

Open the Board: Nepotistic vs. Merit-based Director Selection*

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Abstract

We examine the board selection effects on growth and productivity using administrative data on board members of the universe of Italian limited liability companies. We document that measures of nepotistic director selection – based on family links and geographical ties – relate negatively to merit-based appointments based on of directors’ industry experience. We then study how the lack of board openness to talent linked to nepotistic director selection affects firms’ performance. To establish causality of the relationship, we rely on an instrumental variable strategy that exploits exogenous variation in firm access to the market pool of potential directors. We show that firms, which lack experienced directors and rely on in-family or in-region director selection, grow slower, have more difficult access to external financing and lower productivity. The results are in line with a meritocratically selected boards improving firms’ performance.

Keywords: Board of directors, limited liability firms, corporate governance, nepotism, meritocracy, firm performance.

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1 Introduction

Shareholders appoint a board of directors to ensure firm's proper use of their financing. And it works well on average – value of a firm increases in board quality. Independent, experienced board members, who share common skills, increase the likelihood of firm's good performance (e.g., Adams et al., 2018; Dahya et al., 2008; Field and Mkrtchyan, 2017). There is a bulk of evidence on how board selection matters for the performance of listed firms, in particular, in the US. Yet, the number of public firms is decreasing worldwide (The Economist, 2017). Even in OECD countries small and medium enterprises (SMEs) account for about 60 percent of employment and total value added. These facts highlight the need of examining the board effects on firm performance in smaller companies.¹ Moreover, with the US public firms being unusually large and strictly regulated, evidence from the other countries may be very valuable.²

To the best of our knowledge there is only one paper examining the relationship between private firm's performance and board characteristics. Using data on small and midsize Finnish firms Eisenberg et al. (1998) show that the correlation between board size and firm profitability is negative and significant. Using a large set of firms and an instrument to show causality, we focus instead on how board selection in private firms affects their outcomes. In particular, we test two main hypotheses. First, we examine whether firms face a trade-off between nepotistic and merit-based board selection. Second, we analyze the effect of board openness – as opposed to nepotism-driven preference for in-family directors – on firm's growth, financing and productivity.

The analysis relies on a rich novel database on the universe of Italian limited liability companies in the period 2005-2016. More specifically, we combine administrative data on the identities and demographic characteristics of board members with firm-level information on its age, location, industry and balance sheet indicators. The dataset comprises 1.1 million

¹SMEs account for 60 percent of employment and total value added in OECD countries (OECD, 2017).

²According to World Bank in 2017 the stock market capitalization to GDP ratio was 1.65 in the US, but only 0.78 in the Euro area, 0.66 in Israel, 0.56 in Arab World, 0.71 in China

firm-year observations, information on more than 180 thousand firms and 770 thousand unique individuals who have held positions on their boards.

We begin our analysis by defining measures which capture the presence of nepotistic and meritocratic board selection. First, as for the former, we use a fraction of the same surname directors as a measure of the owning-family presence on the board. Moreover, we use a fraction of directors born in the same province as the firm's headquarters as a proxy for location-based ties (e.g. Ferreira et al., 2017; Kramarz and Thesmar, 2013). Second, we define measures which relate to meritocratic board selection. In line with the literature using measures of board experience (e.g. Ferreira et al., 2017; Field and Mkrtchyan, 2017), we use the measure of director experience on boards of other companies in general, and in the industry in which the firm is operating. Furthermore, we consider the fraction of directors born abroad as a proxy of external and general life experience.

We document a strong negative relationship between a nepotistic and a merit-based board selection, which is in line with several implications. First, relying on relatives and friends in the board room may hinder firm access to a broader pool of talent from which to choose director appointments (consistent with the evidence in Perez-Gonzalez (2006) on family CEOs in listed US firms). Second, shareholders are likely to choose the directors in one of the two ways, keeping the number of directors fixed. This finding is in line with the literature showing that firms are unlikely to benefit from increasing the size of a board (e.g. Eisenberg et al., 1998; Yermack, 1996).

Frictions in director search may lead to firms appointing a related person as a second-best alternative. If it was the case, then companies with a higher number of in-family directors would be more likely to respond to reduction in director search and hiring costs. Yet, we show that director turnover is lower among firms with related members of the board (3.6 percent and 8.1 percent on average, respectively) and that these firms react to the reduction of director costs to the lower extent. This significant difference in director turnover is in line with related people being appointed to boards not only because of search frictions, but also because of pure nepotistic preferences.

Second, we present evidence that the lack of board openness linked to nepotistic director selection worsens firms' performance. To overcome the endogenous board selection – e.g., worse firms may fail to recognize the importance on seeking experienced directors – we rely on an instrumental variable strategy that exploits exogenous variation in firm access to the market pool of potential directors. More specifically, we use the staggered introduction of the high-speed train lines between different Italian towns and show that the reduction in transportation time costs facilitates board openness.

We concentrate on the revenue growth as the main dependent variable. The results indicate that firms, which lack experienced directors and rely on in-family or in-region director selection, grow slower. The results are particularly strong for firms in the first and second tercile of the size distribution which are more likely to have a restricted potential pool of talents for their boards. Relaxing these restrictions by opening a pool of talents allow them to utilize directors' expertise and increase their growth at a higher marginal rate. Furthermore, we use the indicators of assets growth, access to external finance and total factor productivity to better characterize the consequences of firm growth patterns on its financing and efficiency. The results are in line with the main findings. Meritocratic board selection leads to a faster increase in firm size, leverage and productivity.

By examining board openness, we contribute to studies that evaluate the relationship between firm-outsiders on the board and its performance. Using data on public firms, past literature finds mixed results. The relationship between firm value and independence of its board is positive (e.g. Dahya et al., 2008; Knyazeva et al., 2013), negative (Armstrong et al., 2014) or dependent on information costs (Duchin et al., 2010). This paper contributes the existing literature by providing novel evidence that board openness has a positive effect on private firm's performance. In a broader sense, it also contributes to studies analyzing the relationship between board composition and firm outcomes (e.g. Adams et al., 2018; Eisenberg et al., 1998; Field and Mkrtchyan, 2017; Yermack, 1996).

Finally, this study adds to literature on the labor market for corporate directors (e.g. Adams et al., 2017; Becher et al., 2017; Cai et al., 2017; Ferreira et al., 2017) in two ways.

First, differently from public firms (Denis and Sarin, 1999), we show that the board turnover is infrequent among private firms – the average board turnover is 6 percent. Second, firms with nepotistic board selection practices tend to appoint related people at the expense of experienced and more valuable directors. Our evidence illustrates that the reduction in director costs may loosen this hurdle, with positive effects on firm outcomes.

The remainder of the paper is organized as follows. Section 2 describes the data and variables used in the empirical analysis. Section 3 outlines the empirical strategy based on the instrumental variables estimations. Section 4 presents the main results of the paper. Finally, Section 5 concludes.

2 Data

2.1 Data and variable definitions

The analysis relies on two main datasets. The first one is *Infocamere* database which is based on administrative data on the Italian firms gathered by provincial Chambers of Commerce. It contains information on the registration data of the universe of Italian private non-financial sector firms. Most important, this dataset includes personal information on firms' stockholders, managers and directors, i.e., name, surname and personal identification code. We use them to derive their age, gender, place of birth and family relations. The second data source is the database managed by the *Cerved Group* which gathers balance sheet information of the universe of the Italian limited liability firms. Our sample comprises all nonfinancial non-micro³ firms included in the intersection of the *Infocamere* and *Cerved* databases for the years from 2005 to 2016 (the longest available panel for both datasets) for which there are available data to compute measures of board characteristics and firm performance, as described below.

The main dependent variables are derived from these balance sheet data which represent

³The original data include also micro-firms with the total annual revenues below 2 million EUR. Given the low potential of these firms to invest non-negligible amount of resources in board selection and remuneration, we exclude them from our analysis.

a firm’s annual levels of revenues, assets, equity and debt in million EUR, winsorized at 1 percent and 99 percent levels. We also compute a measure of the total factor productivity *TFP* using Levinsohn and Petrin (2003) semiparametric estimator that addresses the simultaneity bias.

The main explanatory variable of interest is *SameName* which is defined as a fraction of firm directors who share the same surname with the family controlling the firm.⁴ It captures the extent to which a firm relies on the nepotistic selection in their board composition. We also define two alternative measures to proxy for this phenomenon. *LocalBorn* is defined as a fraction of firm directors who are born in the same province in which the firm is located. *DirOwnership* is defined as the fraction of directors who own stock of the company. Next, to measure the extent of merit-based board selection, we build indicators of directors’ experience outside the firm, i.e., in other companies. More precisely, *Experience* and *ExperienceSec* are defined as a fraction of directors that have directorship experience in an Italian firm and in an Italian firm in the same sector, respectively. Furthermore, we also create measures of a broader general life experience, such as being a foreigner or foreign descendant: *ForeignBorn* and *ForeignName* are defined as a fraction of firm’s directors who are, respectively, foreign-born and are born in Italy, but have a foreign last name.

2.2 Summary statistics

Table 1 shows descriptive statistics of the main firm and board characteristics for more than 1 million firm-year observations. A median firm in the sample collects around 3.5 million EUR in revenues annually and has issued over 0.5 million EUR in debt. Importantly, in the period of the analysis, almost a quarter of all firm-year observations were affected by the introduction of the high-speed train line, which is the source of the identifying variation in this paper, as explained in Section 3. The descriptive statistics of board characteristics reveal that corporate governance structures of private Italian firms are rather closed. On

⁴This measure underestimates the presence of in-family directors as in Italy women do not change their surname at marriage and the family surname succession occurs only through the male line.

average, one third of directors come from the same family as the one controlling the firm⁵. Second, roughly two thirds of the seats in an average board is occupied by *local* directors who were born in the same province in which the firm is located and about 40% of all directors do also hold the stock of the company. All in all, the selection of board members seem to happen from a [narrow] pool of acquaintances rather than from the nation-wide market. The numbers on the board members with external background stand at a sharp contrast with the patterns exhibited by the board closedness measures. In particular, foreign-born or foreign-origin directors appear rarely on these boards, and all together account for 10 percent of the sample, while board members with directorship experience elsewhere account for one fifth of all directors only.

[Table 1 here]

Finally, Table 3 compares the observable characteristics of firms with and without family board members. The two groups appear different in many dimensions. For example, family-managed firms are nearly twice smaller and less productive (yet, they have similar leverage). In terms of board selection, the statistics reflect the same patterns as in pairwise correlations in Table 2: family-management is positive associated with the share of directors holding company's stock or directors born in the same province of the firm, while they relate negatively to the fraction of directors with external experience or foreign background (except for the *ForeignName* variable). All in all, the type of board selection appears to be endogenous to firm observable - and likely unobservable - characteristics, inducing a bias in a naive OLS estimate. In order to overcome these issues, we resort to the instrumental variables strategy.

[Table 3 here]

⁵If we would consider this number among only family firms, this measure in proportion would be even higher.

2.3 Nepotistic and/or meritocratic board selection

We start by examining preference over family or local directors when selecting the board is negatively related to merit-based board selection:

Hypothesis 1. Nepotistic director selection is negatively associated with the merit-based director selection.

Table 2 shows pairwise correlations between the set of nepotistic director selection proxies (*SameName*, *LocalBorn*, *DirOwnership*) and merit-based director selection proxies (*ForeignBorn*, *ForeignName*, *Experience*, *ExperienceSec*). In line with Hypothesis 1, all variables measuring how closed the board is, positively among themselves, while they relate negatively with merit-based selection indicators. All correlations are significant at 1%. This evidence suggests that relying on relatives and friends in the board room comes at a cost of a reduced firm access to a broader pool of experienced directors.

[Table 2 here]

3 Empirical strategy

The aim of the paper is to estimate the effect of nepotistic board selection – proxied by the share of the same family directors *SameName* – on firm performance. We use the following panel regression:

$$Y_{it} = \alpha + \beta \text{SameName}_{it} + X'_{it}\beta_x + \mu_t + \nu_r + \varepsilon_{it} \quad (1)$$

where Y_{it} is the outcome variable of interest (e.g., firm's revenue growth); SameName_{it} is the fraction of directors with the same surname as the family controlling the firm; X_{it} is a vector of firm-level controls: firm age in years, firm size in terms of assets (measured in the first year a firm appears in *Cerved* database), industry and size of the board. μ_t is a vector of year fixed effects, while ν_r is the vector of region fixed effects.

For several reasons, the measures of nepotistic board selection can be expected to correlate with important characteristics of the firm, either observable or unobservable, that can have

a direct impact on the outcomes of interest. A strong concern in estimating 1 by OLS is hence that it may yield biased estimates of the effects of board selection. Without being able to quantify the relative importance of these confounding factors, OLS estimates would yield limited information about the causal effect of board selection on firm performance.

To overcome the issues related to omitted variables, we propose an identification strategy exploiting a novel director supply-based instrumental variable approach to tackle the challenge of capturing plausibly exogenous variation in board selection criteria. In particular, we instrument the presence of the family directors by the presence of the high-speed train line from the capital city of province in which firm headquarters are located. The logic of our approach rests on the idea that a director’s travel costs determine the likelihood of a firm-director match, similar to the idea in Bernile et al. (2018) that the personal costs of performing a task at a distant location decrease with the availability of non-stop flights between the agent performing the task and its location. In our case, we argue that a substantial reduction in travel costs to other cities would make the access to directors in other locations easier, reducing the board reliance on family and local directors (and – by the same token – increasing the presence of experienced or foreign-background directors. More specifically, our instrumental variable is defined as an indicator variable for firms located in a province after the date in which the capital city was connected to another location by a high-speed train line.⁶ The exogenous variation in our instrumental variable stems from cross-sectional and time-series variations in the potential openness of boards in different provinces and in different years.

The remainder of the section describes how we construct the high-speed train shocks, and presents the instrumental variables strategy in more detail.

High-speed train in Italy. High-speed rail in Italy consists of two lines connecting most of the country’s major cities. The first line connects Turin to Salerno via Milan, Bologna, Florence, Rome and Naples; the second runs from Turin to Venice via Milan (the

⁶In case the same city gets connected to different destinations in different years, we only consider the earliest year.

full high-speed service is under-construction on some segments still). Trains are operated with a top speed of 300 km/h.

Table 4 lists the pairs of cities connected by a high-speed train line and year of their connection. We define our instrument $Train_{pt}$ as an indicator taking value one for firms located in province p in the years t following the opening of the high-speed line to the capital city of the province. As shown in Table 1, on average, one fourth of all firm-year observations experience a shock to the openness of their boards induced by the high-speed train introduction.

[Table 4 here]

Identification strategy. In order to consistently estimate the effect of board openness on firm outcomes, we instrument for the nepotistic board selection proxied by the $SameName$ on the board using the $Train$ shocks. The first-stage, reduced-form and second-stage equations are the following:

$$SameName_{it} = \alpha + \gamma^T Train_{pt} + X'_{it}\beta_x + \mu_t + \nu_r + \varepsilon_{it} \quad (2)$$

$$Y_{it} = \alpha + \beta^R Train_{pt} + X'_{it}\beta_x + \mu_t + \nu_r + \varepsilon_{it} \quad (3)$$

$$Y_{it} = \alpha + \beta^{IV} \widehat{SameName}_{it} + X'_{it}\beta_x + \mu_t + \nu_r + \varepsilon_{it} \quad (4)$$

where $Train_{pt}$ is the single excluded instrument, and $SameName_{it}$ is predicted fraction of in-family directors from the first-stage equation 2. Due to the inclusion of region fixed effects, the identifying variation does not disproportionately rely on provinces in specific geographic areas in the country which may be systematically correlated with the presence or the timing of the introduction of the high-speed train.

Exclusion restriction. The key identifying assumption is that only $SameName$ is directly affected by the introduction of the high-speed train line, conditional on our set of

controls. Formally, the exclusion restriction is the following:

$$E[\varepsilon_{it}|Train_{pt}, \mu_t, \nu_r, X_{it}] = 0 \tag{5}$$

Although this assumption is not directly testable in the data, we argue that the timing of the opening of the high-speed train line is unlikely to affect firm outcomes through other channels. First, it is not correlated with the country-level economic cycle by construction, since different provinces received the high-speed train line in different years. Furthermore, to test whether local economic cycle does not drive firm-level outcomes, we include region-year fixed effects in more stringent regressions specification (see Section 4). They make sure that any region-specific time shocks are not driving firm-outcomes. Second, one may argue that high-speed train connection may alter the market conditions in which firms operate. This is, we argue, also quite unlikely because road, regular-speed train and cargo train transportation has long existed before the high-speed train line introduction. Most important, the high-speed transportation is mostly used among upper-middle class, business and tourist passengers, who represent a moderate share of the overall passenger transportation within Italy.

4 Preliminary results

4.1 First stage regressions

We start by investigating the first-stage relationship between the introduction of high-speed train and the presence of in-family directors on firms' boards. The coefficient on our instrument *Train* is negative, statistically significant. It implies that the high-speed train introduction reduces the share of in-family directors by around 5 percentage points, against the average of 33 percent (Table 5 Panel A, column 1). The first-stage relationship is strong, as the F-statistic on the excluded instrument can reject the existence of weak identification substantially above conventional statistical levels.

The most parsimonious first-stage regression with year fixed effects and board size controls uses OLS specification defined with equation 2 (Table 5 Panel A, column 1). The

estimate is robust to augmenting the regression with firm age and size in the beginning of the period (column 2); and industry- and region-fixed effects to account for any sectoral and geographic difference cross-sectional difference (column 3); and non-parametric industry-region fixed effects (column 4), capturing time-varying shocks affecting firms operating in different industries (e.g., industry-specific market conditions) and located in different areas in Italy (e.g., region-specific economic cycle, government interventions, etc). Standard errors are clustered at a firm level.

[Table 5 here]

4.2 IV estimates

We use the instrumental variable strategy to test our second hypothesis:

Hypothesis 2. Nepotistic board selection by limiting firm’s access to expert directors negatively affects firm outcomes.

Table 5 Panel B columns 1-4 show the OLS estimates of the reduced form regression as in equation 3, while columns 5-8 show the OLS estimates of the 2SLS regressions as in equation 4. The structure of included control variables and fixed effects is analogous to that in Panel A.

Reduced-form estimations imply a positive relationship between the introduction of the high-speed train line and the annual revenue growth. The coefficients are significant at 1% level in all specifications. In line with the first-stage and reduced-form estimates, the 2SLS estimates are negative. They confirm our Hypothesis 2, implying that a nepotistic board selection results in more sluggish firm growth.

Table 6 examines whether our results are robust to alternative measures of nepotistic board selection. Columns 1 and 2 show the estimates of the 2SLS estimation in which the dependent variable of interest is *LocalBorn* and *DirOwnership*, using the most stringent regression specification as in Table 5, Panel B, column 8. The results confirm a negative relationship between board closedness and firm growth rate. Columns 3-6 instead replicate the analogous estimations using proxies for merit-based board selection, i.e., respectively,

ForeignBorn, *ForeignName*, *Experience* and *ExperienceSec*. In line with Hypothesis 1, the results for these variables are of the opposite sign and confirm the existence of the trade-off between favoring familiar directors and appointing expert ones.

[Table 6 here]

4.3 Mechanisms

We examine the potential drivers behind effects of firm's growth and study their consequences on firm's efficiency. Table 7 shows the results of the reduced-form and the IV estimations using our preferred most stringent regression specifications, analogous to the ones in Table 5, Panel B, columns 4 and 8, respectively. In the interest of brevity, in the following section we only comment the IV results in even columns.

[Table 7 here]

First, we study whether slower revenue growth translates into slower overall firm expansion by examining the asset growth in Table 7, columns 1 and 2. Interestingly, IV estimates in column 2 reveal that firms with in-family board directors experience a slower firm asset expansion: the coefficient on *SameName* is negative and significant. Our results suggest that a firm with a half of its board members coming from the same family is likely to have a 3.7 percentage point lower asset growth than firms with no family members on the board.

Firms with boards selected on merit-based criteria experience a faster growth in assets. This growth can be financed with additions to debt, equity or retained earnings. We test if firms with merit-based boards are more likely to finance their expansion with debt and/or with owners' equity. Our findings suggest that merit-based boards increase firms' debt level significantly faster than in-family boards. The coefficient on *SameName* is negative and significant (Table 7, column 4). A firm with a half of its directors selected from within family is likely to have a 1.9 percentage point slower increase in leverage than firms with no family members on the board. Our results are in line with experienced board members using their knowledge and networks to help a firm to get external debt financing. Consistently,

there is no evidence between board closedness and increase in firm’s equity (Table 7, column 6).

Next, we investigate whether the difference in growth rates between open- and closed-board firms is also driven by the more efficient use of capital and labor among the latter firms. We replicate our analysis with the dependent variable *TFP* in Table 7, columns 7 and 8. The coefficient on *SameName* in column 8 is negative and significant, suggesting that, indeed, nepotistic-board selection results into a slower TFP growth. In other words, slower growth of firms with nepotistic boards can be at least partially explained by their lower efficiency growth.

Finally, we examine if board-openness has different effects on firms, depending on their size. We expect smaller firms to be more constrained when hiring board members. As a consequence, it is plausible that board-opening may have a stronger effects for these firms, inducing a faster growth rate. Using split-sample regressions in Table 8 we show that indeed the effect is the strongest among the firms that first appear in our sample in the lowest size tercile. The coefficient on *SameName* is negative for small, medium and large firms (Table 8, columns 3, 6, 9). Yet, the absolute value of the coefficient is by 48 percent higher for small- than for medium-sized firms, whereas it is not even smaller and not statistically significant for the largest firms.

[Table 8 here]

5 Concluding remarks

This paper exploit a novel rich dataset on a large set of Italian private firms to study how board selection affects their performance. Using an instrumental variable strategy based on the reduction of director costs to show causality, we find that the lack of board openness linked to nepotistic director selection harms firms’ performance. We show that firms, which lack experienced directors and rely on in-family or in-region director selection, grow slower, have more difficult access to external financing and lower productivity. The results are in

line with a meritocratically selected boards improving firms' performance. In the absence of regulation governing board-selection for private firms, policy-maker may act upon director search and hiring costs, for example, by relaxing the constraints to use new technologies in organizing board meetings or adopting other measures facilitating board openness. Our results suggest that these would not only benefit private firms, but also the overall efficiency of the productive system.

In the future work, we are going to work on making the IV strategy more robust, by incorporating the cross-sectional dimension of the potential pool of directors talent at each train destination. Moreover, we are going to enrich regression specification with additional province-level time-varying factors (e.g. the differences in GDP growth) to better capture confounding factors. In terms of mechanisms, the analysis is going to shed light on the board composition effects, distinguishing between rotation and expansion and analyzing the heterogeneous effects by the board size. Last, but not the least, we are going to dwell deeper into understanding of the CEO- and board-networks and their value to the firm.

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Tables

Table 1: Summary statistics

This table presents summary statistics for variables used in the study. *Revenues*, *Assets*, *Equity* and *Debt* are firm's annual levels of revenues, assets, equity and debt in million EUR, winsorized at 1 percent and 99 percent levels. *TFP* is a measure of total factor productivity. *Train* is a dummy variable, taking a value of one if firm is located in a province, connected by a high-speed train. *SameName*, *LocalBorn*, *ForeignBorn* and *ForeignName* measure a fraction of firm's directors that have the same last name as its largest shareholder, are born in the same province, where the firm is located, are foreign-born and are born in Italy, but have a foreign last name. *DirOwnership* refers to stock ownership by firm's directors. *Experience* and *ExperienceSec* measure a fraction of directors that have directorship experience in an Italian firm and in an Italian firm in the same sector, respectively.

| | Obs | Mean | Sd | Min | Median | Max |
|------------------------------|-----------|-------|-------|-------|--------|--------|
| <i>Firm characteristics</i> | | | | | | |
| Revenues | 1,112,083 | 10.27 | 22.01 | 0.12 | 3.79 | 163.47 |
| Assets | 1,112,082 | 10.52 | 23.32 | 0.38 | 3.54 | 170.97 |
| Leverage | 1,112,082 | 0.25 | 0.23 | 0 | 0.21 | 0.87 |
| TFP | 1,013,546 | 0.05 | 0.56 | -8.02 | 0.06 | 6.09 |
| Train | 1,112,083 | 0.23 | 0.42 | 0 | 0 | 1 |
| <i>Board characteristics</i> | | | | | | |
| SameName | 1,112,083 | 0.33 | 0.44 | 0 | 0 | 1 |
| LocalBorn | 1,112,083 | 0.64 | 0.42 | 0 | 1 | 1 |
| DirOwnership | 1,111,201 | 0.41 | 0.39 | 0 | 0.33 | 1 |
| ForeignBorn | 1,112,083 | 0.06 | 0.20 | 0 | 0 | 1 |
| ForeignName | 1,112,083 | 0.04 | 0.16 | 0 | 0 | 1 |
| Experience | 935,148 | 0.22 | 0.36 | 0 | 0 | 1 |
| ExperienceSec | 935,148 | 0.15 | 0.31 | 0 | 0 | 1 |

Table 2: Correlations

The table presents correlation measures between variables used in this study. *SameName*, *LocalBorn*, *ForeignBorn* and *ForeignName* measure a fraction of firm’s directors that have the same last name as its largest shareholder, are born in the same province, where the firm is located, are foreign-born and are born in Italy, but have a foreign last name. *DirOwnership* refers to stock ownership by firm’s directors. *Experience* and *ExperienceSec* measure a fraction of directors that have directorship experience in an Italian firm and in an Italian firm in the same sector, respectively. All measures are significant at 1% level.

| | SameName | LocalBorn | DirOwnership | ForeignBorn | ForeignName | Experience | ExperienceSec |
|---------------|----------|-----------|--------------|-------------|-------------|------------|---------------|
| SameName | 1 | | | | | | |
| LocalBorn | 0.1853 | 1 | | | | | |
| DirOwnership | 0.6153 | 0.1641 | 1 | | | | |
| ForeignBorn | -0.1271 | -0.3542 | -0.1452 | 1 | | | |
| ForeignName | -0.0030 | 0.0313 | 0.0103 | -0.0346 | 1 | | |
| Experience | -0.1836 | -0.1167 | -0.2289 | -0.0113 | 0.0149 | 1 | |
| ExperienceSec | -0.1491 | -0.1003 | -0.1832 | -0.0052 | 0.0053 | 0.7976 | 1 |

Table 3: Summary statistics by board-selection type

This table presents summary statistics for variables used in the study. *Revenues*, *Assets*, *Equity* and *Debt* are firm’s annual levels of revenues, assets, equity and debt in million EUR, winsorized at 1 percent and 99 percent levels. *TFP* is a measure of total factor productivity. *Train* is a dummy variable, taking a value of one if firm is located in a province, connected by a high-speed train. *SameName*, *LocalBorn*, *ForeignBorn* and *ForeignName* measure a fraction of firm’s directors that have the same last name as its largest shareholder, are born in the same province, where the firm is located, are foreign-born and are born in Italy, but have a foreign last name. *DirOwnership* refers to stock ownership by firm’s directors. *Experience* and *ExperienceSec* measure a fraction of directors that have directorship experience in an Italian firm and in an Italian firm in the same sector, respectively.

| | Same name | Non-same name | Difference | T-stat |
|------------------------------|-----------|---------------|------------|---------|
| <i>Firm characteristics</i> | | | | |
| Revenues | 6.55 | 12.73 | 6.18 | 146.41 |
| Assets | 6.21 | 13.38 | 7.17 | 160.61 |
| Leverage | 0.25 | 0.25 | 0.00 | 6.06 |
| TFP | 0.03 | 0.07 | 0.04 | 34.24 |
| <i>Board characteristics</i> | | | | |
| LocalBorn | 0.73 | 0.58 | -0.15 | -193.10 |
| DirOwnership | 0.74 | 0.19 | -0.55 | -992.36 |
| ForeignBorn | 0.02 | 0.08 | 0.05 | 138.79 |
| ForeignName | 0.04 | 0.04 | 0.00 | -1.45 |
| Experience | 0.13 | 0.27 | 0.14 | 186.53 |
| ExperienceSec | 0.09 | 0.18 | 0.10 | 150.96 |

Table 4: Opening of a fast-speed train line

This table lists the pairs of cities connected by a fast-speed train line and year of their connection.

| From | To | Year |
|----------|---------|------|
| Verona | Venice | 2007 |
| Salerno | Naples | 2008 |
| Florence | Bologna | 2009 |
| Milan | Bologna | 2009 |
| Rome | Naples | 2010 |
| Torino | Milan | 2010 |
| Verona | Bologna | 2010 |
| Milan | Verona | 2017 |

Table 5: IV regressions

Panel A presents coefficients of the first stage regression. Panel B presents results of reduced-form and IV regressions. The dependent variable is revenues growth in % (*IncRev*). The main explanatory variable is a measure of nepotism, *SameName*, which shows the fraction of board members, who share the same last name with the largest owner. The instrumental variable is an indicator variable that takes a value of one if the province of firm's residence is connected with another province with a high-speed train (*Train*). *Age* and *BoardSize* control for firm-level logarithmic value of firm's age and the number of members on its board. *Size* is a logarithmic value of firm's assets in firm's first year in the sample. All regressions include year fixed effects. Standard errors are clustered at a firm level and reported in the parentheses below the coefficients. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: First stage regressions

| | (1) | (2) | (3) | (4) |
|------------------|----------------------|----------------------|----------------------|----------------------|
| | SameName | SameName | SameName | SameName |
| Train | -0.054*** (0.002) | -0.052*** (0.002) | -0.044*** (0.002) | -0.049*** (0.003) |
| Age | | 0.060*** (0.001) | 0.058*** (0.001) | 0.058*** (0.001) |
| Size | | -0.030*** (0.001) | -0.030*** (0.001) | -0.030*** (0.001) |
| BoardSize | -0.064*** (0.000) | -0.059*** (0.000) | -0.053*** (0.001) | -0.053*** (0.001) |
| Constant | 0.502*** (0.002) | 0.572*** (0.005) | 0.558*** (0.005) | 0.557*** (0.005) |
| Observations | 1,112,083 | 1,112,083 | 1,097,142 | 1,097,142 |
| R-squared | 0.129 | 0.144 | 0.159 | 0.163 |
| F-statistic | 604.506 | 566.699 | 377.281 | 358.179 |
| Industry FE | | | Yes | Yes |
| Region FE | | | Yes | Yes |
| Industry-year FE | | | | Yes |
| Region-year | | | | Yes |

Panel B: Reduced-form and IV regressions

| VARIABLES | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|------------------|---------------------|----------------------|----------------------|----------------------|-----------------------|----------------------|----------------------|----------------------|
| | IncRev | IncRev | IncRev | IncRev | IncRev | IncRev | IncRev | IncRev |
| Train | 0.616*** (0.092) | 0.476*** (0.092) | 0.417*** (0.100) | 0.285*** (0.107) | | | | |
| SameName | | | | | -11.424*** (1.759) | -9.199*** (1.808) | -9.581*** (2.341) | -5.768*** (2.173) |
| Age | | -3.728*** (0.055) | -3.829*** (0.056) | -3.885*** (0.056) | | -3.179*** (0.121) | -3.274*** (0.146) | -3.550*** (0.137) |
| Size | | 0.293*** (0.031) | 0.255*** (0.032) | 0.261*** (0.032) | | 0.014 (0.064) | -0.032 (0.078) | 0.089 (0.073) |
| BoardSize | 0.376*** (0.017) | 0.507*** (0.019) | 0.420*** (0.020) | 0.413*** (0.020) | -0.352*** (0.114) | -0.035 (0.108) | -0.090 (0.126) | 0.105 (0.118) |
| Constant | 2.029*** (0.060) | 9.441*** (0.236) | 10.273*** (0.246) | 10.429*** (0.247) | | | | |
| Observations | 1,112,083 | 1,112,083 | 1,097,142 | 1,097,142 | 1,112,083 | 1,112,083 | 1,097,142 | 1,097,142 |
| R-squared | 0.019 | 0.024 | 0.024 | 0.032 | -0.010 | -0.002 | -0.003 | 0.003 |
| Industry FE | | | Yes | Yes | | Yes | Yes | |
| Region FE | | | Yes | Yes | | Yes | Yes | |
| Industry-year FE | | | | Yes | | | | Yes |
| Region-year | | | | Yes | | | | Yes |

Table 6: Measures of nepotism and meritocracy

The table presents the coefficients of the IV regressions using alternative measures of nepotism and meritocracy.

| VARIABLES | (1) IncRev | (2) IncRev | (3) IncRev | (4) IncRev | (5) IncRev | (6) IncRev |
|------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| LocalBorn | -3.424*** (1.284) | | | | | |
| DirOwnership | | -6.193*** (2.344) | | | | |
| ForeignBorn | | | 6.630*** (2.483) | | | |
| ForeignName | | | | 93.241** (44.056) | | |
| Experience | | | | | 49.780** (22.365) | |
| ExperienceSec | | | | | | 65.581** (32.066) |
| Age | -3.662*** (0.100) | -3.514*** (0.150) | -3.737*** (0.078) | -4.092*** (0.122) | -1.454 (1.187) | -1.444 (1.296) |
| Size | 0.158*** (0.051) | -0.171 (0.167) | 0.173*** (0.046) | 0.234*** (0.043) | -2.946** (1.440) | -2.748* (1.470) |
| BoardSize | 0.355*** (0.029) | 0.427*** (0.020) | 0.376*** (0.024) | 0.416*** (0.027) | -0.226 (0.380) | -0.091 (0.348) |
| Observations | 1,097,142 | 1,096,281 | 1,097,142 | 1,097,142 | 923,434 | 923,434 |
| R-squared | 0.005 | 0.004 | 0.005 | -0.122 | -0.265 | -0.354 |
| Industry-year FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Region-year | Yes | Yes | Yes | Yes | Yes | Yes |

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 7: Board nepotism and its other effects on the firm

The table presents the coefficients of the IV regressions using alternative dependent variables.

| Regressions | (1) Reduced IncAssets | (2) IV IncAssets | (3) Reduced IncDebt | (4) IV IncDebt | (5) Reduced IncEquity | (6) IV IncEquity | (7) Reduced IncTFP | (8) IV IncTFP |
|--------------|-----------------------------|------------------------|---------------------------|----------------------|-----------------------------|------------------------|--------------------------|----------------------|
| Train | 0.365*** (0.070) | | 0.185*** (0.035) | | 0.003 (0.002) | | 0.010*** (0.001) | |
| SameName | | -7.384*** (1.470) | | -3.743*** (0.743) | | -0.057 (0.047) | | -0.201*** (0.028) |
| Age | -2.483*** (0.038) | -2.055*** (0.093) | -0.809*** (0.019) | -0.593*** (0.047) | -0.042*** (0.001) | -0.039*** (0.003) | -0.006*** (0.001) | 0.004*** (0.002) |
| Size | -1.548*** (0.022) | -1.767*** (0.050) | 0.004 (0.013) | -0.104*** (0.025) | 0.014*** (0.001) | 0.012*** (0.002) | 0.004*** (0.000) | -0.002** (0.001) |
| BoardSize | 0.392*** (0.014) | -0.002 (0.080) | 0.145*** (0.007) | -0.054 (0.040) | 0.013*** (0.001) | 0.010*** (0.003) | 0.002*** (0.000) | -0.008*** (0.002) |
| Debt | | | -0.121*** (0.003) | -0.122*** (0.003) | | | | |
| Equity | | | | | 0.001** (0.001) | 0.001 (0.001) | | |
| TFP | | | | | | | | -0.332*** (0.002) |
| Constant | 23.240*** (0.187) | | 3.400*** (0.094) | | 0.079*** (0.007) | | -0.019*** (0.003) | |
| Observations | 1,097,140 | 1,097,140 | 1,097,141 | 1,097,141 | 1,041,454 | 1,041,454 | 971,021 | 971,021 |
| R-squared | 0.040 | -0.000 | 0.019 | -0.006 | 0.006 | 0.002 | 0.155 | 0.116 |

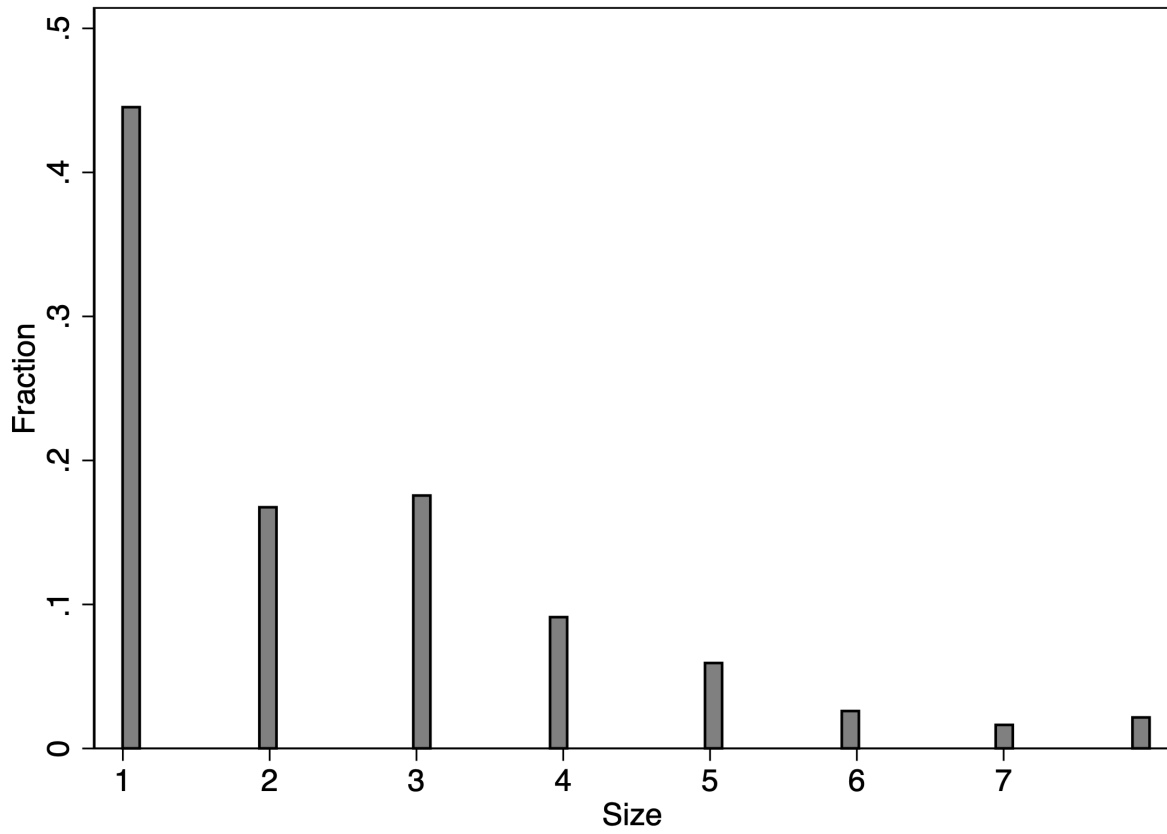
Table 8: Board nepotism - firm performance relationship in subsamples of small, medium and large firms

The table presents the cross-sectional variation of board nepotism - firm performance relationship.

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|--------------|----------------------|----------------------|-----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| FirmSize | | Small | | | Medium | | | Large | |
| Regression | 1 stage | Reduced | IV | 1 stage | Reduced | IV | 1 stage | Reduced | IV |
| | SameName | IncRev | IncRev | SameName | IncRev | IncRev | SameName | IncRev | IncRev |
| Train | -0.043*** (0.005) | 0.573*** (0.184) | | -0.046*** (0.005) | 0.411** (0.199) | | -0.058*** (0.004) | 0.022 (0.171) | |
| SameName | | | -13.313*** (4.457) | | | -9.000** (4.434) | | | -0.384 (2.941) |
| Age | 0.049*** (0.002) | -4.304*** (0.102) | -3.652*** (0.239) | 0.061*** (0.002) | -4.315*** (0.099) | -3.762*** (0.287) | 0.063*** (0.002) | -3.244*** (0.094) | -3.220*** (0.208) |
| Size | -0.012*** (0.002) | 0.997*** (0.087) | 0.840*** (0.102) | -0.019*** (0.002) | 0.925*** (0.086) | 0.756*** (0.121) | -0.034*** (0.001) | 0.134** (0.058) | 0.121 (0.118) |
| BoardSize | -0.075*** (0.001) | 0.549*** (0.044) | -0.445 (0.335) | -0.063*** (0.001) | 0.613*** (0.040) | 0.046 (0.282) | -0.038*** (0.001) | 0.354*** (0.027) | 0.340*** (0.114) |
| Constant | 0.519*** (0.012) | 6.040*** (0.584) | | 0.485*** (0.012) | 6.134*** (0.630) | | 0.505*** (0.011) | 9.697*** (0.553) | |
| Observations | 364,464 | 364,464 | 364,464 | 364,904 | 364,904 | 364,904 | 367,774 | 367,774 | 367,774 |
| R-squared | 0.132 | 0.028 | -0.010 | 0.152 | 0.030 | 0.000 | 0.174 | 0.044 | 0.005 |
| F-statistic | 90.063 | | | 93.290 | | | 188.881 | | |

Figure

Figure 1: The distribution of the board size



This figure displays the fraction of sample observations by board size. The last column corresponds to the fraction of large boards(8-20 members) in the sample.