Post-award coverage: top 50%.



Notes: Observations are positions (firms × individual) at each cohort date. Each cohort has the same weight. Standard errors are clustered at the cohort level. We consider for each recipient the number of articles citing the recipient's first and last names in the 365 days before (pre-award coverage) and in the 7 days after (post-award coverage) the recipient's award. See subsection 3.3.3 for the details on the construction of the number of directors' cites in newspaper articles. Figure 3.7a uses 964 positions of recipients with a pre-award coverage below or equal to the median. The median number of articles containing the first and last names of a *Légion d'honneur* recipient in the 365 days preceding the award is 6. Figure 3.7b uses 901 positions of recipients with a pre-award coverage above the median. Figure 3.7c uses 1,099 positions of recipients with a post-award coverage below or equal to the median. The median number of articles containing the first and last names of a *Légion d'honneur* recipient in the 7 days following the award is 1. Figure 3.7d uses 766 positions of recipients with a post-award coverage above the median of recipients.

We first consider the media presence of recipients before their award. We use the press articles printed in major daily newspapers and collected from *Cision Europresse* (see subsection 3.3.3) and identify the number of articles citing an awardee in the 365 preceding days her award. We define well-known (less-known) recipients as those with a number of articles in the 365 days preceding the award above (below) 6 articles, the median of this quantity among recipients. Figures 3.7a and b show that awards to less-known directors trigger larger abnormal returns. Their firms' 2-day compound abnormal returns at decree dates are about 2.5 times higher than those of firms with well-known recipients. This evidence suggests that awards constitute more important news shocks when given to recipients that are less known by market participants.

We then explore the role of media coverage in transmitting information to market participants when awards are announced. To that end, we use the articles citing the awardees in the 7 days following the official publication of their award. In contrast with the pre-award visibility, the publicity given to recipients and their awards in the week following the corresponding decree fuels the stock market reaction. As shown by Figures 3.7c and d, we observe higher abnormal returns after a *Légion d'honneur* for firms whose recipients' awards are more publicized in the press as compared to those of firms with less covered awardees.

Overall, evidence suggests that media coverage of awards facilitates the transmission of information to market participants whereas the pre-award coverage of future recipients alone tempers the market's reaction to awards. This highlights the important role of media in transmitting information regarding directors' characteristics to market participants.

Political connections

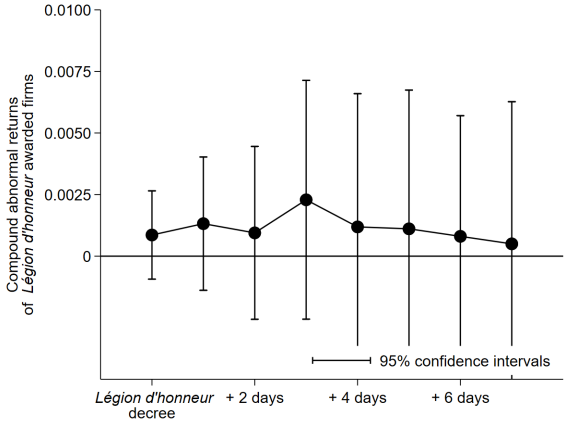
We now explore the heterogeneity in market reaction to awards alongside the political connections of recipients. As detailed in subsection 3.3.2, we identify a director's political connections via shared graduation cohort in a *Grande École* with members of the executive by the time the *Légion d'honneur* is attributed. Here, we define an award as attributed to a connected director if she graduated from the same *Grande École*, with at most a one-year difference, as a politician involved in the attribution of the award. These politicians are the President of the Republic, the Prime Minister, and the ministers and secretaries of State working in the ministry that officially attributes the *Légion d'honneur*, by the time of the award.

Figures 3.8a–c report the 0 to 7 days abnormal returns at decree dates of the stocks of recipients' firms conditionally on recipients' graduation and connection statuses. Abnormal returns are positive for firms whose awarded directors are not connected to politicians attributing the awards. These non-connected recipients either attended one of the 15 *Grandes Écoles* but are not from the same or adjacent cohort as politicians involved

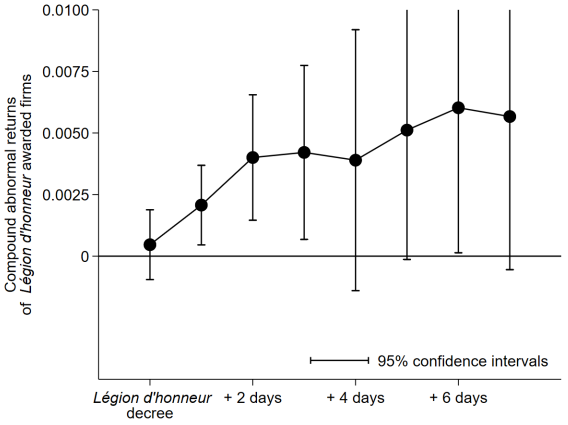
in the attribution, or did not study in any of these elite schools. In contrast, we find no significant market reaction for firms whose awarded directors graduated from the same school and in the same or adjacent cohort as attributing politicians. Appendix Figures 3.A.6a and b mimic Figures 3.8a and b but use a more restrictive definition of connections by imposing that the recipient graduated from the same school and on the same year as an attributing politician to qualify as *connected*. Results are hardly affected by this modification of the definition of political connections.

Figure 3.8: Compound abnormal returns of firms following the award of a *Légion d'honneur*, by graduation and connection statuses of awarded directors.

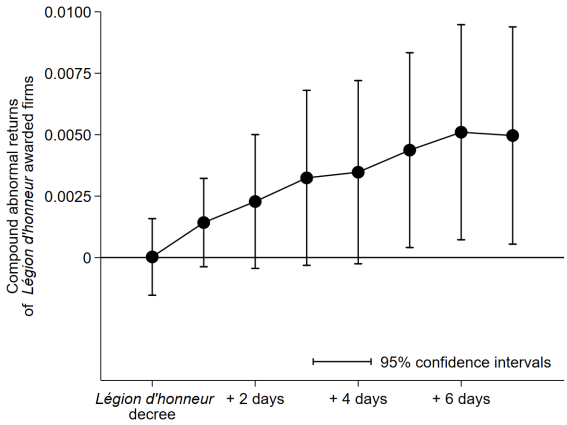
(a) Connected *Grandes Écoles* graduates.



(b) Non-connected *Grandes Écoles* graduates.



(c) Non-*Grandes Écoles* graduates.



Notes: Observations are positions (firms × individual) at each cohort date. Each cohort has the same weight. Standard errors are clustered at the cohort level. Figure 3.8a uses 277 positions of graduates from one of the 15 most prestigious *Grandes Écoles* who graduated from the same *Grande École*, with at most one year difference, as a politician involved in the attribution of the award. Politicians considered as involved in the award's attribution are the President of the Republic, the Prime Minister, and the ministers and secretaries of State working in the ministry that officially attributes the *Légion d'honneur*, by the time of the award. Figure 3.8b uses 881 positions of graduates from one of the 15 most prestigious *Grandes Écoles* but not from the same school and same or adjacent cohort as a politician involved in the attribution of the award. Figure 3.8c uses 707 positions of directors who were not trained in any of the 15 most prestigious *Grandes Écoles*.

All in all, evidence suggests that awards convey new and relevant information for future firm performance only when awardees are not visibly connected to attributing politicians before their awards. There are several possible explanations of this. A first interpretation is that the market could believe that awards represent a signal of proximity between directors and politicians for all directors, including those directors who do not share the same background in an elite school with any government member. As such, only awards given to directors that are not known as connected before the award can impact their firm value. Indeed, as political connections of directors that are known before the award (for instance via their shared curriculum with politicians) must be already incorporated in stocks, their awards should not represent a news shock. This interpretation is in line with the literature documenting that connections to politicians are incorporated into stock prices (see Fisman, 2001, Jayachandran, 2006, Knight, 2007, Ferguson and Voth, 2008, Cooper et al., 2010, Dube et al., 2011, Coulomb and Sangnier, 2014 and Acemoglu et al., 2016, among others). A different way to formulate this reasoning is as follows: priors regarding future recipients' likelihood to get decorated are more accurate for individuals connected via shared educational background; thus, awards to them represent less of a news shock.

A second interpretation is that market participants may conjecture that awards given to ex ante visibly connected directors are awards of convenience and those are irrelevant regarding future firm performance. In contrast, awards to non-connected individuals could be interpreted as decorations that reward outstanding performance. A few remarks are in order regarding this second interpretation. First, the literature has documented that political connections in the French context are actually priced by financial markets (Coulomb and Sangnier, 2014). Second, it is unclear what performance relevant to firm valuation is revealed by an award and not known by market participants before the award. Third, and related to the previous comment, as financial markets are forward looking it is unclear why an award rewarding past performance would impact a firm's post-award valuation. However, it is still possible that the government increases the firm future performance by officially recognizing past performance of an individual (or revealing the state's expectations about the firm's future performance). This recognition could increase firm performance via accrued resources to the awardee (Merton, 1968) or an increased level of efforts or commitment from the awardee (Neckermann et al., 2014 and Gallus, 2017). Following this second interpretation, the recognition of recipients' past outstanding performance by the State would be the key mechanism behind the market's reaction to awards. If this second interpretation was correct, stocks of firms whose board members were top performers in the past should be the firms that react the most when their board members receive a *Légion d'honneur*. We show below that there is no evidence that supports this interpretation.

Directors' pre-award performance

We now study the heterogeneity in market reaction alongside directors' past performance. While the perception of performance may differ between the market and the State, we consider here the indicators used by the market, as we analyze the post-award reaction of the stock price. As markets are forward looking, we posit that a stock's dynamics over a given time period incorporates the extent to which the firm's top management impacted its expected future cash flows over this period. We thus use the past evolution of stock prices to proxy for the pre-award performance of directors. To this end, we use the universe of French firms listed over the 1995–2019 period and construct the full distribution of the evolution of stock prices in the past year at each *Légion d'honneur* cohort date. We then collect the percentile-rank of firms which host awarded directors at the date of the award.

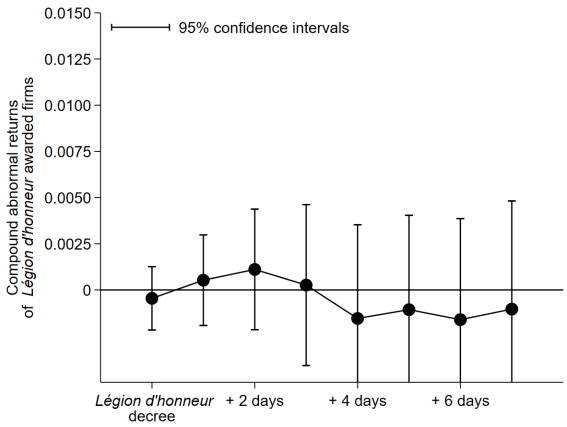
Figures 3.9a and b display the abnormal returns for firms of *Légion d'honneur* recipients whose stock price return over the year preceding the award has been above and below the median, respectively. It appears that an award attributed by the State to a director already identified as well-performing by the market does not generate any specific market reaction. In contrast, when the State decorates a director who was not identified as performing well by the market in the recent period, there is a strong market reaction. This suggests that awards can re-orientate market beliefs regarding low-performing recipients, or at least, that past performance is already priced by market participants and that the state's recognition of this high performance has no value in itself from the point of view of market participants.

This evidence can be interpreted in two non-exclusive ways. First, it is possible that a less performing director who is awarded by the State is regarded by market participants as close to the government and that this connection constitutes the piece of information priced by the market. This interpretation echoes the first interpretation given above, i.e, that awards are signals of (valuable) proximity to politicians. A second interpretation is that the market adjusts its priors with respect to the future performance of the recipients who were not identified as top performers, when factoring in new information provided by awards that was until then only at the State's disposal. This second interpretation might be less plausible, if we assume that market participants' access to information on directors' and firms' characteristics is at least as good as that of politicians.

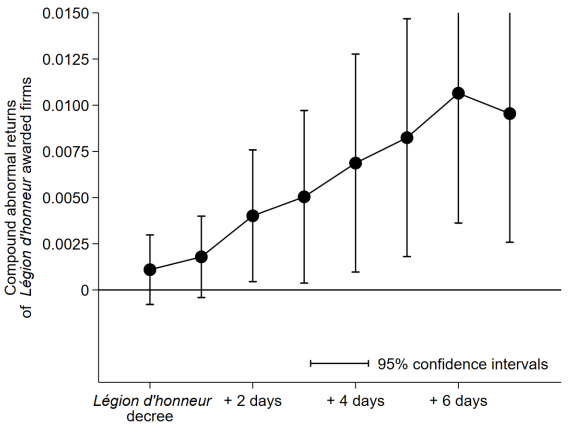
Overall, the uncovered evidence rather suggests that awards constitute signals of proximity to policymakers for those recipients whose political connections were not visible before the award. However, we cannot fully rule out alternative explanations such as the market valuing a state's recognition of an alternative measure of performance: however, to fit the evidence, this measure of performance must be negatively correlated with the firm past financial performance.

Figure 3.9: Compound abnormal returns of firms following the award of a *Légion d'honneur* to its directors depending on the firm performance in the year preceding the award.

(a) Recipients in well performing firms.



(b) Recipients in less performing firms.



Notes: Observations are positions (firms × individual) at each cohort date. Each cohort has the same weight. Standard errors are clustered at the cohort level. We measure a firm performance through the percentile-rank (among all firms publicly listed in France) of the firm stock return over the 365 calendar days (about 250 traded days) preceding the attribution of a *Légion d'honneur* to one of the firm's directors. The median percentile-rank is 58. Figure 3.9a uses positions of directors of firms below the median percentile-rank (823 observations). Figure 3.9b uses positions of directors of firms above the median percentile-rank (861 observations). For these estimations, compound abnormal returns are computed using a calibration period of 14 instead of 120 days. This helps to mitigate the issue that, when the calibration period significantly overlaps with the period over which firm performance is computed, the heterogeneity in pre-award firm performance is captured by the market model of firm returns (see subsection 3.3.4) which creates artefactual market reaction at decree dates. For instance, top performing firms before the award are expected to over-perform the market after the decree. This would lead to top performing firms having negative abnormal returns and low performing firms positive abnormal returns even if the observed raw stocks of high performing and low performing firms would follow the same movements.

3.4.4 Additional heterogeneity analysis

Appendix 3.E presents additional analyses that explore heterogeneity across firms, individuals' characteristics and *Légion d'honneur* cohorts.

Using *Thomson Reuters Datastream*'s industry level 2 classification, we first show that there are no significant differences between industries, although results are more consistent for firms classified as industrials, or in the consumer goods and services sector. We also document that market reaction is stronger for smaller firms. This is consistent with the fact that larger firms are better followed by market analysts (Atiase, 1985, Freeman, 1987 and Shores, 1990) and therefore managerial characteristics are better priced for these firms, making awards less informative. In addition, it is also plausible that an individual's characteristics (e.g. performance, social network) have a relatively larger impact on the performance of small firms than on that of large ones.

We then show that abnormal returns are comparable for both executive and non-executive directors, while firms are not affected by significant market reaction when their female directors receive an award. We also demonstrate that both nominations in the Order at the rank of *Chevalier* and promotions to higher ranks generate positive and significant abnormal returns.

Finally, we study heterogeneity across cohorts. We split the sample between presidential mandates. We find that the first presidential term of Jacques Chirac and the presidency of Nicolas Sarkozy appear to be the core periods when *Légion d'honneur* awards to firms' directors provide new pieces of information to financial markets. In addition, we do not observe significant differences in market reaction to awards depending on whether these are given by the Ministry for the Economy and Finance or on behalf of another ministry.

3.5 Conclusion

This paper investigates the economic value of awards given by policymakers to business people. We do so in the context of the French listed firms and the attribution of the most prestigious French official award—the *Légion d'honneur*—to firms' directors. We use an exhaustive novel dataset of recipients of civilian cohorts from April 1995 to July 2019, which we link to data on board positions. We document that cohort announcements represent genuine information shocks, as indicated by cohort compositions being written about in the main national daily newspapers only after their official announcements. We uncover the value of the *Légion d'honneur* by looking at the average abnormal return of recipients' firms computed at cohort dates at which some of these firms' directors are awarded.

Our analysis involves two steps. In a first step, we document large positive abnormal returns for recipients' firms at award dates: they amount to about 0.2 percent in average. *Légions d'honneur* are interpreted as positive news shocks on recipients' firm future cash flows, despite being meant to reward *achieved* merits. This finding is robust to alternative approaches to compute abnormal returns. We also verified that the firms with awarded directors over the 1995-2019 period do not exhibit abnormal returns on days—distinct from civilian cohorts' days—at which *Légion d'honneur* military cohorts are announced, civilian cohorts with none of their directors awarded are announced, or political speeches are delivered. Furthermore, firms whose directors receive a *Légion d'honneur* over the period of interest do not exhibit specific abnormal returns at cohort dates at which none of their directors receives a *Légion d'honneur*. Evidence found in this paper indicates that recipients have a limited capacity—at least in the short term—to capture rents from their increased status post awards. Indeed, if they were able to fully scrap all the

benefits from their awards, their firms' value would not vary with awards attribution or could even decrease. We then show that abnormal returns tend to be larger if awards go with an increase in recipients' media coverage. This emphasizes the role of the media in transmitting information regarding recipients' characteristics.

In a second step, we explore the interpretation of state awards by market participants. Awards could a priori convey different sorts of signals such as recipients' proximity to policymakers, public recognition of outstanding performance, or signals of future industrial policy. We first rule out that awards are interpreted as signals of governments' future policies as the increase in recipients' firm valuation does not spread to firms of the same industry. Finally, we study the heterogeneity in the increase in firm valuation at cohort dates across two recipients' characteristics: their political connections and their firm performance before the award. We show that firms which were performing above the market in the year preceding an award given to one of their directors do not experience larger abnormal returns. We can therefore reject the interpretation that awards impact firms' stocks as they are primarily interpreted as a public confirmation of outstanding performance. Finally, we provide evidence that market reaction to awards is concentrated on those firms whose directors were not visibly connected with politicians in power before the award. In other words, awards convey new information to traders only when attributed to directors who were not visibly connected to policymakers ex ante, by contrast to those with a common background in the French elite schools. This interpretation is consistent with our quantitative analysis of the determinants of the *Légion d'honneur*,—as well as anecdotal evidence—, that shows that political connections increase the chances of receiving a *Légion d'honneur*. Our interpretation posits that traders interpret awards as signals of proximity to politicians in office for those directors non connected via visible shared background elite schools.

To put this in perspective with Bourdieu's view of symbolic capital as the legitimated form of social, cultural and economic capital (Bourdieu, 1979), *Légions d'honneur* to directors seem to take most of their symbolic value in confirming directors' *social* capital. Our findings suggest that even suspicion of favoritism in awards attribution may not alter the economic value of the awards. This contrasts with Bentham's view expressed in this paper's epigraph.[38] Awards may have *economic* value, precisely because they can reflect a proximity to politicians, more than past merits.

Our results question the benefits to have national awards without clear attribution cri-

[38] In the same spirit, Claude-Adrien Helvétius wrote *"Les honneurs entre les mains des princes ressemblent à ces talismans dont les fées font présent dans nos contes à leurs favoris ; ces talismans perdoient leur vertu sitôt qu'on en faisoit mauvais usage."* (Claude-Adrien Helvétius, 1795 – Œuvres complètes) which translates into "Honours in the hands of princes resemble those talismans with which the fairies, according to the fables, were wont to present their favourites: they lose their virtue whenever they are improperly employed." (translation from Jeremy Bentham, 1830).

teria. It also casts light on why individuals may ardently seek awards during their career, or why firms may have an incentive to pay more high-profile directors. As equivalents to the *Légion d'honneur* are widespread across space and time, our analysis can be extended to several contexts similar to that of France.

A few limitations to our study pertain. First, in our analysis of award attribution, recipients' firm performance is considered from the lenses of financial performance. However, it is possible that governments have their own criteria of performance for directors—e.g. job creation, innovation—, which they would use to decide upon awardees. Studying award attribution along these dimensions would require more extensive data and is left for further research. Secondly, the focus of this study is the impact of state honors to directors on their firm's value. Further research could explore the recipients' private benefits in terms of compensations, promotion, and job opportunities. We can, however, conjecture that directors do not fully capture their firms' benefits, as the stock value of recipients' firms increases post awards. Thirdly, our study quantifies the value of awards for the recipients' firms. It does not provide evidence that awards are detrimental or beneficial to society as a whole. In particular, we did not explore the incentive effects created by the existence of awards, neither we study spillovers on non-recipients that may lead to positive or negative social welfare impacts. Finally, although our paper discusses the determinants of awards' attribution among businesspeople, we left aside the study of broader governments' choices such as determining cohort size or the split of awards across job categories or genders. Analyzing the political economy of awards attribution, as a way to communicate to the general public, is an interesting topic for further research.

References for Chapter 3

Acemoglu, D., Johnson, S., Kermani, A., Kwak, J., and Mitton, T. (2016). The value of connections in turbulent times: Evidence from the United States. *Journal of Financial Economics*, 121(2):368–391.

Adams, R. B. and Ferreira, D. (2009). Women in the boardroom and their impact on governance and performance. *Journal of Financial Economics*, 94(2):291–309.

Adams, R. B. and Kirchmaier, T. (2016). Women on boards in finance and STEM industries. *American Economic Review*, 106(5):277–81.

Ager, P., Bursztyn, L., Leucht, L., and Voth, H.-J. (2018). Killer incentives: Relative position, performance and risk-taking among german fighter pilots, 1939-45. Technical report, NBER working paper, forthcoming at *Review of Economic Studies*.

Ahn, Daniel P. and Ludema, Rodney (2017). Measuring smartness: Understanding the economic impact of targeted sanctions. Technical report, United States Department of State.

Akey, P. (2015). Valuing changes in political networks: Evidence from campaign contributions to close congressional elections. *Review of Financial Studies*, 28(11):3188–3223.

Ashraf, N., Bandiera, O., and Jack, B. K. (2014). No margin, no mission? A field experiment on incentives for public service delivery. *Journal of Public Economics*, 120:1–17.

Atiase, R. K. (1985). Predisclosure information, firm capitalization, and security price behavior around earnings announcements. *Journal of Accounting Research*, 23(1):21–36.

Azoulay, P., Stuart, T., and Wang, Y. (2014). Matthew: Effect or fable? *Management Science*, 60(1):92–109.

Baltrunaite, A. (2020). Political contributions and public procurement: Evidence from Lithuania. *Journal of the European Economic Association*, 18(2):541–582.

Barker, V. L. and Mueller, G. C. (2002). CEO characteristics and firm R&D spending. *Management Science*, 48(6):782–801.

Bauer, M. and Bertin-Mourot, B. (1987). *Les deux cents: comment devient-on un grand patron?* Seuil, Paris.

Bentham, J. (1830). *The Rationale of Reward*, volume I, Chapter XVI. Robert Heward, London.

Bertrand, M., Kramarz, F., Schoar, A., and Thesmar, D. (2018). The cost of political connections. *Review of Finance*, 22(3):849–876.

Bertrand, M. and Schoar, A. (2003). Managing with style: The effect of managers on firm policies. *Quarterly Journal of Economics*, 118(4):1169–1208.

Best, J. (2008). Prize proliferation. *Sociological Forum*, 23(1):1–27.

Birnbaum, P. (1977). *Les sommets de l'État*. Seuil, Paris.

Boas, T. C., Hidalgo, F. D., and Richardson, N. P. (2014). The spoils of victory: Campaign donations and government contracts in Brazil. *Journal of Politics*, 76(2):415–429.

Borjas, G. J. and Doran, K. B. (2015). Prizes and productivity: How winning the fields medal affects scientific output. *Journal of Human Resources*, 50(3):728–758.

Bourdieu, P. (1979). *La distinction: Critique sociale du jugement*. Éditions de Minuit, Paris.

Bourdieu, P. (1985). The market of symbolic goods. *Poetics*, 14(1):13–44.

Bourdieu, P. (1989). *La noblesse d'État: Grandes écoles et esprit de corps*. Éditions de Minuit, Paris.

Bourdieu, P. and Guibert, B. (1995). L'état et la concentration du capital symbolique. In Théret, B., editor, *L'État, la finance et le social: souveraineté nationale et construction européenne*, pages 71–105. La Découverte, Paris.

Bourveau, T., Coulomb, R., and Sangnier, M. (2021). Political connections and white-collar crime: Evidence from insider trading in France. *Journal of the European Economic Association*, 19(5):2543–2576.

Braggion, F. (2011). Managers and (secret) social networks: The influence of the freemasonry on firm performance. *Journal of the European Economic Association*, 9(6):1053–1081.

Braggion, F. and Moore, L. (2013). The economic benefits of political connections in late Victorian Britain. *The Journal of Economic History*, 73(1):142–176.

Brown, J. (2011). Quitters never win: The (adverse) incentive effects of competing with superstars. *Journal of Political Economy*, 119(5):982–1013.

Brunt, L., Lerner, J., and Nicholas, T. (2012). Inducement prizes and innovation. *Journal of Industrial Economics*, 60(4):657–696.

Caille, F. (2004). L'honneur en crise: scandales politiques et usages sociaux de la dégradation de la Légion d'honneur à la fin du XIXe siècle. *Revue européenne d'histoire des ordres et décorations*, 5:295–309.

Capital (2017). Macron veut une Légion d'honneur plus sélective. Agence France-Presse (AFP), capital.fr, November 2.

Chan, H. F., Frey, B., Gallus, J., and Torgler, B. (2014). Academic honors and performance. *Labour Economics*, 31(C):188–204.

Chen, G., Hambrick, D. C., and Pollock, T. G. (2008). Puttin' on the ritz: Pre-IPO enlist-

ment of prestigious affiliates as deadline-induced remediation. *Academy of Management Journal*, 51(5):954–975.

Cingano, F. and Pinotti, P. (2013). Politicians at work: The private returns and social costs of political connections. *Journal of the European Economic Association*, 11(2):433–465.

Clark, G. (1986). *Symbols of excellence*. Cambridge University Press, Cambridge.

Clark, G. and Cummins, N. (2014). Surnames and social mobility in England, 1170–2012. *Human Nature*, 25(4):517–537.

Cooper, M., Gulen, H., and Ovtchinnikov, A. (2010). Corporate political contributions and stock returns. *Journal of Finance*, 65(2):687–724.

Cordwell, J. M. and Schwarz, R. A., editors (2011). *The fabrics of culture: The anthropology of clothing and adornment*. De Gruyter Mouton, The Hague, Paris, New York.

Correia, M. (2014). Political connections and SEC enforcement. *Journal of Accounting and Economics*, 57(2):241–262.

Coulomb, R. and Sangnier, M. (2014). The impact of political majorities on firm value: Do electoral promises or friendship connections matter? *Journal of Public Economics*, 115:158–170.

Cruz, C., Labonne, J., and Querubin, P. (2020). Social network structures and the politics of public goods provision: Evidence from the Philippines. *American Political Science Review*, 114(2):486–501.

Daniel, J. (1948). *La Légion d'honneur*. Éditions André Bonne, Paris.

Davidson, W. N., Xie, B., Xu, W., and Ning, Y. (2007). The influence of executive age, career horizon and incentives on pre-turnover earnings management. *Journal of Management & Governance*, 11(1):45–60.

Dube, A., Kaplan, E., and Naidu, S. (2011). Coups, corporations, and classified information. *Quarterly Journal of Economics*, 126(3):1375–1409.

Dudouet, F.-X. and Grémont, E. (2007). Les grands patrons et l'état en France. *Sociétés contemporaines*, 4(68):105–131.

English, J. F. (2005). *The economy of prestige: Prizes, awards, and the circulation of cultural value*. Harvard University Press, Cambridge, MA.

Faccio, M. (2006). Politically connected firms. *American Economic Review*, 96(1):369–386.

Faccio, M., Marchica, M.-T., and Mura, R. (2016). CEO gender, corporate risk-taking, and the efficiency of capital allocation. *Journal of Corporate Finance*, 39(C):193–209.

Faccio, M., Masulis, R. W., and McConnell, J. J. (2006). Political connections and corporate bailouts. *Journal of Finance*, 61(6):2597–2635.

Fafchamps, M. and Labonne, J. (2017). Do Politicians' Relatives Get Better Jobs?

Evidence from Municipal Elections. *Journal of Law, Economics, and Organization*, 33(2):268–300.

Fama, E. F. (1970). Efficient capital markets: A review of theory and empirical work. *Journal of Finance*, 25(2):383–417.

Fan, Y., Boateng, A., Ly, K. C., and Jiang, Y. (2021). Are bonds blind? Board-CEO social networks and firm risk. *Journal of Corporate Finance*, 68:101922.

Ferguson, T. and Voth, H.-J. (2008). Betting on Hitler-The value of political connections in Nazi Germany. *Quarterly Journal of Economics*, 123(1):101–137.

Fisman, R. (2001). Estimating the value of political connections. *American Economic Review*, 91(4):1095–1102.

Folke, O., Persson, T., and Rickne, J. (2017). Dynastic political rents? Economic benefits to relatives of top politicians. *Economic Journal*, 127(605):495–517.

Freeman, R. N. (1987). The association between accounting earnings and security returns for large and small firms. *Journal of Accounting and Economics*, 9(2):195–228.

Frey, B. S. (2007). Awards as compensation. *European Management Review*, 4(1):6–14.

Frey, B. S. and Gallus, J. (2017). Towards an economics of awards. *Journal of Economic Surveys*, 31(1):190–200.

Gagliarducci, S. and Manacorda, M. (2020). Politics in the family: Nepotism and the hiring decisions of Italian firms. *American Economic Journal: Applied Economics*, 12(2):67–95.

Gallus, J. (2017). Fostering public good contributions with symbolic awards: A large-scale natural field experiment at Wikipedia. *Management Science*, 63(12):3999–4015.

Ginsburgh, V. A. and Van Ours, J. C. (2003). Expert opinion and compensation: Evidence from a musical competition. *American Economic Review*, 93(1):289–296.

Gneezy, U. and Rustichini, A. (2000). Pay enough or don't pay at all. *Quarterly Journal of Economics*, 115(3):791–810.

Goldman, E., Rocholl, J., and So, J. (2013). Politically connected boards of directors and the allocation of procurement contracts. *Review of Finance*, 17(5):1617–1648.

Goode, W. J. (1978). *The Celebration of Heroes: Prestige as a Control System*. University of California Press, Berkeley, CA.

Gordon, S. and Hafer, C. (2005). Flexing muscle: Corporate political expenditures as signals to the bureaucracy. *American Political Science Review*, 99(2):245–261.

Grande Chancellerie de la Légion d'honneur (2018). Code de la Légion d'honneur.

Helvétius, Claude-Adrien (1795). *Œuvres complètes*, volume 14, LETTRE VII. P. Didot l'aîné, Paris.

Hermalin, B. E. and Weisbach, M. S. (1998). Endogenously chosen boards of directors and their monitoring of the CEO. *American Economic Review*, 88(1):96–118.

Hope, O.-K., Li, Y., Liu, Q., and Wu, H. (2019). The (in)visibility of political connections. Technical report, Available at SSRN 3363698.

Huang, Q., Jiang, F., Lie, E., and Yang, K. (2014). The role of investment banker directors in M&A. *Journal of Financial Economics*, 112(2):269–286.

Huberman, B. A., Loch, C. H., and Önçüler, A. (2004). Status as a valued resource. *Social Psychology Quarterly*, 67(1):103–114.

Ihl, O. (2006). The market of honors: On the bicentenary of the Legion of honor. *French Politics, Culture & Society*, 24(1):8–26.

Jayachandran, S. (2006). The Jeffords effect. *Journal of Law and Economics*, 49(2):397–425.

Jourdan, J.-P. (1991). Pour une histoire des traitements des fonctionnaires de l'administration au XIXe siècle : l'apport du bulletin des lois à travers les années 1789-1814. *Histoire, économie et société*, 10(2).

Journal officiel (2018). Décret n°2018-26 du 19 janvier 2018 fixant les contingents de croix de la Légion d'honneur pour la période du 1er janvier 2018 au 31 décembre 2020. January 21.

Journal officiel (2021). Arrêté du 17 mai 2021 relatif au prix de la pension et du trousseau des élèves des maisons d'éducation de la Légion d'honneur. May 23.

Kadushin, C. (1995). Friendship among the French financial elite. *American Sociological Review*, 60(2):202–221.

Khwaja, A. I. and Mian, A. (2005). Do lenders favor politically connected firms? Rent provision in an emerging financial market. *Quarterly Journal of Economics*, 120(4):1371–1411.

Knight, B. (2007). Are policy platforms capitalized into equity prices? Evidence from the Bush/Gore 2000 presidential election. *Journal of Public Economics*, 91(1–2):389–409.

Koh, K. (2011). Value or glamour? An empirical investigation of the effect of celebrity ceos on financial reporting practices and firm performance. *Accounting & Finance*, 51(2):517–547.

Kosfeld, M. and Neckermann, S. (2011). Getting more work for nothing? Symbolic awards and worker performance. *American Economic Journal: Microeconomics*, 3(3):86–99.

Kramarz, F. and Thesmar, D. (2013). Social networks in the boardroom. *Journal of the European Economic Association*, 11(4):780–807.

Le Figaro (2013). Ces autres Légions d'honneur qui ont fait polémique. Lefigaro.fr, May 8.

Le Figaro (2015). Ces personnalités qui ont refusé la Légion d'honneur. Raphaëlle De Tappie, Lefigaro.fr, January 1.

Le Parisien (2017). Macron veut réduire le nombre de décorés de la Légion d'honneur. LeParisien.fr, November 2.

Le Point (2010). RÉVÉLATION - quand Woerth remettait la Légion d'honneur à Patrice de Maistre, le conseiller de Liliane Bettencourt. Hervé Gattegno, LePoint.fr, June 22.

Le Républicain Lorrain (2018). Dictateurs, tricheurs, malfaisants : ils ont reçu la Légion d'honneur. Republicain-lorrain.fr, April 21.

Li, J., Shi, W., Connelly, B., Yi, X., and Qin, X. (2020). CEO awards and financial misconduct. *Journal of Management*. Online First.

Lieberman, M. B., Lau, L. J., and Williams, M. D. (1990). Firm-level productivity and management influence: A comparison of US and Japanese automobile producers. *Management Science*, 36(10):1193–1215.

Loua, T. (1892). La légion d'honneur. *Journal de la société française de statistique*, 33:270–271.

Luechinger, S. and Moser, C. (2014). The value of the revolving door: Political appointees and the stock market. *Journal of Public Economics*, 119:93–107.

MacKinlay, A. C. (1997). Event studies in economics and finance. *Journal of Economic Literature*, 35(1):13–39.

Malmendier, U. and Tate, G. (2005). CEO overconfidence and corporate investment. *Journal of Finance*, 60(6):2661–2700.

Malmendier, U. and Tate, G. (2008). Who makes acquisitions? CEO overconfidence and the market's reaction. *Journal of Financial Economics*, 89(1):20–43.

Malmendier, U. and Tate, G. (2009). Superstar CEOs. *Quarterly Journal of Economics*, 124(4):1593–1638.

Mauss, M. (1924). *The gift: Forms and functions of exchange in archaic societies.* Cohen and West, London.

Merton, R. K. (1968). The Matthew effect in science: The reward and communication systems of science are considered. *Science*, 159(3810):56–63.

Moser, P. and Nicholas, T. (2013). Prizes, publicity and patents: Non-monetary awards as a mechanism to encourage innovation. *Journal of Industrial Economics*, 61(3):763–788.

Neckermann, S., Cueni, R., and Frey, B. (2014). Awards at work. *Labour Economics*, 31(C):205–217.

Raffo, J. and Lhuillery, S. (2009). How to play the "Names Game": Patent retrieval comparing different heuristics. *Research Policy*, 38(10):1617–1627.

Sénat (1985). Annexe n°39 "Légion d'honneur — Ordre de la libération" (rapporteur spécial: M. Henri Duffaut) du "Tome III: Les moyens des services et les dispositions spéciales" du Rapport Général du Sénat. Annexe au procès-verbal de la séance du 21 novembre 1985.

Shores, D. (1990). The association between interim information and security returns surrounding earnings announcements. *Journal of Accounting Research*, 28(1):164–181.

Sud Ouest (2017). Légion d'honneur : bientôt la fin des excès et du copinage ? Sylvain Cottin, SudOuest.fr, November 11.

Suleiman, E. N. (1978). *Elites in French society: the politics of survival.* Princeton University Press, Princeton, NJ.

Tahoun, A. and van Lent, L. (2018). The personal wealth interests of politicians and government intervention in the economy. *Review of Finance*, 23(1):37–74.

Tulard, J. (1977). *Napoléon, ou le mythe du sauveur*. Fayard, Paris.

Van Zanten, A. and Maxwell, C. (2015). Elite education and the State in France: Durable ties and new challenges. *British Journal of Sociology of Education*, 36(1):71–94.

Vanity Fair (2016). Ces "salauds" qui ont reçu la Légion d'honneur. Paul Parant, Vanityfair.fr, March 25.

Veblen, T. (1899). *The Theory of the Leisure Class. An Economic Study in the Evolution of Institutions*. Macmillan, New York, NY.

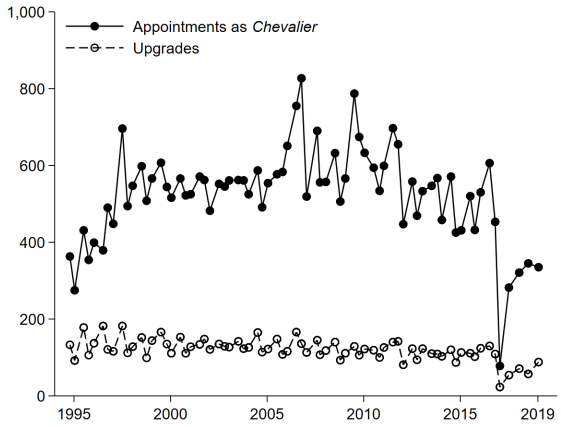
Wade, J. B., Porac, J. F., Pollock, T. G., and Graffin, S. D. (2006). The burden of celebrity: The impact of CEO certification contests on CEO pay and performance. *Academy of Management Journal*, 49(4):643–660.

Appendices to Chapter 3

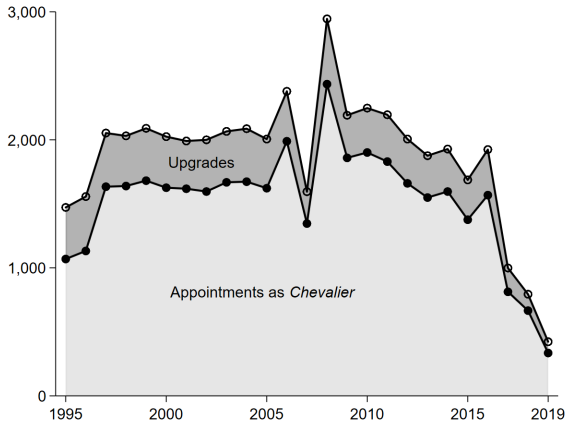
3.A Complementary figures

Figure 3.A.1: Number of *Légion d'honneur* recipients (all occupations) by cohort and by year without graphical modifications.

(a) By cohort.



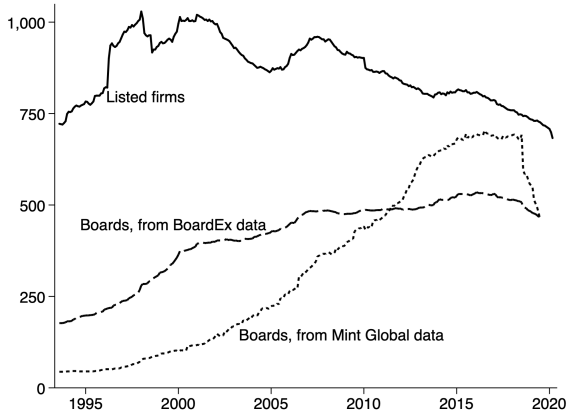
(b) By year, without graphical modifications.



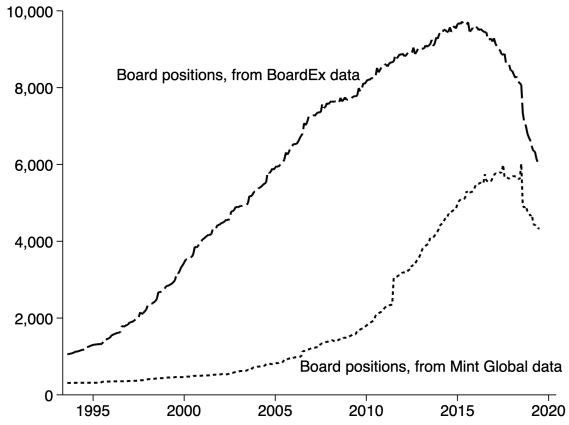
Notes: Panel 3.A.1a describes the raw number of recipients (all occupations) by cohort from 1995 to April 2019, who were nominated in the Order (at the rank of *Chevalier*) or promoted to a higher rank. Panel 3.A.1b describes the raw number of recipients each year from 1995 to April 2019, who were nominated in the Order (at the rank of *Chevalier*) or promoted to a higher rank. The variation between 2007 and 2008 is due to the fact that one promotion of 2007 was delayed to 2008. Only the January cohort is included for 2019.

Figure 3.A.2: Number of listed firms, number of firms with board composition information, and number of board positions.

(a) Firms.

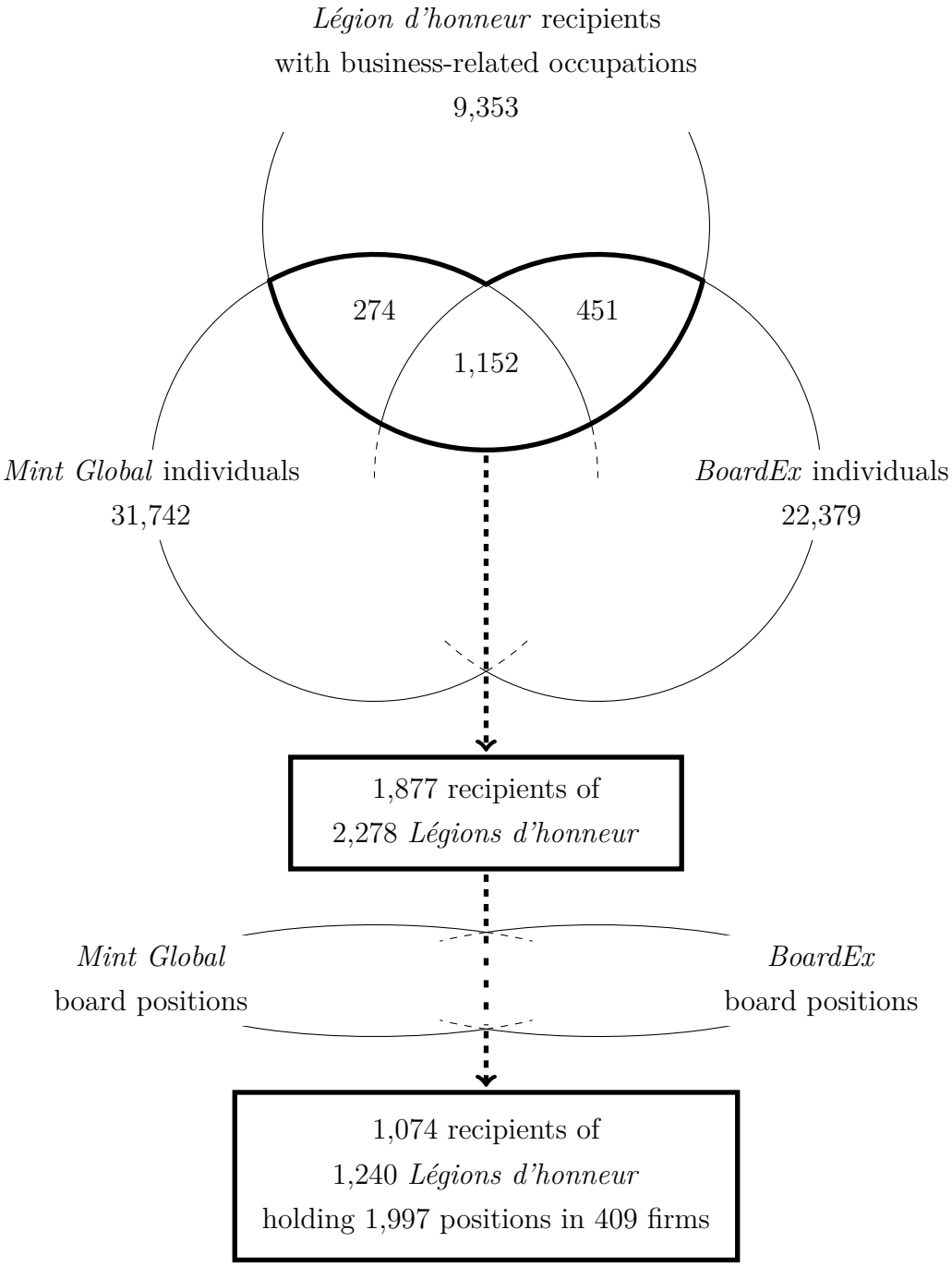


(b) Board positions.



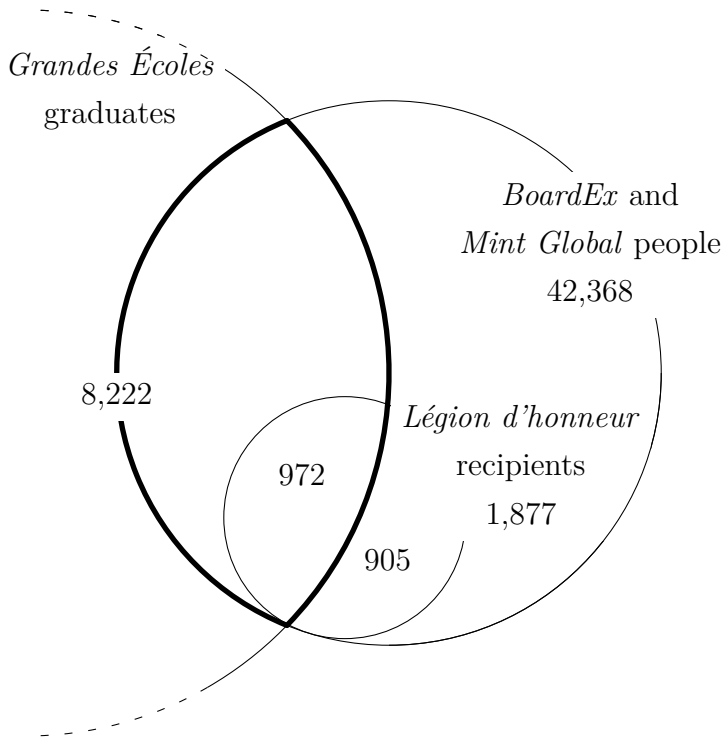
Notes: On Figure 3.A.2a, the number of *listed firms* is, for each month between January 1994 and August 2020, the number of firms for which a non-missing stock price is available from *Thomson Reuters Datastream*. The number of *boards, from BoardEx* and *boards, from Mint Global* are, for each month between January 1994 and December 2019, the number of firms for which information for at least one board member is available from *BoardEx* and *Mint Global* datasets, respectively, to the exclusion of firms that were not yet listed, and of firms that will not be listed anymore. On Figure 3.A.2b, the number of *board positions, from BoardEx* and *board positions, from Mint Global* are, for each month, the number of firms $\times$ individual for which information is available from *BoardEx* and *Mint Global* datasets, respectively. Information is considered as available on a specific month if the data contain a position that starts before and ends after the month under consideration. We again exclude firms that were not yet listed, and firms that will not be listed anymore.

Figure 3.A.3: Matching *Légion d'honneur* recipients and board positions.



Notes: See subsection 3.3.1 for more details.

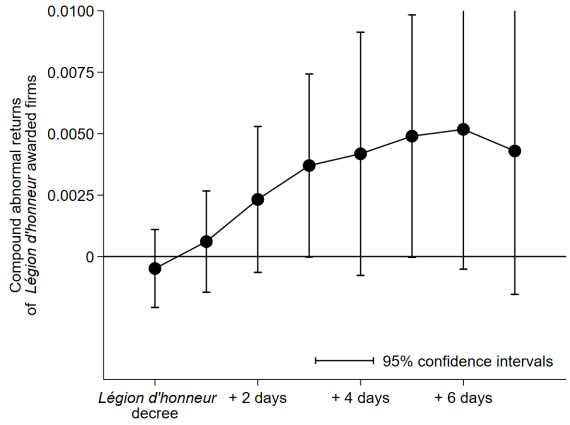
Figure 3.A.4: Matching *Grandes Écoles* alumni to board members.



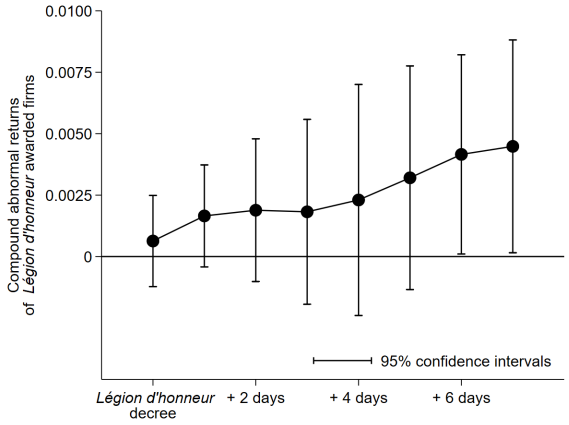
Notes: See subsection 3.3.2 for more details.

Figure 3.A.5: Compound abnormal returns of firms following the award of a *Légion d'honneur* to its directors depending on concurrent political speeches.

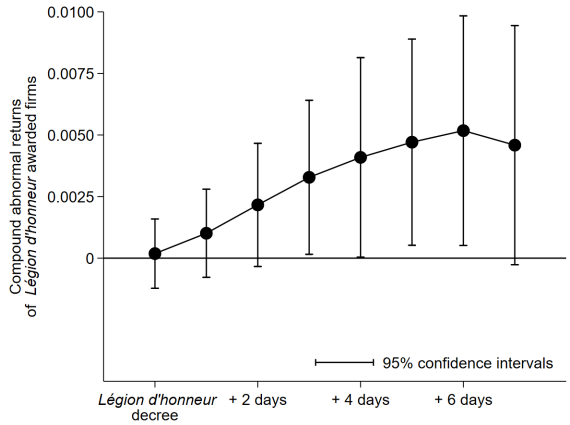
(a) No concurrent speech.



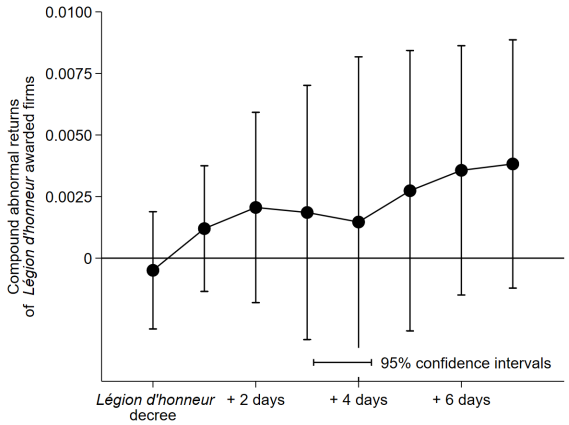
(b) Concurrent speech.



(c) No concurrent economic speech.



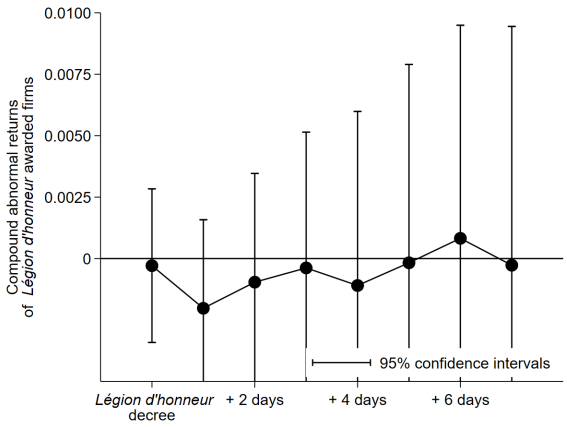
(d) Concurrent economic speech.



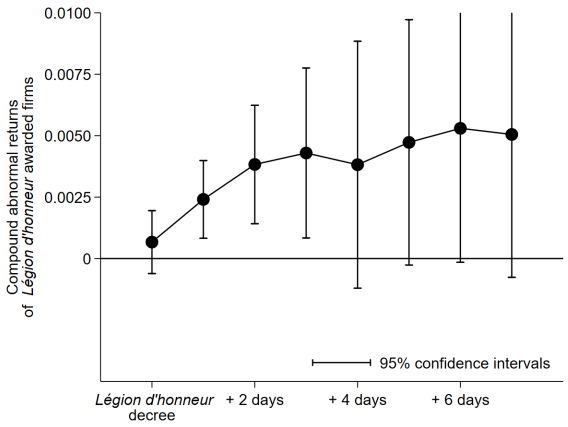
Notes: Observations are positions (firms × individual) at each cohort date. See the notes of Figure 3.4 for the construction of the compound abnormal returns. Figure 3.A.5a: the sample is restricted to cohorts without a presidential speech on the decree's issuance date nor the decree's publication date (1,015 positions). Figure 3.A.5b: the sample is restricted to cohorts with a presidential speech on the decree's issuance or publication dates (850 positions). Figure 3.A.5c: the sample is restricted to cohorts without a concurrent presidential speech that contains economic information (1,295 positions). Figure 3.A.5d: the sample is restricted to cohorts with a presidential speech on the decree's issuance or publication dates that contains some economic information (570 positions). See subsection 3.4.2 for the categorization of presidential speeches as containing some economic confirmation. Each cohort has the same weight. Standard errors are clustered at the cohort level.

Figure 3.A.6: Compound abnormal returns of firms following the award of a *Légion d'honneur*, by graduation and connection statuses of awarded directors: strict graduation cohort.

(a) Connected *Grandes Écoles* graduates.



(b) Non-connected *Grandes Écoles* graduates.



Notes: Observations are positions (firms × individual) at each cohort date. Each cohort has the same weight. Standard errors are clustered at the cohort level. Figure 3.A.6a uses 134 positions of graduates from one of the 15 most prestigious *Grandes Écoles* who graduated from the same *Grande École* and on the same year as a politician involved in the attribution of the award. Politicians considered as involved in the award's attribution are the President of the Republic, the Prime Minister, and the ministers and secretaries of State working in the ministry that officially attributes the *Légion d'honneur*, by the time of the award. Figure 3.A.6b uses 1,024 awards to graduates from one of the 15 most prestigious *Grandes Écoles* but not from the same school and same cohort as a politician involved in the attribution of the award. The complementary set is made of the 707 positions of directors who were not trained in any of the 15 most prestigious *Grandes Écoles*. Figure 3.8c displays the abnormal returns estimates when the sample is restricted to non-*Grandes Écoles* graduates.

3.B Complementary tables

Table 3.B.1: Occupations of *Légion d'honneur*'s recipients.

Occupation key	Obs. with key #	Obs. with key Share	Obs. with key as unique key #	Obs. with key as unique key Share
Academic	7,878	0.169	4,484	0.096
Accounting	202	0.004	71	0.002
Administration	5,492	0.118	2,688	0.058
Agriculture	901	0.019	368	0.008
Business	9,940	0.213	7,050	0.151
Craft	588	0.013	288	0.006
Culture	3,982	0.086	1,842	0.040
Engineer	749	0.016	178	0.004
Health	3,369	0.072	1,435	0.031
Law	3,209	0.069	2,655	0.057
Media	751	0.016	316	0.007
Police	2,200	0.047	1,542	0.033
Politics	5,226	0.112	3,345	0.072
Religion	522	0.011	386	0.008
Social	4,725	0.101	2,393	0.051
Sport	1,062	0.023	484	0.010
Union	692	0.015	279	0.006
War	2,662	0.057	1,574	0.034
Unknown or other	4,848	0.104	4,841	0.104

Notes: "Obs." stands for "observations". *Occupation keys* are the name of the categories used to group occupations of observed *Légion d'honneur*'s recipients. The sum of observations across keys differs from the total number of recipients as some observations were allocated to more than one occupation key. Similarly, the sum of shares across keys differs from 1. See Table 3.B.2 for a breakdown of observations that admit more than one occupation key.

Table 3.B.2: Occupations of *Légion d'honneur* recipients: breakdown of observations that admit more than one occupation key.

Occupation key	# of obs. with key as non-unique key	Share also admitting... *Academic*	*Accounting*	*Administration*	*Agriculture*	*Business*	*Craft*	*Culture*	*Engineer*	*Health*	*Law*	*Media*	*Police*	*Politics*	*Religion*	*Social*	*Sport*	*Union*	*War*	*Unknown or other*
Academic	3,394		0.003	0.220	0.016	0.107	0.007	0.128	0.038	0.341	0.020	0.010	0.018	0.071	0.019	0.109	0.024	0.007	0.021	0.002
Accounting	131	0.069		0.206		0.504		0.023		0.115	0.084		0.023	0.069		0.061		0.015	0.038	
Administration	2,804	0.266	0.010		0.015	0.129	0.002	0.065	0.105	0.071	0.066	0.006	0.141	0.226	0.002	0.043	0.025	0.006	0.010	0.000
Agriculture	533	0.103		0.081		0.371	0.013	1.690	0.023	0.019	0.006	0.002	0.006	0.176		0.101	0.008	0.203	0.064	
Business	2,890	0.126	0.023	0.126	0.069		0.056	0.146	0.054	0.061	0.046	0.047	0.018	0.166	0.005	0.107	0.099	0.061	0.027	
Craft	300	0.080		0.020	0.023	0.540		0.160	0.007	0.007	0.003	0.007	0.003	0.030	0.003	0.103	0.010	0.050	0.107	
Culture	2,140	0.203	0.001	0.086	0.421	0.197	0.022		0.011	0.014	0.009	0.100	0.003	0.091	0.004	0.135	0.016	0.061	0.033	
Engineer	571	0.226		0.515	0.021	0.271	0.004	0.040		0.023	0.002		0.016	0.117		0.047	0.032	0.009	0.011	
Health	1,934	0.599	0.008	0.103	0.005	0.092	0.001	0.016	0.007		0.013	0.003	0.032	0.067	0.011	0.132	0.012	0.012	0.023	
Law	554	0.125	0.020	0.334	0.005	0.238	0.002	0.036	0.002	0.047		0.004	0.018	0.125		0.171		0.025	0.018	
Media	435	0.076		0.039	0.002	0.313	0.005	0.494		0.011	0.005		0.002	0.037	0.007	0.087	0.055	0.032	0.016	
Police	658	0.094	0.005	0.602	0.005	0.079	0.002	0.011	0.014	0.094	0.015	0.002		0.076		0.065	0.008	0.002	0.027	
Politics	1,881	0.129	0.005	0.337	0.050	0.255	0.005	0.104	0.036	0.069	0.037	0.009	0.027		0.004	0.138	0.024	0.020	0.022	
Religion	136	0.463		0.044		0.103	0.007	0.059		0.154		0.022		0.051		0.088		0.015	0.132	
Social	2,332	0.159	0.003	0.051	0.023	0.132	0.013	0.124	0.012	0.110	0.041	0.016	0.018	0.111	0.005		0.037	0.028	0.321	
Sport	578	0.142		0.121	0.007	0.497	0.005	0.059	0.031	0.042		0.042	0.009	0.080		0.151		0.029	0.007	
Union	413	0.061	0.005	0.041	0.262	0.429	0.036	0.315	0.012	0.056	0.034	0.034	0.002	0.092	0.005	0.160	0.041		0.002	
War	1,088	0.064	0.005	0.027	0.031	0.071	0.029	0.065	0.006	0.041	0.009	0.006	0.017	0.038	0.017	0.688	0.004	0.001		
Unknown or other	7	0.857		0.143																

Notes: "Obs." stands for "observations". *Occupation keys* are the name of the categories used to group occupations of observed *Légion d'honneur* recipients. This table complements Table 3.B.1 and displays the breakdown of observations that admit more than one occupation key. Shares are expressed as proportions of the number of observations with the key indicated in the first column. The row-sum of shares exceeds one as some observations admit more than two occupation keys. Empty cells outside of the diagonal denote null shares.

Table 3.B.3: Relationship between education-based connections to members of the government and *Légion d'honneur* awards: displaying risk ratios of covariates and school fixed effects.

Dependent variable: Receiving a *Légion d'honneur*			
	(1)	(2)	(3)
Sample	All directors	*GÉ*-graduated directors	*GÉ*-graduated and *LH*-awarded directors
Grande École graduate	2.929***		
	(0.118)		
Graduated as member of gov.		1.609***	1.531***
		(0.125)	(0.143)
Age	1.044***	1.040***	1.009
	(0.002)	(0.003)	(0.007)
Female	1.398***	1.802***	1.117
	(0.123)	(0.177)	(0.117)
École Centrale Paris		1.086	0.937
		(0.131)	(0.121)
École Polytechnique		2.202***	0.925
		(0.172)	(0.081)
EM Lyon		0.404**	0.851
		(0.154)	(0.319)
ENA		3.180***	1.135
		(0.252)	(0.093)
ENS Cachan		0.388*	1.172
		(0.212)	(0.639)
ENS Ulm		1.269	0.962
		(0.244)	(0.186)
ENS Lyon		0.580	1.062
		(0.213)	(0.397)
ESCP		0.990	1.044
		(0.173)	(0.191)
ESPCI		1.530	0.938
		(0.629)	(0.387)
ESSEC		0.947	0.833
		(0.164)	(0.143)
HEC		1.105	0.876
		(0.119)	(0.095)
Mines Paris		1.851***	1.097
		(0.214)	(0.125)
Ponts et chaussées		1.403***	1.183
		(0.162)	(0.135)
Sciences Po Paris		1.122	0.835**
		(0.097)	(0.071)
Télécom Paris		1.052	0.965
		(0.180)	(0.164)
Observations	1,247,896	377,940	41,742
# of decorated people	1750	972	972
# of never decorated people	24498	6892	0

Notes: Columns 1, 2 and 3 are identical to columns 2, 4 and 6 of Table 3.3 but display risk ratios of covariates and school fixed effects. See notes of Table 3.3 for more details.

Table 3.B.4: Relationship between education-based connections to members of the government and *Légion d'honneur* awards: alternative definitions of connections.

Dependent variable: Receiving a *Légion d'honneur*				
	(1)	(2)	(3)	(4)
Sample	*GÉ*-graduated directors		*GÉ*-graduated and *LH*-awarded directors	
Graduated as member of gov. (strict)	2.017***	1.590***	1.486***	1.542***
	(0.123)	(0.113)	(0.100)	(0.124)
Graduated as member of gov. (overlap)	1.901***	1.624***	1.482***	1.638***
	(0.126)	(0.137)	(0.119)	(0.171)
Covariates		Yes		Yes
School fixed effects		Yes		Yes

Notes: Each cell displays the risk ratio from a separate estimation. Columns 1 and 2 mimic estimates displayed in columns 3 and 4 of Table 3.3. Columns 3 and 4 mimic estimates displayed in columns 5 and 6 of Table 3.3. The "Graduated as member of gov. (strict)" variable is a dummy variable equal to one if a director graduated from the same school and in the same year as a current member of the government. The "Graduated as member of gov. (overlap)" variable is a dummy variable equal to one if a director graduated from the same school as a current member of the government with at least partial overlap of study periods. See notes of Table 3.3 for more details.

Table 3.B.5: Compound abnormal returns of firms following the award of a *Légion d'honneur*: calibration periods of different length; and SBF 120 and CAC 40 market returns.

Compound ab. returns following *LH* award	Market return and length of calibration period									
	SBF 120 index					CAC 40 index				
	14 days	30 days	60 days	120 days	240 days	14 days	30 days	60 days	120 days	240 days
+ 0 day	0.0003	0.0003	-0.0001	0.0000	0.0001	0.0003	0.0004	-0.0001	0.0000	0.0001
	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)
+ 1 day	0.0013	0.0014**	0.0010	0.0011	0.0011	0.0014*	0.0015**	0.0010	0.0011	0.0012*
	(0.0008)	(0.0007)	(0.0007)	(0.0007)	(0.0007)	(0.0008)	(0.0007)	(0.0008)	(0.0007)	(0.0007)
+ 2 days	0.0026**	0.0028**	0.0020*	0.0021**	0.0023**	0.0028**	0.0029**	0.0021*	0.0022**	0.0024**
	(0.0012)	(0.0011)	(0.0011)	(0.0010)	(0.0010)	(0.0012)	(0.0011)	(0.0011)	(0.0011)	(0.0010)
+ 3 days	0.0028*	0.0032**	0.0029**	0.0029**	0.0031**	0.0031*	0.0034**	0.0031**	0.0032**	0.0032**
	(0.0015)	(0.0014)	(0.0014)	(0.0013)	(0.0012)	(0.0016)	(0.0015)	(0.0015)	(0.0014)	(0.0014)
+ 4 days	0.0027	0.0033*	0.0029	0.0034*	0.0037**	0.0032	0.0037**	0.0034*	0.0037**	0.0042**
	(0.0019)	(0.0018)	(0.0018)	(0.0017)	(0.0016)	(0.0019)	(0.0018)	(0.0019)	(0.0018)	(0.0017)
+ 5 days	0.0034*	0.0042**	0.0041**	0.0042**	0.0045***	0.0040*	0.0048**	0.0046**	0.0047***	0.0052***
	(0.0019)	(0.0017)	(0.0018)	(0.0017)	(0.0016)	(0.0020)	(0.0018)	(0.0019)	(0.0018)	(0.0017)
+ 6 days	0.0046**	0.0054***	0.0047**	0.0047**	0.0052***	0.0052**	0.0060***	0.0052**	0.0053***	0.0059***
	(0.0019)	(0.0019)	(0.0019)	(0.0018)	(0.0017)	(0.0020)	(0.0020)	(0.0020)	(0.0019)	(0.0018)
+ 7 days	0.0036*	0.0047**	0.0042**	0.0044**	0.0048***	0.0041**	0.0052**	0.0042**	0.0049**	0.0055***
	(0.0019)	(0.0019)	(0.0020)	(0.0019)	(0.0017)	(0.0020)	(0.0020)	(0.0020)	(0.0020)	(0.0019)

Notes: *** p<0.01, ** p<0.05, * p<0.1. Each cell displays an estimate from distinct regressions. Each cohort has the same weight. Standard errors clustered at the cohort level in parentheses. See the main text for the construction of abnormal returns. Columns 1–5 display abnormal returns using the SBF 120 as the market index. Columns 6–10 display abnormal returns using the CAC 40 as the market index. Columns 1 and 6, 2 and 7, 3 and 8, 4 and 9, 5 and 10, use abnormal returns that employ a 14-, 30-, 60-, 120- and 240-day calibration period, respectively. Rows 1–8 represent abnormal returns compounded over 0 to 7 days.

3.C The French *Légion d'honneur*

This Appendix complements the section 3.2 of the main text by presenting additional information about the *Légion d'honneur*.

3.C.1 History, ranks and cohorts

The *Légion d'honneur* is the most prestigious decoration in France and the oldest still given on behalf of the Head of State. Its *raison d'être* is to reward both military and civilian merits. It was founded on May 19, 1802, by First Consul Napoléon Bonaparte with "*Honneur et Patrie*" ("Honor and Fatherland") as motto. The *Légion d'honneur* articulates a tradition of awards and titles from the Old Regime (e.g., chivalry orders and ennoblement) with equality concerns that became more central in the public debate after the French Revolution: all citizen, from the civilian society or the military, regardless of their religion or whether they are of noble descent, are eligible to receive a *Légion d'honneur* if they have demonstrated remarkable merits when serving the nation.[39][40][41] The will to transcend apparent conflicting values with awards is best illustrated by Napoléon Bonaparte's address to the *Conseil d'État* on May 8, 1802: "*Le peuple français a deux passions également puissantes qui paraissent opposées et qui cependant dérivent du même sentiment, c'est l'amour de l'égalité et l'amour des distinctions. [...] Je défie qu'on me montre une république, ancienne ou moderne, dans laquelle il n'y a pas eu de distinctions. On appelle cela des hochets ; eh bien ! c'est avec des hochets qu'on mène les hommes !*"[42]

The Order is composed of three ranks and two dignities, that are, by increasing protocollary order: *Chevalier* (Knight), *Officier* (Officer), *Commandeur* (Commander), *Grand officier* (Grand Officer), and *Grand'croix* (Grand Cross). The most prestigious dignity of *Grand'croix* was added in 1805, the names of the different ranks and dignities have been unchanged since 1816.

The award is of exceptional longevity. It spans over more than two centuries and has been kept alive through all political systems since its creation, namely The Consulate,

[39] Only over a short period of time at the beginning of the Third Republic (1870–1873), the *Légion d'honneur* was restricted to the military.

[40] Despite women being not *de jure* excluded from the Order, the first female recipient was however decorated in 1851 only. Admission of women became more frequent during the Second Empire. However, until 2007, men were massively over-represented in the *Légion d'honneur* cohorts.

[41] The structure of the Order and its insignia (e.g., red ribbon) were partly influenced by the *Ordre Royal et Militaire de Saint-Louis*, a dynastic order of chivalry founded in 1693 by King Louis XIV. All chivalry orders were abolished by the French Revolution.

[42] Translation by the authors and Wikiquote: "The French people has two equally powerful and apparently opposed passions that arise from the same feeling that is love for equality and love for awards. [...] I challenge anyone to let me know about an, ancient or modern, republic in which there was no awards. You call these baubles, well, it is with baubles that men are led!"

First Empire, Bourbon Restoration, July Monarchy, Second Republic, Second Empire, Third Republic, Vichy Regime, Fourth Republic, and Fifth Republic. This explains part of its prestige and influence in France and abroad. The *Légion d'honneur* has actually served as a model for the design of many foreign decorations such as the National Order of the Lion in Senegal, the Order of the Republic in Tunisia, the National Order of Chad or the National Order of Madagascar (see subsection 3.C.4 for more details).

The *Légion d'honneur* is part of France's system of national awards. Out of the five awards given on behalf of the President of the Republic, only the *Légion d'honneur* and the *Ordre national du mérite* can be attributed to civilians for outstanding merits in their professional careers. The *Ordre national du mérite* was created in 1963 to reward a higher number of citizens for their accomplishments, while preserving the prestige of the *Légion d'honneur*. This award replaced about 60 awards created during the Third and Fourth Republics. With an annual cap on awardees three times larger than that of the *Légion d'honneur*, this decoration is less prestigious. It is ranked fourth in the protocollary order of national awards whereas the *Légion d'honneur* is ranked first. The other awards aim at rewarding or celebrating the military or civilians impacted by wars or terrorist attacks: the *Ordre de la libération*, the *Médaille militaire* and the recently created *Médaille nationale de reconnaissance aux victimes du terrorisme*. There are other official honors given on behalf of ministries (e.g., the *Ordre des Palmes académiques*, the *Ordre du Mérite agricole*, the *Ordre du Mérite maritime* and the *Ordre des Arts et des Lettres*) but those are less prestigious than the *Légion d'honneur* and cover only specific fields of activity.

The *Code de la Légion d'honneur* was initially established in 1962 to regroup previous texts and formalize the organization of the Order, its general philosophy, the criteria for nominations and promotions, the awarding process and the possible sanctions (see subsection 3.C.2 for more details). Following General Charles de Gaulle's wish to limit the number of living awardees to 125,000, the Code enacted the rule that at any point in time, there should be no more than 75 *Grand'croix*, 250 *Grand officiers*, 1,250 *Commandeurs*, 10,000 *Officiers*, and 113,425 *Chevaliers* in the Order.

Since then, the rules have been remarkably stable, with some changes concerning posthumous attributions, foreign recipients, or caps on recipients' number. In 2007, some nomination and promotion rules were amended: gender-parity was imposed at the cohort level, and citizens' initiatives were allowed to complement the traditional selection process.

Abstracting from military cohorts and special civilian cohorts, there were three cohorts in the *Légion d'honneur* each year from 1995 until 2018: January 1st, Easter's Sunday, and July 14th. The Easter cohort was suppressed by a 2018 decree, in line with the reduction by 50% of the annual number of recipients, capped at 1,500 for civilians and 1,100 for the military. Annual quotas on the number of recipients are set every three years

in a decree issued by the President of the Republic.

Although the military were predominant in *Légion d'honneur* cohorts all along the 19th century and in the first half of the 20th century, most recipients are now civilians. In 1814, there were about 1,400 civilians among the 40,000 members of the Order (Loua, 1892). Under the Bourbon Restoration, attributions were reduced and the Order counted about 30,000 members in 1830. Under the July Monarchy, the number of recipients increased to reach 47,122 before the 1848 Revolution. Until the Second Empire, military personnel accounted for about 75% of all members. The number of recipients reached about 64,000 at the end of the Second Empire. On May 25, 1891 (Third Republic), members were 43,851 with only 12,458 civilians. At the turn of the 20th century, there were just under 45,000 members of the *Légion d'honneur* Order. World Wars I and II, the Indochina war and the Algerian war led to an increase in the number of members: by 1962, the Order had 320,000 members. The Code enacted by Charles de Gaulle in 1962 limited the number of living awardees to 125,000. The number of members of the Order then decreased to reach 237,208 by May 31, 1985 according to a Sénat report. As reported by the official website of the *Grande Chancellerie de la Légion d'honneur*, the number of members was around 92,000 in 2021, with about half of them being civilians.

3.C.2 Prerequisites, path to nomination or promotion, sanctions

Légion d'honneur recipients must satisfy several criteria. First, the nominees must have exhibited outstanding merits in the service of the nation. According to *Code de la Légion d'honneur*, the *Légion d'honneur* is intended to reward eminent merits of civilians or military that benefited the French nation (*"la Légion d'honneur est la récompense des mérites éminents acquis au service de la nation soit à titre civil, soit sous les armes"*). As indicated on the official website of the *Grande Chancellerie de la Légion d'honneur*, the following criteria are consensual: (i) "Eminence of services: the ability to show quality of services, of actions, or of demanding and measurable commitments"; (ii) "Common benefit: having served the good of the nation rather than solely one's own interest (e.g., creating jobs, developing education, supporting the underprivileged, technological or medical innovation, artistic creativity)"; (iii) "Public awareness of merits: recognition for one's merits, standing out as a role model of civic engagement for fellow citizens, participating in France's renown abroad (whether through military intervention, athletic feats or economic influence)."

Second, honorees must have clean criminal record. Third, only French citizens can become full members of the Order. Foreigners can exceptionally be *distinguished* in the Order and can receive the award while not being members. Finally, a minimum of 20

years of activities—without any strict definition of "activities"—is necessary to enter the Order. There are a few exceptional awards each year for individuals who were killed or wounded when serving, such as military personnel, firefighters, rescuers, or police officers for which the previous rule does not apply. High-achieving individuals who have short careers due to the specificity of their field, such as Olympic gold medalists or FIFA World cup winners, can also be exempted of the 20-year of activity requirement.

Mayors, members of parliaments, cabinet members, local administrations, and, since 2007, citizens, can share lists of candidates with

prefects—the State's representatives in the local administrative units that are *départments* and *régions*—, which are then sent to ministries. For each nominee, ministers submit a case to the Grand Chancellor of the *Légion d'honneur*. Cases are reviewed to assess nominees' merits and to ensure they satisfy the selection criteria. The Council of the Order of the *Légion d'honneur* then deliberates on a list of potential recipients that is sent to the President of the Republic.[43] Under the current regulation, the President of the Republic, who is also the Grand Master of the Order, has the right to remove names from the list but is not allowed to add any. The President's decisions regarding nominations or promotions are finally transcribed in a decree and officially published in the *Journal officiel de la République française*.

Until 2008, French citizens could only enter the Order as *Chevaliers*. In 2008, the regulation was changed and entry became possible at *Officier*, *Commandeur* and *Grand officier* ranks for exceptional careers and services. However, most new members still enter the Order with the status of *Chevalier*. Promotions to a higher rank require new merits to be documented, and can be granted after a minimum number of years: eight years from the rank of *Chevalier* to that of *Officier*; five years from the rank of *Officier* to that of *Commandeur*; three years from the rank of *Commandeur* to the dignity of *Grand officier*; three years from the dignity of *Grand officier* to that of *Grand'croix*. The promotion process is otherwise similar to the nomination process at the rank of *Chevalier*, and promotions are also published in the *Journal officiel de la République française*.

Recipients are expected to behave in an honorable way, and their actions should not cast dishonor on the *Légion d'honneur* Order. Honorees who exhibit dishonorable behavior can face a disciplinary sanction. There exist three sanctions: the reprimand, the suspension, or the definitive exclusion (Articles R89 to R97 of the *Code de la Légion d'honneur*). The latter is automatic in case of a non-probationary prison sentence of

[43] The 16 members of the Council of the Order serve for a renewable four-year term. They are appointed by the President of the Republic from propositions by the Grand Chancellor. They are chosen from all sectors (e.g., industry, culture, education, government, military). The Council is composed of 14 holders of dignities (*Grand officiers* or *Grand'croix*), one *Officier* and one *Chevalier*. The Grand Chancellor is chosen by the President of the Republic among the *Grand'croix* honorees and appointed for a renewable 6-year term.

more than a year. Suspensions and definitive exclusions are published in the *Journal officiel*. These sanctions concern a handful of recipients, as illustrated by the fact that search queries made for such documents in the *Journal officiel* only return 106 results, the oldest being from 1852. See Caille (2004) for a study of sanctions and suspensions in the 19th century and for how these have been used by governments to reaffirm social and political values.

3.C.3 Non-tangible benefits and prestige

Becoming a member of the *Légion d'honneur* Order does not come with direct material privileges, nor tangible remunerations, and the membership cannot be inherited or transferred.[44]

The original setup designed by Napoléon Bonaparte included annual monetary payoffs of 5,000 francs to *Grands officiers*, 2,000 francs to *Commandeurs*, 1,000 francs to *Officiers* and 250 francs to *Légionnaires* (the first short-lived denomination of *Chevaliers*). In comparison, a Parisian worker earned 900 francs per year on average in 1801, and farm workers and specialized workers outside Paris area earned 360 and 500 francs per year on average, respectively (Tulard, 1977 and Jourdan, 1991). Stipends for new recipients were abandoned in 1814 under the reign of Louis XVIII. Nowadays, only military recipients receive a symbolic annual stipend (6.10€, 9.15€, 12.20€, 24.39€ and 36.59€ for *Chevalier*, *Officier*, *Commandeur*, *Grand officier* and *Grand'croix* ranks, respectively).[45]

Awardees have to pay for the award's certificate issuing fees (from 50€ for *Chevaliers* to 200€ for *Grand'croix* as of March 1, 2021) and to buy their insignia. Decorations are available from both public and private manufacturers. While medals cost from about 300€ to 1,500€ depending on the rank and the chosen material, discrete ribbons and rosettes start at less than 10€.

The only noticeable tangible benefit that has continued up to today is the possibility for daughters, granddaughters and great-granddaughters of recipients of the *Légion d'honneur* to apply for the *maisons d'éducation de la Légion d'honneur*. These institutions are prestigious selective boarding schools in the public secondary education system. Selected students are however not exempted from the tuition fees that amount to about 3,000€ per year by spring 2021 (Journal officiel, 2021).

[44] A short-lived exception was made possible by the Royal Edict of October 8, 1814 that defined restrictive conditions under which members of the *Légion d'honneur* could receive the nobility title of Knight, that could then be transferred to other generations. Such a possibility has been vetoed since 1875 and was officially abolished in 1932 (Ihl, 2006).

[45] On January 22, 1852, a pension system was installed for the *Légion d'honneur* recipients rewarded for their military achievements: 250 francs for a *Chevalier*, 500 francs for an *Officier*, 1,000 francs for a *Commandeur*, 2,000 francs for a *Grand officier* and 3,000 francs for a *Grand'croix*.

Finally, becoming a member of the *Légion d'honneur* Order does not come with new material connections between members of a *Légion d'honneur* cohort. Although, cohort gatherings and joint ceremonies took place in the first years of existence of the Order, these arrangements were terminated by a 1814 decree. Since then, there has been no more material link between cohort members (Daniel, 1948).

The main benefit of the *Légion d'honneur* is prestige. Anthropological and historical studies have shown that the use of artifacts to make visible social characteristics and symbolize power is ubiquitous and takes various forms such as for instance body marking, jewelry, decorations, ceremonial dresses and uniforms (Clark, 1986 and Cordwell and Schwarz, 2011). Insignia and ribbons represented in Figure 3.C.1 allow to visually signal the award and are actually worn by recipients. For instance, all presidents of the Fifth Republic wore a *Légion d'honneur* on their official portrait as shown by Figure 3.C.2. Business people also frequently wear *Légion d'honneur* ribbons as illustrated by Figure 3.C.3 that displays a sample of photos of CEOs of France's largest listed firms.

Figure 3.C.1: *Légion d'honneur* insignia and ribbons.

Notes: Top: Insignia - Source: Wikimedia Commons, Harold2012, CC BY-SA 3.0, legend and background removed. Bottom: Ribbons - Source : Wikimedia Commons, Public domain. From left to right: *Chevalier*, *Officier*, *Commandeur*, *Grand officier* and *Grand'croix*.

Figure 3.C.2: Official portraits of the eight Presidents of the Fifth Republic, wearing the insignia or red ribbon of the *Légion d'honneur*.

Notes: Trimmed official portraits of Presidents of the Fifth Republic. From left to right, top to bottom: Charles de Gaulle (1958–1965, 1965–1969; *Grand'croix* scarf; photo by Jean-Marie Marcel), George Pompidou (1969–1974; *Grand maître* collar; photo by François Pagès / Paris-Match), Valéry Giscard d'Estaing (1974–1981; red ribbon; photo by Jacques-Henri Lartigue), François Mitterrand (1981–1988, 1988–1995; red ribbon; photo by Gisèle Freund), Jacques Chirac (1995–2002, 2002–2007; red ribbon; photo by Bettina Rheims), Nicolas Sarkozy (2007–2012; red ribbon; photo by Philippe Warrin), François Hollande (2012–2017; red ribbon; photo by Raymond Depardon), Emmanuel Macron (2017–present; red ribbon; photo by Soazig de la Moissonnière). Source: www.vie-publique.fr, © DILA-La Documentation française.

Figure 3.C.3: Photos of CEOs of CAC 40 firms wearing red ribbons of the *Légion d'honneur*.


Benoît Potier
(Air Liquide) External photo


Martin Bouygues
(Bouygues)


Philippe Brassac
(Crédit Agricole)


Bernard Charlès
(Dassault Systèmes)

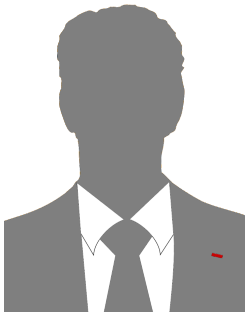

Jean-Paul Agon (L'Oréal)
External photo

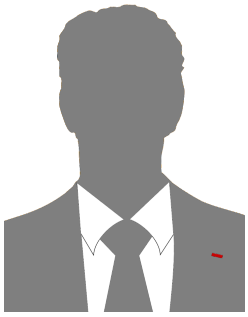

Bernard Arnault (LVMH)


Florent Menegaux (Michelin)


Stéphane Richard
(Orange)

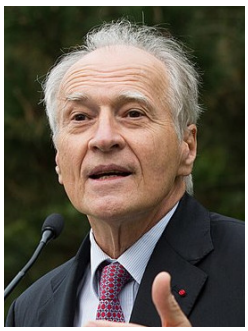

Olivier Andriès
(Safran) External photo

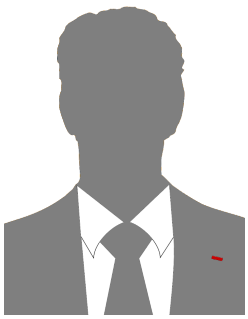

Pierre-André de Chalendar
(Saint Gobin) External photo


Patrice Caine
(Thales) External photo


Patrick Pouyanné
(Total)


Antoine Frérot
(Veolia)


Xavier Huillard
(Vinci)


Arnaud de Puyfontaine
(Vivendi) External photo


Gilles Grapinet
(Worldline)

Notes: Portraits of CEOs of CAC 40 firms (as of summer 2021) wearing *Légion d'honneur* ribbons. Sources of displayed photos, from left to right, top to bottom: Wikimedia Commons, Isabelle Franciosa, CC BY-SA 3.0; Wikimedia Commons, CA SAfr, CC BY-SA 4.0; flickr, World Economic Forum, CC BY-NC-SA 2.0; Wikimedia Commons, Jérémy Barande, CC BY-SA 2.0; flickr, International Transport Forumm, CC BY-NC-ND 2.0; Wikimedia Commons, Christophe Pelletier, CC BY 2.0; Wikimedia Commons, Jérémy Barande, CC BY-SA 2.0; Wikimedia Commons, *Ecole polytechnique Université Paris-Saclay*, CC BY-SA 2.0; Wikimedia Commons, *Ecole polytechnique Université Paris-Saclay*, CC BY-SA 2.0; Wikimedia Commons, ContributeurT, CC BY-SA 4.0. All photos trimmed. Silhouettes created by combining a clipart (Openclipart, Adgar, Public domain) and the *Chevalier* ribbon (Wikimedia Commons, Public domain).

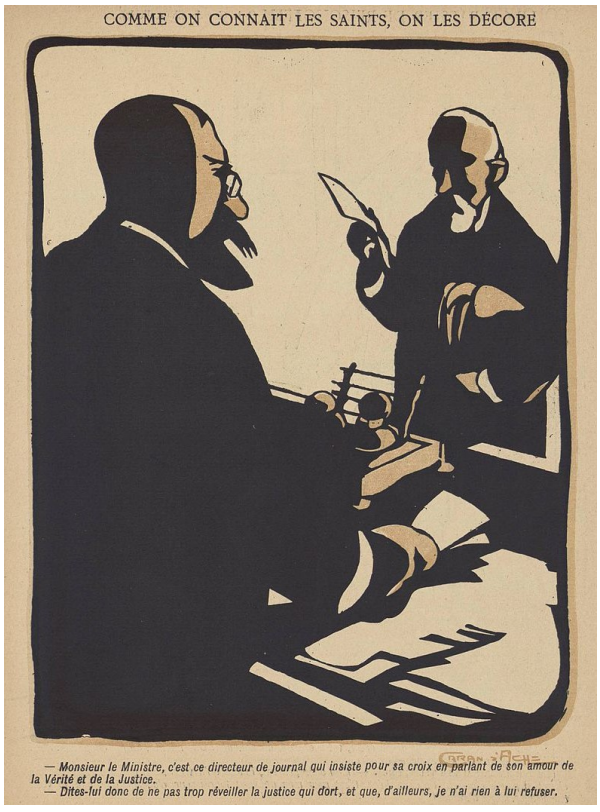
3.C.4 State awards in the rest of the world

Awards given by sovereign entities to civilians or military people can be found in all continents and under all political regimes, although the philosophy underpinning these awards may vary. According to lists available from Wikipedia and www.medals.org.uk—a private website that gathers information about decorations and orders around the world—, at least 92% of the countries in the world currently have a system of state awards for civilian merits as of 2021. Among the 38 OECD members, only Switzerland has no such system.

The French *Légion d'honneur* served as a model for many foreign state awards. Most former French colonies or protectorates have kept the French national order system or developed a main order similar to the *Légion d'honneur* organization with four or five ranks whose denominations are close to that of the *Légion d'honneur* Order (*Chevalier*, *Officier*, *Commandeur*, *Grand officier*, *Grand'croix* or *Grand cordon*). This is for instance the case of Benin, Burkina Faso, Cameroon, the Central African Republic, Chad, Comoros, Gabon, Guinea, Haiti, Ivory Coast, Lebanon, Madagascar, Mali, Mauritania, Niger, Senegal, Togo, and Tunisia. The insignia and ribbons often resemble those of the *Légion d'honneur*.

Figure 3.C.4: Political cartoons in *L'Assiette au Beurre* about the 1887 scandal of decorations.

Wilson and the wilsonism.
The broker. — One of *Commandeur*, two of *Officiers*, seven of *Chevaliers*. All in cash. Here are the funds. One more of *Chevalier*... with a deposit. That's for a wedding. They want to pay using the dowry. Here are the debt securities.



As we know saints, we decorate them.
— Mr. Minister, this newspaper editor insists about his medal by speaking of his love of Truth and Justice. — Tell him not to wake up the sleeping justice, and that I have nothing to refuse him.

The pub where we decorate.
— Sir Canivet, if I were you, I would let this one wait for his *Officier* cross. He owes me 37 francs in drinks and a 20-franc loan.

Continued on next page.

Figure 3.C.4: Political cartoons in *L'Assiette au Beurre* about the 1887 scandal of decorations (continued).

Administrative steps.

— Mr. Minister, I beg you for the cross! In the name of my children... you are a father too, you must understand me... In the name of my mother!... You must have a mother, Mr. Minister, she would understand me. — That's impossible, sir, I have nothing left.

— Mr. Minister!... Listen to me! If I insist, it's not because of my merits, which are thin. This is because of my commitment to you... to the French government... — Sir, leave me, or I call the police!

Administrative steps (continued).

— Hit me, but please listen to me, Mr. Minister! For God sake... Oh! I am sorry. In the name of [masonic] Lodges... — Damn... Here, is your medal.

— I did not ask anything. I told the Minister: If you deem me worthy of it, you are free. Me, asking for it? Never. I read about it in the [*Journal*] *Officiel*.

Notes: Political cartoons by Caran d'Ache published in *L'Assiette au Beurre* on January 4, 1802 and inspired by the 1887 *Légion d'honneur* trafficking by President Grévy's son-in-law, MP Daniel Wilson, in 1887. Caran d'Ache was known for his anti-Dreyfusard and antisemitic stand in the then famous satirical newspaper *L'Assiette au Beurre*. Translation by the authors. Source: Gallica BnF, Ⓒ Public domain.

3.D Coverage of board composition data

This paper's results build on the matching of several data sources. A crucial data construction step is the matching between the comprehensive list of *Légion d'honneur* awardees and the set of boards' positions. The latter data were assembled from *BoardEx* and *Mint Global (Bureau Van Dijk)*, two established data sources for board compositions. These sources exhibit incomplete and time-varying coverage as discussed in subsection 3.3.1 and illustrated by Figures 3.A.2a and b.

Only a specific pattern of incomplete coverage would represent a threat to identification and to interpretation of the results presented in the paper. This pattern would be such as the probability to observe a board position in *BoardEx* or *Mint Global* data is an increasing function of the stock market reaction to *Légion d'honneur* awards. As data providers may focus on specific industries and on large firms, we thus study the representativeness of the coverage of firms by *BoardEx* and *Mint Global* in terms of industry and firm size. We show below that the coverage of firms by *BoardEx* and *Mint Global* is not biased towards specific industries or firms of specific size, and that our results do not change after restricting the analysis to periods with better coverage of board positions in terms of industry and firm size.

We first construct for each firm the percentile rank of its market value among all French traded firms. Figure 3.D.1 reports the evolution over time of several indicators of the distribution of this percentile rank for firms in *Mint Global* and *BoardEx*. For these data sources to accurately represent the environment of firms listed in France, the x^{th} percentile of firm size among the union of these datasets should be around the x^{th} percentile of firm size among all firms, and the median around 50. Figure 3.D.1 suggests that firms covered by *Mint Global* and *BoardEx* represent well the rest of listed firms in France in terms of size. However, at the beginning of the time period, the sample of firms we observe in the data sources is composed of a greater share of large firms as compared to the universe of French listed firms. The median percentile in our board data is 62 in January 1995, but falls to 54 in January 2000 and 51 in January 2002.

To ensure that our main results are not driven by the selection of firms into board data at the beginning of the period of analysis, we compute the two-day compound abnormal returns of firms after restricting the time frame to sub-periods over which board data better represent the universe of firms in terms of market capitalization. We find a two-day compound abnormal return of 0.0023 (p-value = 0.033) over the 2000–2019 period, and of 0.0023 (p-value = 0.032) over the 2002–2019 period. As a comparison, the two-day compound abnormal returns over the complete time frame is 0.0021 (p-value = 0.042).

Next, we document the coverage of board data with respect to sectors of the economy. Building on *Thomson Reuters Datastream*'s industry level 2 classification, Figure 3.D.2

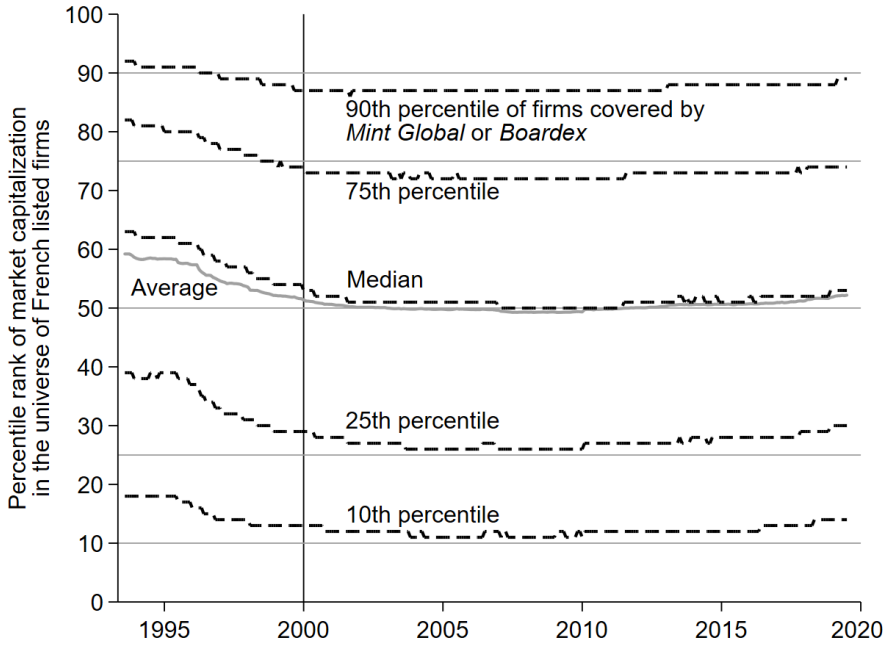
displays the evolution of the number of listed firms in each sector over time and that of firms covered by *BoardEx* and/or *Mint Global*. Overall, we do not observe major under- or over-representation of specific sectors over the period. However, the representativeness of the sample of firms from *BoardEx* and *Mint Global* in terms of sectors' coverage tends to improve after 2000.

Using the same industry classification, Figure 3.D.3 reports the evolution over time of the share of each sector in terms of market capitalization for all listed firms (solid lines) and firms covered by *BoardEx* and/or *Mint Global* (dashed lines). The latter data sources accurately represent—in level and in trend—the shares of each sector in the universe of traded firms. Still, we observe slightly lower representativeness until 2005, especially for Industrials, Health care, and Consumer goods and services.[46]

The fact that no sector appears as a clear outlier in the heterogeneity analysis from Figure 3.E.1 of Appendix 3.E suggests that our results are not due to sectoral coverage issues in the first years of boards' data. To corroborate this claim, we compute the two-day compound abnormal returns of firms whose directors receive a *Légion d'honneur* after January 2005 when sectors are better covered by our board data. We find a positive and significant two-day compound abnormal return of 0.0026 (p-value = 0.039). This indicates that the imperfect coverage of boards' sources in the early period of our study does not drive our results.

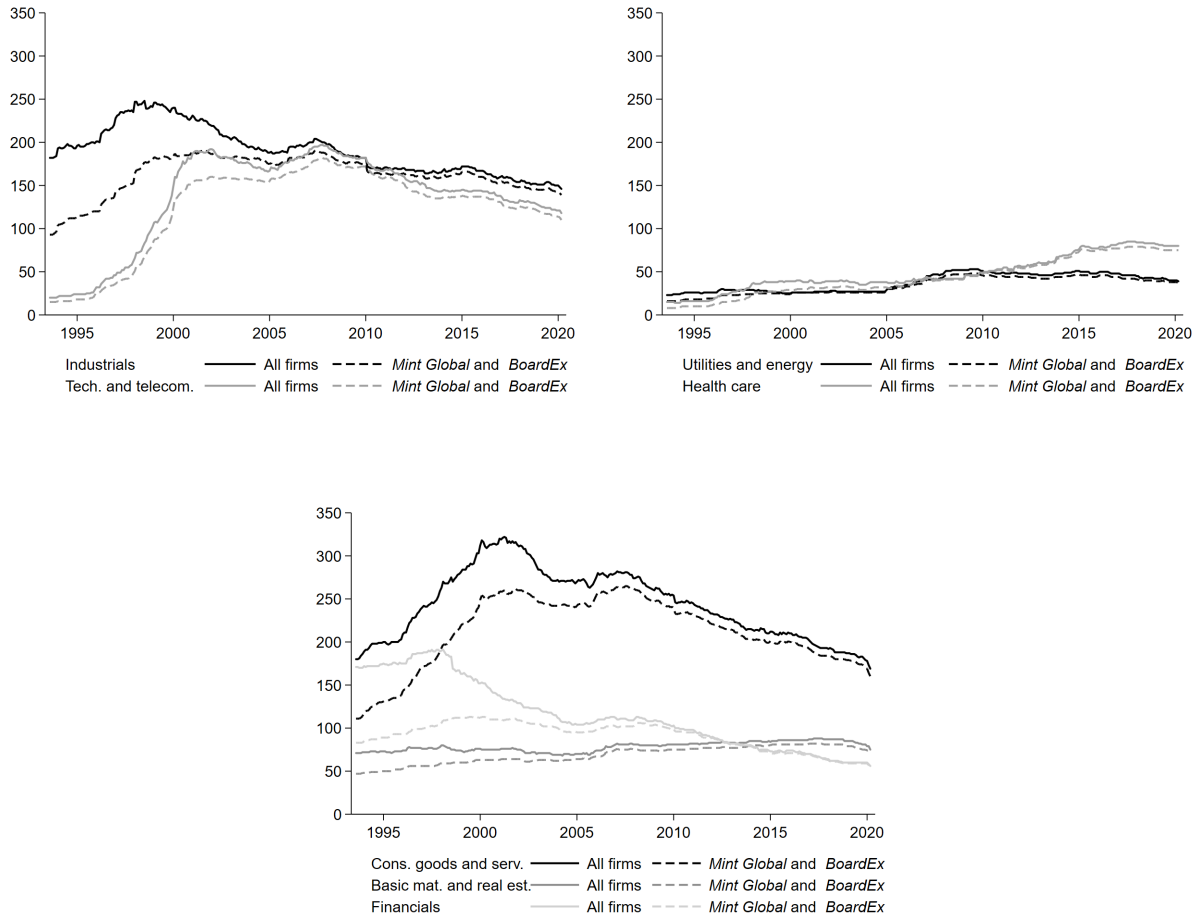
[46] Using independent samples t-tests, we find a difference in means between the two groups—firms covered in boards' datasets and all traded firms—of 0.021 before 2005 against 0.009 after 2005 for firms in the Industrials category, 0.059 against 0.010 for Health care, and -0.095 against -0.020 for Consumer goods and services. Although differences in means after 2005 remain significantly different from zero, they are up to 6 times smaller and the sample becomes markedly more representative.

Figure 3.D.1: Coverage of board datasets: distribution of market capitalization.



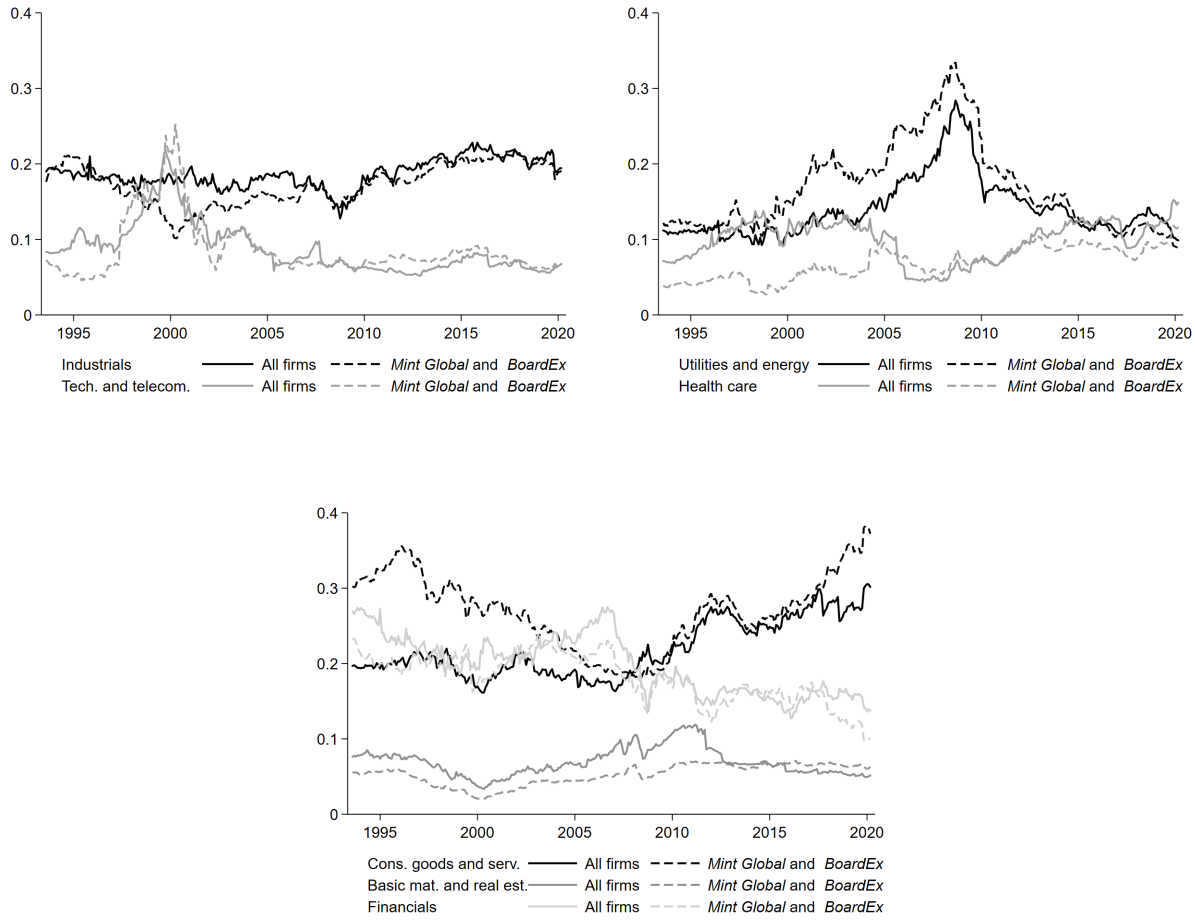
Notes: The figure plots the monthly value of the percentile rank in the distribution of the market capitalization of French listed firms for different percentile ranks of the distribution of market capitalization among firms covered by *Mint Global* and *BoardEx*. The percentile rank in the distribution of the market capitalization of French listed firms is computed among the entire universe of firms listed in France collected from *Datastream*. We report the average, median, 10^{th}, 25^{th}, 75^{th}, and 90^{th} percentile values of the percentile rank. For boards' data sources to accurately represent listed firms, the k^{th} percentile should be a horizontal line that intersects with the y-axis at k. The vertical line signals June 2000.

Figure 3.D.2: Coverage of board datasets: number of firms by industry.



Notes: These figures report the number of firms in each industry, either for all traded firms (solid lines), or for traded firms covered by *Mint Global* and/or *BoardEx* (dashed lines). "Tech. and telecom.", "Cons. goods and serv." and "Basic mat. and real est." stand for "Technology and telecommunications", "Consumer goods and services" and "Basic materials and real estate", respectively.

Figure 3.D.3: Coverage of board datasets: share of total market capitalization by industry.



Notes: These figures report the share of each industry in terms of market capitalization, either among all firms (solid lines), or for firms covered by *Mint Global* and *BoardEx* (dashed lines). "Tech. and telecom.", "Cons. goods and serv." and "Basic mat. and real est." stand for "Technology and telecommunications", "Consumer goods and services" and "Basic materials and real estate", respectively.

3.E Additional heterogeneity analyses

This Appendix presents additional analyses of the heterogeneity in market reaction to *Légion d'honneur* awards.

We first split the sample along *Thomson Reuters Datastream*'s industry level 2 classification. Figure 3.E.1 displays the 2-day compound abnormal returns after the *Légion d'honneur* award for six distinct industries, as well as for the full sample for comparison (grey shaded area). Although point estimates do differ, we find no significant difference between industries, mostly because of the increase in standard errors that goes with the lower number of observations in each group. Still, the point estimate for firms engaged in financial services is the smallest. This may suggest either that firms in the financial sector are better known by traders and consequently that *Légion d'honneur* awards to their directors provide less additional information, or that benefiting from a connection to the political majority in place is less exploitable by financial firms, perhaps as they may contract less with the State.

Figure 3.E.2 explores the heterogeneity in market reaction to *Légion d'honneur* awards along the size of firms. We first reconstruct, at each cohort date, a pseudo SBF 120 and a pseudo CAC 40 that include the then 120 and 40 largest capitalizations, respectively. We also construct quartiles of market capitalization at each cohort date. Figure 3.E.2 displays the 2-day compound abnormal returns for each of these groups of firms and shows that market reaction is concentrated in smaller firms. This is consistent with the fact that larger firms are better followed by market analysts (Atiase, 1985, Freeman, 1987 and Shores, 1990) such that managerial characteristics are a priori better priced into these firms' stocks, making awards less informative for large rather than for small firms. In addition, the recognition by the State of an individual's characteristics (e.g. performance or social network) is more likely to impact smaller firms than larger firms in which performance is the product of a larger number of people.

Boards are composed of executive and non-executive directors, whose role is a priori less continuous in firms' strategical development.[47] However, Figures 3.E.3a and b show that the value of firms is comparably influenced by the attribution of a *Légion d'honneur* to their executive or non-executive directors.

By contrast, the gender of the recipient seems to matter. As illustrated by Figures 3.E.4a and b, there is no significant market reaction when a female director receives a *Légion d'honneur* as compared to when a male director is decorated. Figures 3.E.4c and

[47] As an individual can hold multiple positions in a firm at the same time, we define a position as "executive" at a given date if at least one of the job descriptions of an individual in a firm at that date corresponds to an executive job.

d show that we observe no significant abnormal returns for female recipients before as well as after 2008—the year gender-balanced cohorts were instated. This suggests that this result is structural and not simply driven by the additional female recipients allowed by the quotas.[48] However, women are under-represented among awarded directors as they amount for less than 15% of the observations, such that the low precision associated with awards to female recipients call for caution in concluding about the market reaction following these awards.

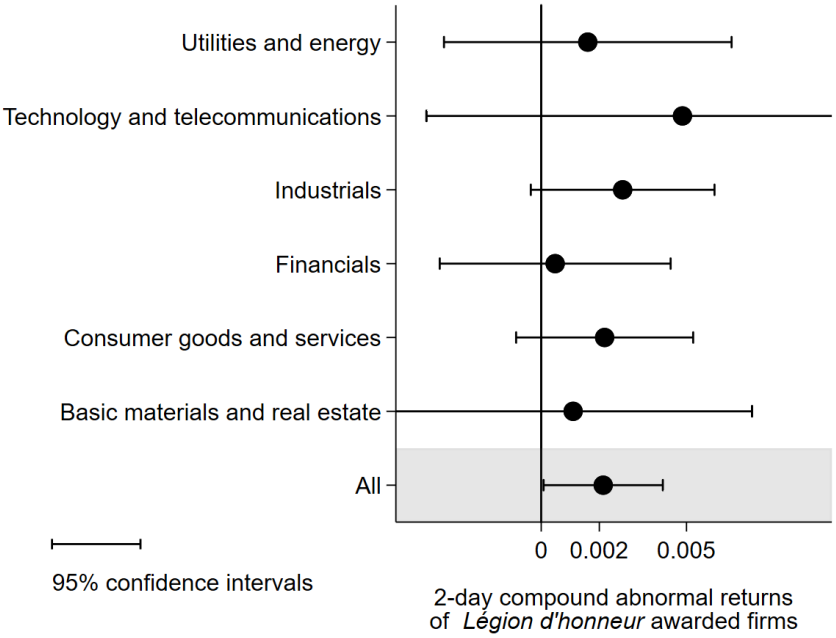
As shown by Figures 3.E.5a–c, the market reaction to awards does not appear to vary much with the rank of the award. While compound abnormal returns seem to be larger for the highest ranks (*Commandeur*, *Grand officier* or *Grand'croix*) than for *Chevalier* and *Officier* ranks, they are also less precisely estimated because of the lower number of promotions to these highest ranks.

About 60% of awarded *Légions d'honneur* we observe are officially given on behalf of the Ministry for the Economy and Finance. Figures 3.E.6a and b plot compound abnormal returns of firms' stock depending on whether the award was attributed on behalf of this Ministry or of other entities. There are no striking differences between both series of estimates.

Finally, Figures 3.E.7a–e split the sample of awards between the terms of the five French presidents of the 1995–2019 period. It seems that the market reaction to *Légion d'honneur* awards has been larger during the first presidential term of Jacques Chirac and the presidency of Nicolas Sarkozy. These periods stand in sharp contrast to the second term of Jacques Chirac and to the term of François Hollande during which abnormal returns seem lower and eventually converge to 0. Sharp conclusions are however hard to draw as sub-periods mechanically yield to larger standard errors because of fewer observations in each sub-sample. Estimates obtained for the incomplete term of Emmanuel Macron illustrate this quite well.

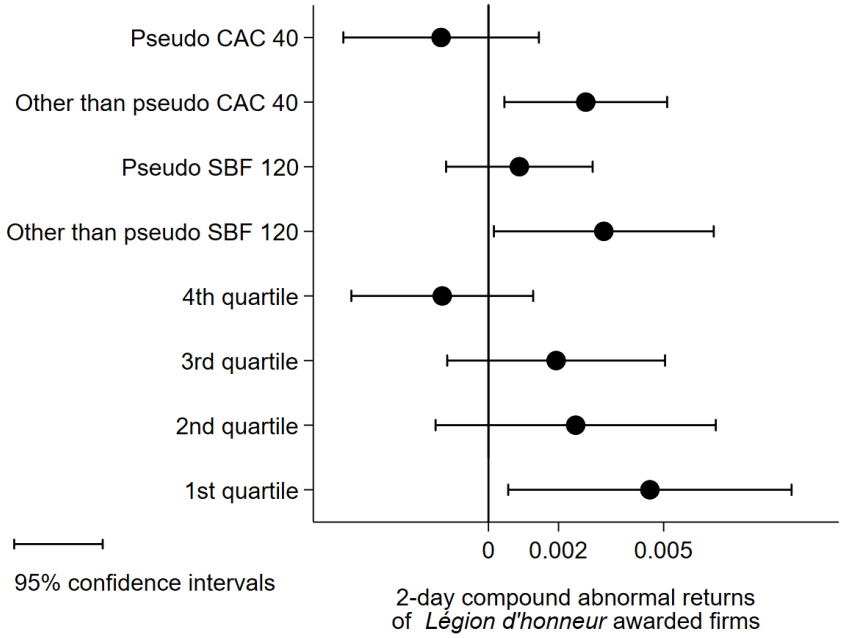
[48] There was no gender quota over the 1995–2007 period. Business women accounted for 4.7% of awarded directors over this period, against 25.2% since 2008. This implies that *Légion d'honneur* awards among business directors are not gender-balanced and that the balance at the cohort level is satisfied through more female awards in other fields.

Figure 3.E.1: Compound abnormal returns of firms following the award of a *Légion d'honneur*, by industry.



Notes: See notes of Figure 3.4. We use *Thomson Reuters Datastream*'s industry level 2 classification and proceed to some additional aggregation such as "Energy", "Oil & Gas" and "Utilities" under the "Utilities and energy" category, or "Technology" with "Telecommunications". The number of observations by industry are as follows. *Utilities and energy*: 164 positions; *Technology and telecommunications*: 156 positions; *Industrials*: 540 positions; *Financials*: 354 positions; *Consumer goods and services*: 522 positions; *Basic materials and real estate*: 129 positions.

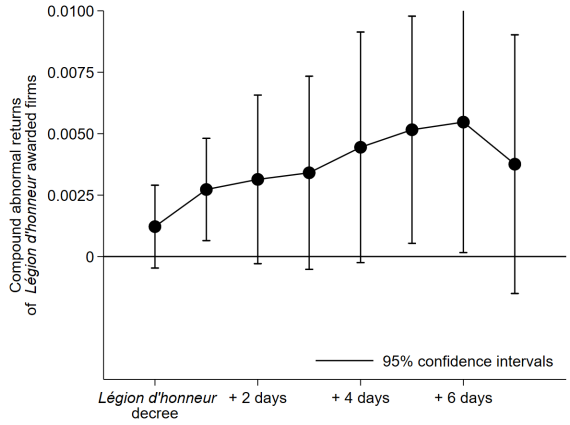
Figure 3.E.2: Compound abnormal returns of firms following the award of a *Légion d'honneur*, by firm size.



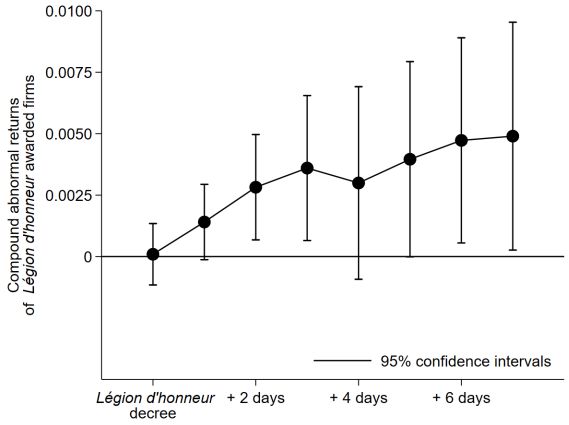
Notes: See notes of Figure 3.4. The distribution of firms' market capitalization has been reconstructed for each *Légion d'honneur* cohort date. The *pseudo CAC 40* and *pseudo SBF 120* include the 40 and 120 largest market capitalizations by each date, respectively. The number of observations by group are as follows. 304 (941) positions of directors of pseudo CAC 40 (SBF 120) firms; 1,561 (924) positions of directors of firms out of the pseudo CAC 40 (SBF 120); 470, 524, 479 and 392 positions of directors in the first, second, third and fourth quartile for firms' market capitalization.

Figure 3.E.3: Compound abnormal returns of firms following the award of a *Légion d'honneur*, by executive status of the awarded director.

(a) Executive directors.



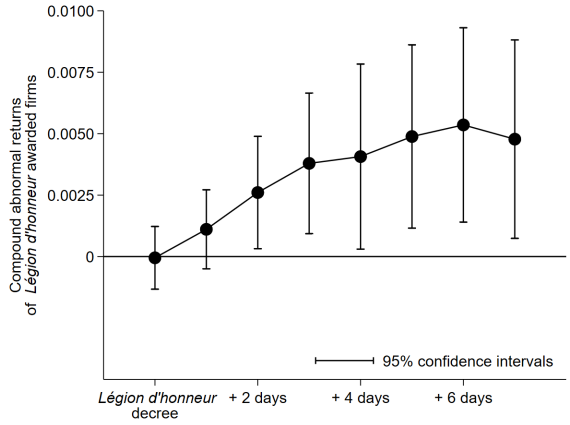
(b) Non-executive directors.



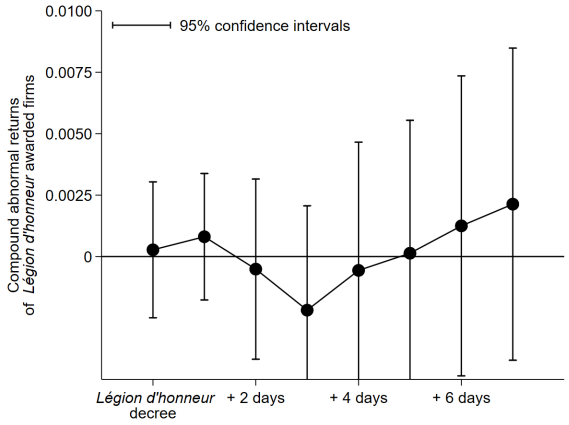
Notes: See notes of Figure 3.4. Observations are split according to the executive status of the awarded director. There are 1,430 positions of executive directors and 435 of non-executive directors.

Figure 3.E.4: Compound abnormal returns of firms following the award of a *Légion d'honneur*, by gender of the recipient.

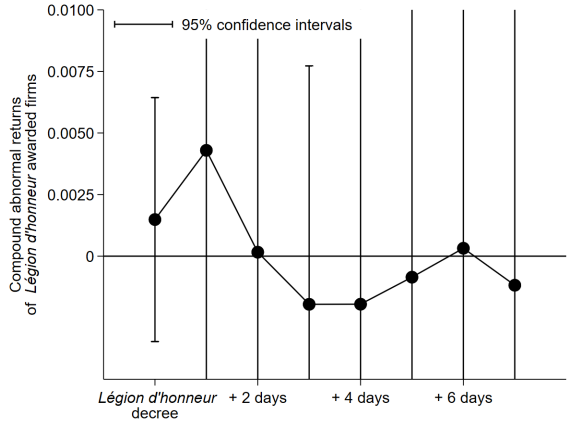
(a) Men.



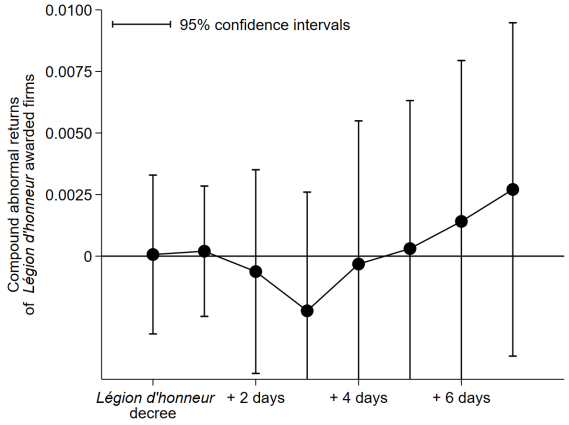
(b) Women.



(c) Women, before 2008.



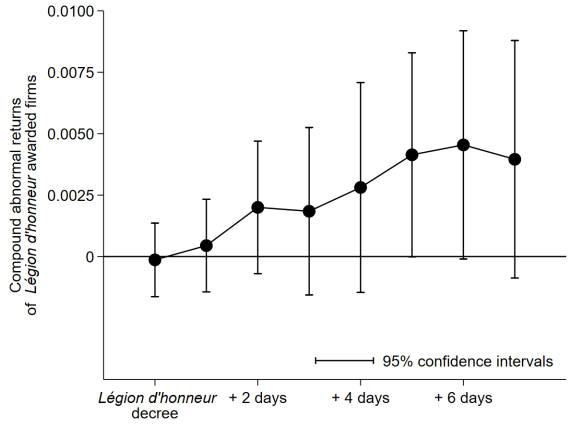
(d) Women, since 2008.



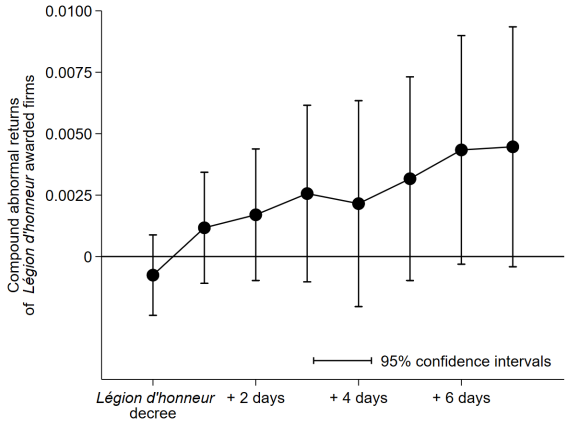
Notes: See notes of Figure 3.4. In Figures 3.E.4a and b, observations are split according to the gender of the recipient. There are 1,588 positions of male recipients and 277 positions of female recipients. Since 2008, *Légion d'honneur* cohorts must be gender-balanced (the requirement applies at the full cohort level, not to awarded firms' directors). Figure 3.E.4c uses 52 positions of female directors before 2008. Figure 3.E.4d uses 225 positions of female directors since 2008.

Figure 3.E.5: Compound abnormal returns of firms following the award of a *Légion d'honneur*, by award's rank.

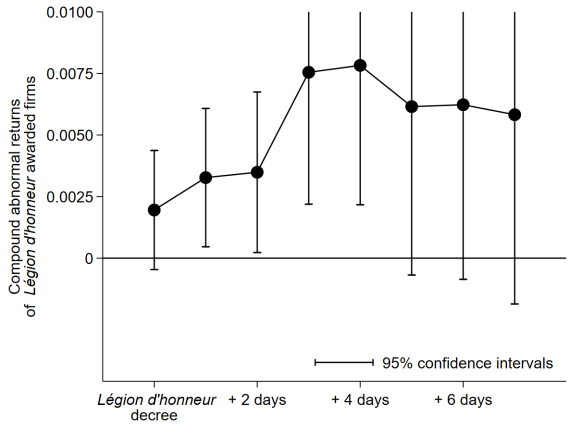
(a) *Chevaliers.*



(b) *Officiers.*



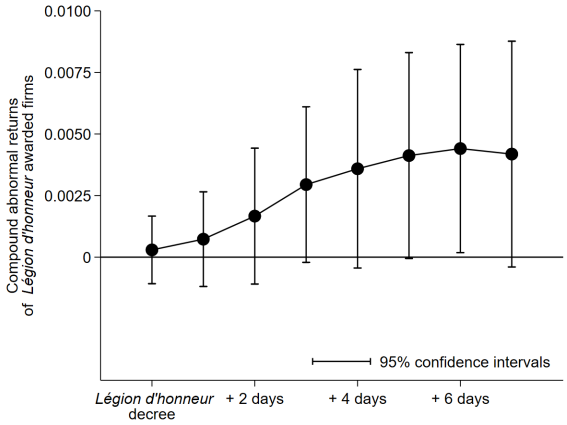
(c) *Commandeurs, Grands officiers* or *Grand'croix.*



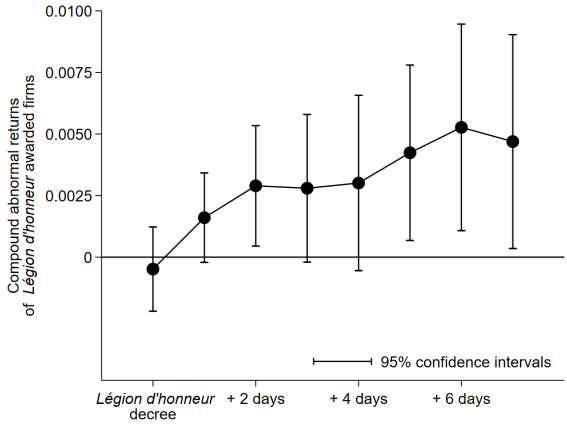
Notes: See notes of Figure 3.4. Observations are split according to the rank of the award. The number of observations by rank is as follows. *Chevalier*: 1,067 positions; *Officier*: 516 positions; *Commandeurs*, *Grands officiers* or *Grand'croix*: 282 positions.

Figure 3.E.6: Compound abnormal returns of firms following the award of a *Légion d'honneur*, depending on the entity on behalf of which the award is attributed.

(a) Ministry for the Economy and Finance (*Bercy*).



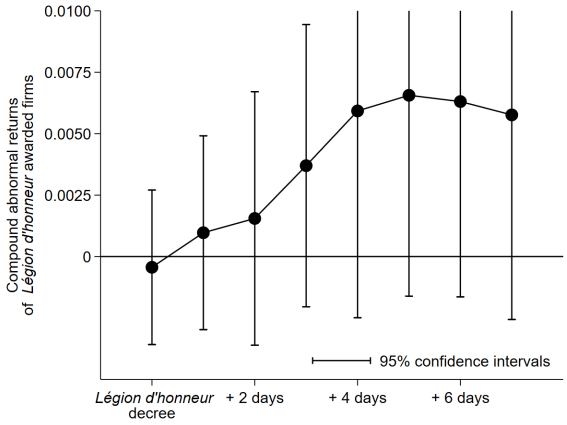
(b) Other entities.



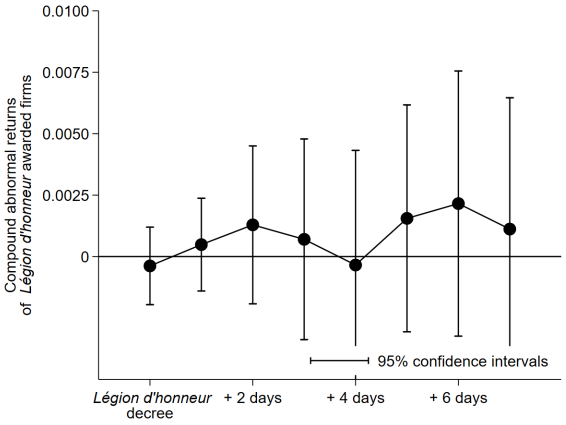
Notes: See notes of Figure 3.4. Observations are split according to the entity on behalf of which the award is granted, as recorded in *Légion d'honneur* decrees. 1,151 positions are associated with awards granted by the *Ministry for the Economy and Finance (Bercy)*. 714 positions are associated to other awarding entities, including by order of importance: Prime Minister, Ministry of environment, housing or transports, Ministry of Defense, Ministry of Foreign Affairs, Presidency of the Republic, *Chancellerie de la Légion d'honneur*. As the portfolio of ministries slightly evolves over time, we classify as Ministry for the Economy and Finance (Bercy) the ministries containing the following keywords in their labels: *économie* (economy), *finance* (finance), *budget* (budget), *commerce* (trade), *consommation* (consumption), *industrie* (industry), *redressement productif* (productive recovery), *comptes publics* (public accounts), *entreprises* (companies), *plan de relance* (stimulus package), *emploi* (employment), *travail* (labor), or *égalite professionnelle* (professional equality).

Figure 3.E.7: Compound abnormal returns of firms following the award of a *Légion d'honneur*, by presidential mandate.

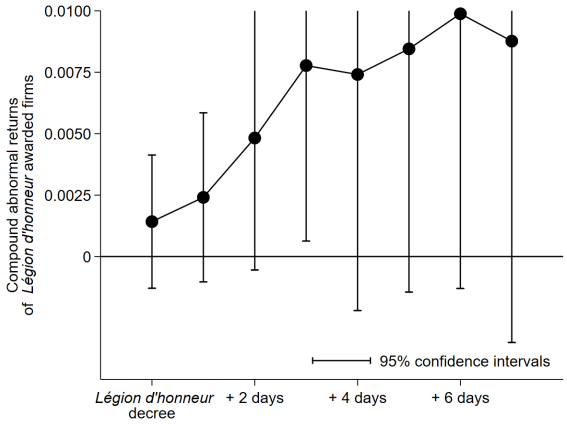
(a) J. Chirac, 1st term (1995–2002).



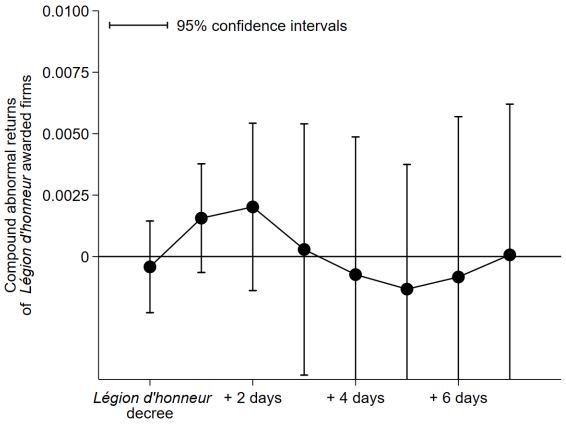
(b) J. Chirac, 2nd term (2002–2007).



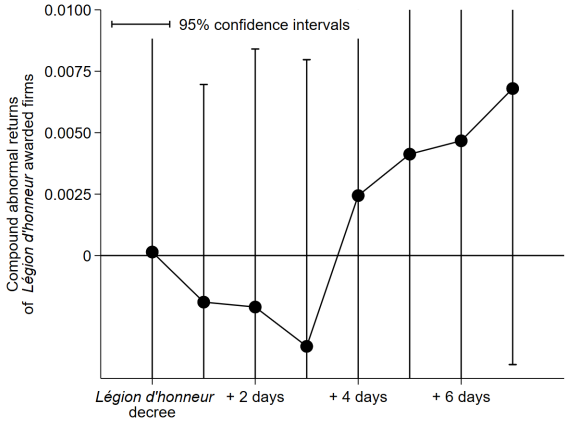
(c) N. Sarkozy (2007–2012).



(d) F. Hollande (2012–2017).



(e) E. Macron (2017–2019).



Notes: Notes: See notes of Figure 3.4. The number of observations by presidential term is as follows. Chirac, 1st term: 388 positions; Chirac 2nd term: 523 positions; Sarkozy: 465 positions; Hollande: 406 positions; Macron: 70 positions. The 13 positions of the April 1995 *Légion d'honneur* cohort (Mitterrand's second term) are excluded.

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Grandes Écoles in the 20th century, the Field of the French Elites: Social Reproduction, Dynasties, Networks

Stéphane Benveniste

Short abstract

Constituted by three self-contained chapters, this dissertation documents, from a historical perspective, the pervasive and long-lasting influence of the most prestigious *Grandes Écoles* on the constitution of the French elites. To that end, we constructed an original dataset on 374,719 graduates registered between 1886 and 2015 in 12 *Grandes Écoles*. First, the schools' admission process is characterized by a substantial intergenerational reproduction, which perpetuates over generations and remained stable for all cohorts born since 1916. Second, even among their graduates, access to prominent positions in politics and business remains determined by social origins. Finally, alumni networks connect the political and business elites, and have a durable influence on social outcomes, for instance through higher chances to receive a prestigious state award, the *Légion d'honneur*, from a school peer.

Résumé court

Constituée de trois chapitres autonomes, cette thèse documente, dans une perspective historique, l'influence généralisée et durable des Grandes Écoles les plus prestigieuses sur la structuration des élites françaises. Pour ce faire, nous avons construit une base de données originale couvrant 374 719 diplômés admis entre 1886 et 2015 dans 12 Grandes Écoles. L'admission dans ces écoles est caractérisée par une importante reproduction intergénérationnelle, qui se perpétue sur plusieurs générations et est demeurée stable pour les cohortes nées depuis 1916. En outre, même parmi les admis, l'accès aux postes politiques et économiques prestigieux demeure influencé par l'origine sociale. Enfin, les réseaux de diplômés connectent les élites politique et économique, et exercent une influence durable sur la réussite sociale, par exemple à travers une probabilité plus élevée de recevoir la légion d'honneur de la part d'un collègue de promotion.