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Political Dynasties, Electoral Institutions and Politicians' Human Capital^{*}

Short title: Political Dynasties and Politicians' Human Capital

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Abstract:

This article focuses on political dynasties' potential consequences, and particularly investigates whether and when they lead to the selection of dynastic politicians with relatively lower education levels. I exploit the different electoral constraints faced by distinct subsets of Italian local politicians to identify whether weaker constraints on political selection processes induce the selection of dynastic politicians with lower education levels relative to their non-dynastic peers. The analysis – which covers almost 540,000 Italian local politicians active during the period 1985-2012 – indicates that a political selection process controlled by politicians rather than the electorate favours dynastic individuals with relatively lower levels of education.

Keywords: Political dynasty, Local government, Family, Human capital, Electoral system.

JEL classification: C41, D39, D70

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Informal social networks – such as family connections – can be an important asset in the labour market and have been linked to, for instance, higher job finding rates and faster career progression (Bayer *et al.*, 2008; Beaman and Magruder, 2012; Kramarz and Skans, 2014; Dustmann *et al.*, 2016). However, they may also induce an important misallocation of resources. That is, those favoured by their network connections might be less skilled or talented than those failing to get a position or promotion due to a lack of network ties (e.g., when such ties act as a substitute for skills in the hiring process). This is reflected, for instance, in the fact that informal connections are particularly valuable for individuals with lower skills and qualifications relative to their peers (Gagliarducci and Manacorda, 2014; Kramarz and Skans, 2014). Such negative implications of network-based selection have frequently been observed with respect to the performance, value and management of family firms (Bertrand and Schoar, 2006; Perez-Gonzalez, 2006; Villalonga and Amit, 2006; Bennedsen *et al.*, 2007). In similar vein, Daniele (2010) and Durante *et al.* (2015) illustrate that the size of academic dynasties within Italian universities is negatively related to the quality of a university's teaching and research output.

While elections are central to the allocation of political positions in democratic societies, family connections can provide a substantial benefit also for political occupations. Several studies have indeed uncovered a causal positive impact of politicians' tenure in office on the probability that their descendants achieve elected office in the future (Dal Bó *et al.*, 2009; Querubin, 2016; Rossi, 2016; see, however, van Coppenolle, 2015; Fiva and Smith, 2016). Similarly, dynastic politicians have a higher probability to win elections compared to non-dynastic ones even after controlling for other individual characteristics (Feinstein, 2010; Smith, 2012; Asako *et al.*, 2015; Bohlken and Chandra, 2015; Daniele and Vertier, 2016). Smith and Martin (2016) furthermore show that political dynasties can create an advantage for progressing from the backbenches to ministerial office.

Given that the literature on family firms cited above has largely concentrated on “whether family-owned firms have advantages in the market place” (Besley, 2005: 51), the limited academic research on the potential political and socio-economic *consequences* of political dynasties is remarkable (recent exceptions include Asako *et al.*, 2015; Bragança *et al.*, 2015; Labonne *et al.*, 2015; Folke *et al.*, 2016; Daniele and Vertier, 2016). Nonetheless, if the entrenchment of political power within certain families erects barriers to entry for non-dynastic candidates, political dynasties might well reduce the level of electoral competition (for a similar argument, see Lott, 1986). They may also result in moral hazard problems, whereby dynastic politicians reduce their effort knowing that their electoral advantage buttresses their re-election odds.

In this article, I investigate whether political dynasties generate a misallocation of resources similar to that observed for network-based hiring in the private-sector labour market. Specifically, based on the finding that informal connections predominantly benefit relatively less qualified individuals (Gagliarducci and Manacorda, 2014; Kramarz and Skans, 2014), I hypothesize that political dynasties can lead to the selection of dynastic politicians with relatively lower education levels compared to their political peers. My empirical test of this proposition employs a novel dataset including nearly 540,000 local politicians in more than 8,000 Italian municipalities active within the period 1985-2012. I thereby operationalize political dynasties based on politicians sharing the same surname (Allesina, 2011; Fafchamps and Labonne, 2013; Clark, 2014; Gagliarducci and Manacorda, 2014; Clark and Cummins, 2015; Durante *et al.*, 2015; Güell *et al.*, 2015; Querubin, 2016). Italy is a particularly attractive setting for this approach as most surnames – which are transmitted patrilineally – show a very high degree of local concentration and geographical mobility is low (Caffarelli and Marcato, 2008; Gagliarducci and Manacorda, 2014). That being said, I nonetheless implement a number of checks taking into account the national, regional and provincial distribution of surnames to deal with the imperfections in this measure.

Identification of the relation between political dynasties and politicians' (formal) human capital derives from a peculiarity in Italian local electoral institutions, where the mayor has – since the adoption in 1993 of law 81/1993 – the “power to appoint and revoke the aldermen (*Assessori*), the members of the municipal government (*Giunta*)” (Bolgherini, 2007: 5; Bordignon *et al.*, 2014; Mattina and Allum, 2000). Moreover, the mayor has the right to appoint aldermen “from *outside* the elected municipal council” (Mattina and Allum, 2000: 60, own translation and italics). Hence, the Italian local electoral system induces the appearance of different subsets of politicians distinguishable by their entry into local councils via an election (i.e. mayor and councillors), via an election *and* subsequent selection by the mayor (i.e. elected aldermen and vice-mayors) or via mayoral selection despite *not* having been elected (i.e. *unelected* aldermen and vice-mayors). As informal networks and family connections can be exploited particularly when formal institutions are weak (Faccio, 2006; Faccio and Parsley, 2009; Smith, 2012), these varying electoral constraints – and their concomitant variation in the potential for nepotistic hiring practices – allow using a difference-in-differences approach: i.e. comparing the education level of dynastic and non-dynastic politicians across groups of politicians facing distinct electoral constraints. I thereby expect that the larger potential for nepotistic hiring practices for unelected political positions induces a particularly depressed education level for dynastic politicians in such positions (relative to their non-dynastic political peers).¹

The main findings indicate that a political selection process more directly under the control of the mayor – rather than the electorate – favours dynastic individuals with relatively lower levels of education. Specifically, relative to their non-dynastic counterparts, I find no evidence of

¹ While I abstain from doing so here, this central hypothesis – i.e. a negative dynasty-education relation that strengthens with weaker electoral constraints – can be formalised in a selection model with a positive degree of substitutability between family connections and individuals' skills. Such substitutability is sufficient to generate a negative dynasty-education relation. If one furthermore assumes that the substitutability between connections and skills strengthens in the capacity to reward family connections within the selection process (e.g., as reflected in formal constraints on appointments), any negative dynasty-education relation strengthens in the weakness of the (electoral) constraints placed upon the selection process.

lower education levels among (directly elected) dynastic mayors and councillors, but a sizeable effect among dynastic vice-mayors and aldermen – especially when these are selected by the mayor *without* having gained a council seat in the foregoing election. These findings suggest that family-based nepotism induces the selection of dynastic politicians with relatively lower education levels – much like family-based nepotism in Italian academia depresses the quality of universities’ teaching and research (Daniele, 2010; Durante *et al.*, 2015). It also highlights that the negative dynasty-education relation strengthens when there are fewer electoral constraints on the political selection process. This is reminiscent of Durante *et al.*’s (2015) finding that a 1998 legislative reform in Italy weakening the institutional constraints on the academic hiring process caused a significant increase in the prevalence of academic dynasties.

1. Data and operationalization

1.1. Institutional setting

Italy consists of approximately 8,000 municipalities, which are governed using a parliamentary system with a legislative branch (*Consiglio*, or local council) and an executive branch (*Giunta*, or local government). Although not all municipalities hold elections at the same time, the length of the electoral cycle is the same across all municipalities (i.e. five years). The electoral system employed in municipal elections witnessed an important change in 1993. Until then, municipal elections were held under a pure parliamentary system, in which eligible citizens cast their ballot to elect the councillors in the *Consiglio*. The composition of the local government was subsequently determined by the party or parties holding a majority position in the council. These parties decided upon, and formally appointed by majority vote, the aldermen (*Assessori*) and mayor (*Sindaco*), which were exclusively selected from among their councillors. Local power thus rested (nearly) completely in the hands of the parties holding a majority position in the local council (Mattina and Allum, 2000; Bolgherini, 2007; Bordignon *et al.*, 2014).

Since 1993, and implemented by law 81/1993, elections not only determine the composition of the local council, but also decide upon a directly elected mayor. At the risk of some oversimplification, voters cast their ballot for a candidate mayor and a list of candidates for the municipal council. The mayoral candidate obtaining the most votes is elected as mayor and the list of council candidates supporting her is allocated at least 60% of the council seats. The remaining seats are allocated in proportion to the vote share of all remaining candidate lists for the municipal council.² Importantly, law 81/1993 also introduced a degree of ‘presidentialization’ in Italian local governments. The mayor – rather than the members of the council – now selects and appoints two to twelve aldermen (depending on the size of the municipality) to enter into the *Giunta*, and also decides upon the vice-mayor (Mattina and Allum, 2000; Bolgherini, 2007; Bordignon *et al.*, 2014). In practice, the mayor generally selects aldermen and a vice-mayor from among the elected councillors. However, and crucially, law 81/1993 stipulates that the mayor is not restricted in her choices to elected councillors, but can also appoint aldermen and a vice-mayor *not* elected into the local council. She can thereby choose among all eligible citizens in the municipal population (Mattina and Allum, 2000; Bolgherini, 2007). Such selection outside the local council is not uncommon, as 9366 politicians first entered local politics as unelected aldermen and 722 as unelected vice-mayors in the period between 1993 and 2012. These unelected politicians are also not restricted to a small fraction of the Italian municipalities. In fact, 3262 municipalities have at least one unelected politician within the observation period (ranging from 1 to 38 unelected politicians), which reflects 40.05% of all municipalities. Table X.15 in the online appendix illustrates that municipalities with/without unelected politicians have similar levels of education,

² The electoral system thus is reminiscent of a closed-list PR system with a majority bonus for the plurality-winning list. Yet, it varies slightly depending on the size of the municipality. Below 15000 inhabitants, the mayoral election is organized as a one-round election, and each mayoral candidate comes with a list of council candidates attached to it. As such, voters cast only one ballot for the mayor *and* her supportive list of candidates. Above 15000 inhabitants, the mayoral election follows a run-off system, whereby a second round is organized between the top two candidates whenever no candidate wins an outright majority in the first round. Voters also have two votes – one for the mayoral election and one for the election of council candidates (Bordignon *et al.*, 2016).

unemployment, newspaper readership (in 2001), and council dissolutions, and are also equally likely to be located in the south or near the coast.³

Allowing the selection of unelected individuals to positions of political power can be beneficial when it increases the availability of specific policy-relevant expertise in the local council (i.e. technocrats). Yet, clearly, this weakening of the electoral constraints on the political selection process might also increase the potential for nepotistic hiring practices (Faccio, 2006; Faccio and Parsley, 2009; Smith, 2012; Durante *et al.*, 2015).⁴ The empirical analysis therefore takes explicit advantage of this divergence in electoral constraints between elected versus unelected local politicians.

1.2. Dataset

For each of the 539,466 politicians that were politically active in any of the just over 8,000 Italian municipalities within the period 1985-2012, I collected information on their socio-demographic background (age, gender, and education level), political position (mayor, vice-mayor, alderman, or councillor), and the time they were (s)elected into this political position. This information was extracted on an annual basis from publicly available information on the website of the Italian Ministry of Interior (<http://amministratori.interno.it/AmmIndex5.htm>).

Since individuals are generally politically active for more than one year, each politician appears multiple times in the complete dataset. Politicians might, however, invest in additional education *after* becoming elected, which could affect the empirical assessment of the dynasty-

³ The possibility to appoint non-elected individuals to positions of political power is not unique to Italian municipalities. A similar system also exists in, for instance, Norway and Sweden, where individuals not elected as MPs can nonetheless obtain appointments to the cabinet. One example is Thorvald Stoltenberg – father of former Norwegian Prime Minister and current NATO secretary-general Jens Stoltenberg – who was foreign minister without ever having been elected into the Norwegian parliament. I am grateful to Jon Fiva, Johanna Rickne and Olle Folke for pointing this out to me.

⁴ It might also allow the mayor to award consolation prizes to politicians who failed to become (re)elected, possibly in return for political support during the legislative term. As I lack detailed individual-level election results, it is unclear whether, and to what extent, this occurs in my Italian setting.

education relation. Hence, to avoid any bias induced by such effects, I only include one unique observation per municipality for each politician: namely, the first year they achieve a political position in their municipality with the education level recorded at that time.⁵ Throughout the article, the term ‘first-time politician’ thus refers to individuals elected for the first time in that specific municipality (and excludes individuals who were municipal councillors in the past and now become, say, mayor or alderman for the first time). It should be noted in this respect that is not uncommon in Italy (or other countries such as Belgium) for individuals to become alderman or even mayor upon their first election (though, obviously, this is rare in larger cities). This focus on first-time politicians also avoids possible concerns that people with more political experience may have a higher probability of being part of a dynasty and at the same time have a different level of education. Still, it does *not* exclude politicians from appearing twice in the dataset when they move to another municipality within the period of observation. In that case, they appear once per municipal council they become elected into (i.e. in the first year of their respective elections). Nonetheless, such multiple reappearances are very rare as politicians’ electoral support at the local level is not easily transferable from one municipality to another.

1.3. Political dynasties

The central explanatory variable operationalizes whether a politician has a family member who held elected office in the same municipality *prior* to her first (s)election. I thereby employ individuals’ surnames to identify (presumed) family ties. In a first step, I locate all politicians with the same surname in the same municipality throughout the period of observation. This indicates that 80 percent of all surname-municipality combinations appear only once in the sample period. Approximately 13 percent of all surname-municipality combinations appear

⁵ Clearly, for politicians appearing in the dataset near the onset of the observation period (i.e. 1985), I cannot be certain that this is really their first municipal political position. I therefore evaluated the robustness of the findings to this left-censoring of the dataset by repeating the analysis without politicians appearing in the dataset prior to 1993. This cut-off is chosen not only because it equates the start of the reduced sample with the legislative reform of 1993, but also because the large majority of individuals leaves local politics after at most two terms – or 10 years – in office (Daniele and Geys, 2015). All results reported below for the 1985-2012 period remain qualitatively unaffected using this reduced time period.

twice and six percent of surname-municipality combinations appear more than twice. It is rare to observe more than five politicians with the same surname in the same municipality throughout the period of observation (i.e. 0.81% of all surname-municipality combinations). Then, as a second step, I define an indicator variable (i.e. *Dynasty*) equal to 1 whenever a politician has a family member who held a political office in the same municipality *prior* to her first election. This is the case for 22.57% of politicians in the sample. The reference category in the estimations below thus is made up of politicians who are *either* not a member of a political dynasty (60.00%), *or* the first politicians with a given surname in a given municipality (henceforth, the first ‘generation’; 17.44%).⁶ ‘First-generation’ dynastic politicians are included in the control group because they were not (yet) part of a political dynasty *at the time we first observe them*. As such, there is no reason to view them as different from non-dynastic politicians at that point in time (Chandra, 2015; Geys and Smith, 2016). A more detailed distribution of politicians’ position in their political dynasty is provided in figure A.1 in Appendix A.

Using surnames to operationalize political dynasties is a valid approximation in the Italian setting since children receive the surname of their father, surnames are geographically highly concentrated (Caffarelli and Marcato, 2008),⁷ and geographical mobility is low (i.e. approximately 50% of local politicians hold office in the municipality of their birth; Gagliarducci and Manacorda, 2014). Even so, one can wonder about the precision of a dynastic variable based on surnames for a number of reasons. First, people can have the same surname without having any kinship ties (i.e. surname homonymy). This is more likely to occur for very

⁶ Note that ‘generation’ should not be read as referring to parent-child-grandchild relations, but rather to the order in which politicians appear in the list of politicians with the same surname in a given municipality. Hence, I use it to indicate political rather than familial ‘generations’.

⁷ This can be seen from surname frequencies recorded at different geographical levels. Specifically, the most common surname at the national level (Rossi) covers 0.32% of the Italian population, whereas the most common surname at the regional level (Sanna in the region of Sardegna) and provincial level (Colombo in the province of Lecco) cover 1.52% and 2.18% of the respective populations. The underlying data on surname frequencies were kindly provided by Giovanna Labartino. The original source is *Dinastie d'Italia: gli ordini tutelano davvero i consumatori?* (Università Bocconi, 2012).

common surnames – such as Conti, Ferrari or Rossi – and implies that I will identify some individuals that are not truly part of the same family as dynastic (type-2 error). As formally illustrated by Gagliarducci and Manacorda (2014), this leads to attenuation bias in the estimates. I can, however, accommodate this to some extent – and get a sense of the size of such attenuation bias – by dropping the most commonly observed surnames from the estimation sample.

Second, surnames only catch ties between family members when they have the same surname. While these reflect the closest family ties that are likely to generate the strongest effects (e.g. father-child-grandchild), it may overlook more distant kinship ties (e.g. cousins, nephews, son-in-law). It should be noted here that it is customary for women to retain their maiden name in Italy, although they can also opt to add their husband's surname to their maiden name. Whenever this occurs in the dataset, I take this information explicitly into account as it allows picking up mother-child-grandchild relations as well as connections between married individuals and their partner's family. Still, identifying some individuals as non-dynastic even though they had political ancestors remains likely (type-1 error). Moreover, even though locally elected descendants of national or regional politicians are arguably part of a political dynasty *even when* their relatives were never elected at the local level (Geys and Smith, 2016), the available data make it extremely difficult to credibly link individuals elected at higher levels of government to individuals elected in a municipality. This is likely to induce some additional degree of type-1 error. The same is true for the fact that the observation window starts in 1985, which may lead me to overlook family connections to politicians that were locally active before this period.

Although data availability prevents me from directly addressing such type-1 errors, it is important to observe that this will again bias the estimates towards zero. Since dynastic politicians are expected to have a lower education level relative to their non-dynastic peers,

type-1 errors push the average education level in the ‘control’ group (i.e. non-dynastic politicians) closer to the average education level in the ‘treatment’ group (i.e. dynastic politicians) – inducing a bias in the estimates towards zero. This not only stacks the deck against the central hypothesis, but also implies that the findings reflect a lower bound of the true effect of political dynasties.

A final potential concern is that there may exist a correlation between surnames and individuals’ characteristics. For instance, it might be that more common last names are associated with a lower socio-economic background. As social background is likely to be correlated with individuals’ educational attainment (Ermisch and Francesconi, 2001; Dustmann, 2004), this could bias the estimates of the dynasty-education relation. Three elements suggests that this is unlikely to cause concern in the Italian setting. First, due to substantial linguistic fragmentation and the late diffusion of a national language, the main drivers of Italian surname distributions are geography and history, and not social categories (Caffarelli and Marcato, 2008). Second, hereditary surnames started to be generally used in Italy in the 12th century (Marcato, 2010). Even if their distribution originally might have been partially tied to social class, several centuries of up- and downward social mobility is unlikely to have sustained this to any significant extent. Finally, as a more formal test, I evaluate the correlation between the average education level of politicians with a given surname and the frequency with which this surname appears across Italy. This correlation across the 87,831 surnames in the sample is weakly *positive* ($r = 0.0024$; $p = 0.482$). Using surname frequencies at the provincial level and the average education level of politicians with a given surname in that province provides a similar insignificant result ($r = -0.0025$; $p = 0.469$). These findings suggest that more common last names are *not* associated with lower socio-economic status (as indicated by lower average education levels).

2. Empirical analysis

2.1. Specification

My baseline empirical model takes the following form (where subscript i refers to politicians, c to municipalities, and t to time):

$$EDU_{ict} = \alpha + \beta_1 Dynasty_{ict} + \beta_2 IND_Controls_{ict} + \theta_t + \mu_c + \varepsilon_{ict} \quad (1)$$

The dependent variable (EDU_{ict}) reflects the education level of politician i in municipality c at time t . My focus on politicians' education level builds on the idea that formal human capital is a valid proxy for individuals' skills, which has been widely recognized in private-sector research (Black and Lynch, 1996; Hitt *et al.*, 2001) and is gaining increasing prominence also in regard to public-sector activities (Ferraz and Finan, 2008; Besley and Reynal-Querol, 2011; Besley *et al.*, 2011; Galasso and Nannicini, 2011). I follow De Paola and Scoppa (2010), Daniele and Geys (2015) and Martinez-Bravo (2016) in translating information about the highest degree a politician obtained into the minimum number of years necessary to obtain it (assuming an uninterrupted education path): i.e. Elementary School (or less) = 5 years; Lower Secondary School = 8 years; Higher Secondary School = 13 years; University or Higher Degree = 18 years.⁸ Unlike alternative possible measures of politicians' skills and qualifications (such as, for instance, political tenure), politicians' education level has the benefit of being least affected by potential reverse causality issues. The reason is that a politician's education level cannot influence her being born into a political family (for obvious reasons). Moreover, it is highly unlikely to induce *other* family members to enter politics, which would be required for membership of a political dynasty to *follow* – rather than *precede* – obtaining one's highest degree.

⁸ I also replicated the analysis using an indicator variable equal to one for politicians with a university degree (0 otherwise). All results remain qualitatively similar (see table X.1 in the online appendix).

As discussed in section 2.3, the main independent variable – $Dynasty_{ict}$ – equals 1 whenever a politician has a family member who held elected office in the same municipality *prior* to her first election (0 otherwise). Parameter β_1 thus estimates the difference in educational attainment between dynastic and non-dynastic politicians. At the individual level ($IND_Controls_{ict}$), I control for politician’s gender (1 if female) and age (in years) to accommodate the fact that dynastic politicians tend to be somewhat younger than non-dynastic politicians (39.9 years versus 41.7 years; $p < 0.001$) and are more likely to be female (19.4% versus 15.8%, $p < 0.001$) (see also Bragança *et al.*, 2015; Labonne *et al.*, 2015).⁹ I also include a control variable approximating the general education level of a politician’s family (*Education ancestors*). Although, as mentioned above, any individual’s level of education cannot influence her being born into a political family, there is likely to exist a positive intra-family correlation in education levels, which could be problematic if the general education level of the family influences whether that family starts a political dynasty. To accommodate this, *Education ancestors* is set equal to the average education level of previously elected family members of dynastic politicians. For non-dynastic politicians, I have no ancestors available, and hence cannot calculate their average education level. As a proxy, I therefore use the average education level of all council members elected three years prior to the politicians’ first election.¹⁰

Finally, all estimations include a full set of year fixed effects (captured by indicator variables for politicians’ first year in office; θ_t) to capture the upward trend in Italian education levels, as well as municipality fixed effects (μ_c) to account for any (un)observed heterogeneity across

⁹ One might argue that age and gender are potential outcomes, and thus could be seen as inappropriate controls. I therefore replicated the analysis without them, which leaves my main inferences unaffected (see table X.2 in the online appendix). Note also that adding additional controls for a politician’s family relation to the current mayor, or for the current mayor’s sex, age and education level does not affect the main findings (see tables X.12 and X.13 in the online appendix).

¹⁰ I impose a lagged value because ancestors are by definition located in the past. For dynastic politicians, I know when these ancestors were elected and can thus use the appropriate historical education level. Similar information is clearly unavailable for non-dynastic politicians. Hence, I experimented with lags of 3, 5 and 8 years, and found these to provide almost equivalent results. I rely on the three-year lag throughout the analysis since it maximizes the available number of observations. However, table X.3 in the online appendix provides detailed results using longer lags (or no lag at all).

municipalities. As such, identification here rests on comparing dynastic and non-dynastic politicians from the same municipality, which is essential due to probable differences in nepotistic ‘culture’ across municipalities (or regions).¹¹ Summary statistics for all variables are provided in table A.1 in appendix A, separated between dynastic and non-dynastic politicians as well as between different political positions.

I estimate equation (1) independently for distinct subsets of politicians – i.e. mayors, elected aldermen, councillors and unelected politicians – as this allows assessing the potential implications of nepotistic hiring practices (due to varying electoral constraints faced in the different political positions; see above) *within politicians’ political peer group*. Yet, as the dataset includes *both* elected *and* unelected aldermen and vice-mayors, I can also explicitly compare elected and unelected politicians within these two positions. That is, I can improve identification of the dynasty-education relation for these positions by exploiting a difference-in-differences approach, which compares the education level of dynastic and non-dynastic politicians (the first ‘difference’) depending on whether they were elected or selected into their position (the second ‘difference’). The estimation model then becomes:

$$EDU_{ict} = \alpha + \beta_1 Dynasty_{ict} + \beta_2 Unelected_{ict} + \beta_3 Unelected * Dynasty_{ict} + \beta_4 IND_Controls_{ict} + \theta_t + \mu_c + \varepsilon_{ict} \quad (2)$$

Where *Unelected* is an indicator variable equal to 1 for politicians appointed to their position by the mayor without having stood for election (or failed to obtain a council seat in the election) (0 otherwise). I expect $\beta_3 < 0$ as the larger potential for nepotistic hiring practices for unelected

¹¹ I also replicated the analysis adding linear municipality-specific time trends or non-linear province-specific time trends. All results reported below remain unchanged in these more demanding specifications (see tables X.9 and X.10 in the online appendix). Since observations are at the politician, municipality, and mandate level, one might also consider using municipality-mandate fixed effects rather than municipality fixed effects. Table X.11 in the online appendix shows that all results are robust to this alternative.

political positions should lead to a particularly depressed education level for dynastic politicians in such positions (relative to their political peers).

2.2. Results

The results from estimating equation (1) are presented in table 1.¹² Each column focuses on a subset of politicians facing slightly differing electoral constraints. Mayors (column (1)) and councillors (column (4)) face direct election by the population, elected aldermen (column (2)) face both election by the population *and* selection by the mayor, while *unelected* aldermen and vice-mayors (column (3)) face only a selection process by the mayor. Given their underlying differences in the potential for nepotistic hiring practices, I expect the strongest negative dynasty-education relation in column (3), and the weakest dynasty-education relation in columns (1) and (4). The top panel of table 1 includes all available observations within each group of politicians, whereas the bottom panel of table 1 excludes all politicians whose surname is among the 10% most common surnames at the provincial level.¹³

Table 1 about here

Table 1 indicates that dynastic mayors and councillors do not differ from their non-dynastic political peers in terms of their education levels. However, for elected aldermen (who require selection by the mayor after their election into the council) and, particularly, *unelected* politicians (who only require selection by the mayor), we find that dynastic politicians are on average characterised by statistically significantly lower education levels compared to their non-dynastic political peers. In terms of size, the findings suggest that – compared to their non-dynastic political peers – elected dynastic aldermen have one month less education on average

¹² Throughout the analysis reported here, I use the complete dataset starting in 1985. However, as mentioned, excluding all politicians appearing in the dataset prior to 1993 leaves the results qualitatively unaffected (see table X.4 in the online appendix).

¹³ Excluding the most common surnames at the national or regional level gives similar results to those reported (see also table 2).

($-0.112 * 12 \text{ months} = 1.34 \text{ months}$; 3% of the standard deviation of education among aldermen), while unelected dynastic politicians have approximately four and a half months less education ($-0.378 * 12 \text{ months} = 4.54 \text{ months}$; 10% of the standard deviation of education among unelected politicians). Excluding politicians with the 10% most common surnames in panel II marginally strengthens these estimated effects. This indicates some – albeit relatively minor – attenuation bias due to type-2 errors in the dynastic variable when including the most common surnames (Gagliarducci and Manacorda, 2014).¹⁴ Note also that the results in table 1 arise despite a weak *positive* correlation between surname frequency and the average education level of individuals with a surname of a given frequency (see above), and thus cannot be explained by arguments based on a lower socio-economic status among individuals with more common last names.

The pattern observed in table 1 strongly suggests that family-based nepotism brought about by weaker electoral constraints on political selection processes induces the selection of dynastic politicians with lower education levels relative to their non-dynastic counterparts. As such, my findings are in line with studies of Italian academia showing that weaker institutional constraints on academic hiring cause an increase in academic dynasties, which, in turn, depresses the quality of universities' teaching and research (Daniele, 2010; Durante *et al.*, 2015). Preliminary evidence suggests that my findings appear to arise because mayors select their own comparatively less educated relatives *as well as* those of other local politicians. Indeed, unelected politicians sharing the mayor's surname tend to have roughly the same education level (i.e. 13.53, N=89) as unelected dynastic politicians *not* related to the mayor (i.e. 13.56 years, N=2365) – both of which are substantially lower than the education level of non-dynastic unelected politicians who do not share the mayor's surname (i.e. 14.08 years, N=6939). This finding may reflect a tit-for-tat game whereby the mayor extends favours the relative(s)

¹⁴ This is confirmed when excluding the 25% and 50% most common surnames, which further increases the coefficient estimate of the central *Dynasty* variable in absolute terms (see table X.5 in the online appendix).

of another local politician in return for, for instance, political support during the legislative term – and, as such, appears an important avenue for further research.

Table 2 focuses on the elected and unelected aldermen and vice-mayors available in the sample. By directly comparing (non-)dynastic (un)elected aldermen (panel I) and vice-mayors (panel II) via a difference-in-differences approach, I obtain a more precise identification of the dynasty-education relation.¹⁵ Each column in table 2 differs only in terms of the sample employed. Column (1) includes all available observations within each group of politicians, whereas the remaining columns exclude all politicians whose surname is among the 10% most common surnames at the national (column (2)), regional (column (3)) or provincial level (column (4)).

Table 2 about here

The results in panel I of table 2 indicate a negative and statistically significant dynasty-education relation for both elected (i.e. top row of panel I) and unelected aldermen (i.e. the sum of rows 1 and 3 in panel I). Nonetheless, in line with the idea that nepotistic appointments are easier for unelected aldermen, the observed dynasty-education relation is significantly stronger for unelected aldermen ($p < 0.01$ in all cases). The point estimates in this case suggest that unelected dynastic aldermen have on average nearly six months less education than their unelected non-dynastic counterparts (12% of the standard deviation of education among aldermen). In panel II, no dynastic effect is observed for elected vice-mayors. For unelected

¹⁵ Naturally, a similar difference-in-difference design can also be implemented to give a stronger causal claim with respect to the results of table 1. That is, I can estimate a set of ‘pairwise’ difference-in-difference models following equation (2), which compare councillors (or mayors) with elected aldermen (first difference) depending on whether they are dynastic or not (second difference). As elected aldermen still require appointment by the mayor while councillors (and the mayor) do not, the higher appointment power of the mayor with respect to aldermen should lead to a stronger negative dynasty-education relation for elected aldermen. This is exactly what can be observed in Table A.2 in appendix A ($p < 0.001$ in all cases).

vice-mayors, however, there is once again a substantively very strong negative dynasty-education relation, which is statistically significant at the 95% confidence level (see F-test in the bottom row of table 2). The point estimates suggest that the difference between unelected dynastic vice-mayors and unelected non-dynastic vice-mayors is approximately 16 months of education on average (34% of the standard deviation of education among vice-mayors). These results provide strong confirmation of the baseline results provided in table 1.

Although the set of unelected politicians in our setting is relatively limited, it is important to note that they are often brought in for specific expertise missing within the local government (i.e. as technocrats). As such, they are likely to have an impact on at least these specific aspects of local policy-making, even when they constitute a small subset of the overall population. It should also be observed that the coefficient estimates for the indicator variable *Unelected* in panel I of table 2 are consistently positive, which indicates that unelected aldermen on average tend to have *higher* levels of education than elected aldermen. This reflects the technocratic character of these officials. The important observation, however, is that this apparent educational ‘bonus’ of unelected aldermen is estimated to be roughly 40% lower for dynastic individuals.

As political dynasties appear more prevalent in southern Italy (28% dynastic politicians versus 20% dynastic politicians in northern and central Italy; $p < 0.001$), in smaller municipalities (32% versus 21% dynastic politicians; $p < 0.001$) and in rural areas (31% versus 20% dynastic politicians; $p < 0.001$), it is important to observe that none of the results in tables 1 and 2 are exclusively driven by southern, small or urban municipalities. Indeed, excluding either of these groups from the sample leaves all inferences qualitatively unaffected, even though the statistical power of the tests sometimes becomes severely reduced (see tables X.6 and X.7 in the online appendix). Furthermore, as measurement error in my dynastic variable may be more important in big cities compared to smaller municipalities, I also verify that all results remain

robust when focusing on small municipalities (less than 1000 inhabitants), or excluding large municipalities (above 50.000 or above 10.000 inhabitants) (see table X.8 in the online appendix). These findings also indicate that the results do *not* appear to result from a potential rural-urban difference in the quality of the pool of (dynastic) candidates.¹⁶

Finally, with respect to the control variables, tables 1 and 2 confirm the existence of a positive – albeit substantively limited – intra-family correlation in education levels. Also, older politicians had lower education levels at the time of their first entry into local politics compared to younger politicians at their first (s)election. The same is true for politicians first appearing earlier in the dataset. Both observations are unsurprising given the rising education levels over time in the Italian population. Also, female politicians have, *ceteris paribus*, a significantly *higher* level of education at the time of their entry into politics. This is in line with recent evidence from Germany illustrating that female politicians require stronger quality signals – in terms of education or terms in office – to obtain extra-parliamentary jobs (Geys and Mause, 2014). A similar argument is also made about sex-based selection among US Congresswomen (Anzia and Berry, 2011).

2.3. The role of electoral competition

A key mechanism underlying the theoretical argument is that the degree of substitutability between connections and skills positively depends on mayors' capacity to reward family connections within the selection process. As a direct corollary, anything undermining such mayoral power should weaken the negative dynasty-education relation observed above. One relevant factor in this respect might be the level of electoral competition. The reason is that close races tend to entail more vigorous electoral campaigns (Cox and Munger, 1989), which “increase information and awareness levels within the electorate” (Geys, 2006: 648). This is

¹⁶ I am grateful to Olle Folke and an anonymous referee for suggesting these additional tests.

likely to mitigate mayors' capacity to reward family connections when selecting aldermen and the vice-mayor, which, in turn, should undermine the substitution effect between political dynasties and politicians' formal human capital.

To assess this, I collected information on mayoral election outcomes over the period 2000-2012, and define elections' *Closeness* as the difference between the vote share of the winner and runner-up in the mayoral race (as a share of the two-candidate vote). This creates a variable ranging from 0 to 100 and decreasing in electoral competition. I then add this variable and its interactions with *Dynastic* and *Unelected* to the analysis in table 2. The results are reported in table 3.¹⁷ Based on the argument above, I expect the coefficient estimate on the three-way interaction between *Dynasty*, *Unelected* and *Closeness* to be negative. Note that I only look at (un)elected aldermen here, since the shorter time period makes an analysis of the subsample of vice-mayors lack sufficient observations.

Table 3 about here

The results in table 3 confirm that the dynasty-education relation for unelected aldermen becomes more negative when mayors obtained a larger electoral majority in the most recent election – and thereby arguably also obtain more power in the appointment process of aldermen. Hence, mayoral elections characterised by higher political competition are linked to a weaker dynasty-education relation. Even so, these findings should be treated cautiously for two reasons. First, statistical power here is fairly low due to the short time period (and thus a limited number of unelected aldermen in the sample). Second, causal inference may be problematic as the vote margin might not be exogenous (i.e. it may be affected by mayors' pre-election behaviour).

¹⁷ Similar results are obtained when using an alternative definition of *Closeness*: i.e. a dummy variable differentiating elections with a closeness above/below the median value (see table X.14 in the online appendix).

3. Conclusion

Although recent work on political dynasties has improved our understanding of *why* such dynasties arise and/or persist, analyses of their economic and political *consequences* have been slower to emerge (for recent exceptions, see Asako *et al.*, 2015; Bragança *et al.*, 2015; Labonne *et al.*, 2015; Folke *et al.*, 2016; Daniele and Vertier, 2016). Inspired by research on the labour market effects of network-based hiring (Bayer *et al.*, 2008; Durante *et al.*, 2015; Dustmann *et al.*, 2016) and the performance of family firms (Bertrand and Schoar, 2006; Perez-Gonzalez, 2006; Villalonga and Amit, 2006; Bennedsen *et al.*, 2007), this article evaluated the relation between political dynasties and politicians' (formal) human capital. I particularly hypothesized that family-based nepotism induces a misallocation of resources in Italian municipal politics via the selection of dynastic politicians with lower education levels compared to their non-dynastic political peers.

The main results confirm the existence of a negative dynasty-education relation *particularly when* the electoral constraints on the political selection process diminish. This is in line with research indicating that the political connections of firms are more easily exploited in weak institutional settings (Faccio, 2006; Faccio and Parsley, 2009; Smith, 2012). Nonetheless, the results should *not* be interpreted as suggesting that dynastic politicians are therefore necessarily worse politicians. They might still have a higher amount of office-specific human capital than non-dynastic politicians with more schooling. This can happen, for example, if dynastic politicians can learn from their political predecessors about identifying the priorities of constituents, drafting laws and getting them approved, dealing with policy compromises, and so on (Parker, 1996). One important area for future research is therefore to evaluate whether the educational implications uncovered here carry over into policy-making.

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Table 1: Baseline estimation results

	(1)	(2)	(3)	(4)
	Mayor	Elected alderman	Unelected politicians	Councillor
<i>Panel I: Full sample</i>				
<i>Dynasty</i>	0.006 (0.06)	-0.112 *** (-2.59)	-0.378 *** (-3.66)	-0.001 (-0.07)
<i>Education ancestors</i>	0.030 (1.45)	0.068 *** (7.33)	0.039 * (1.75)	0.068 *** (21.39)
<i>Woman</i>	0.825 *** (5.40)	1.133 *** (26.99)	0.917 *** (9.08)	1.067 *** (65.27)
<i>Age</i>	-0.064 *** (-13.87)	-0.081 *** (-40.59)	-0.067 *** (-14.54)	-0.070 *** (-99.00)
<i>Year FE</i>	YES	YES	YES	YES
<i>Municipality FE</i>	YES	YES	YES	YES
<i>R</i> ²	0.076	0.108	0.069	0.085
<i>N (obs.)</i>	12,183	46,506	9,248	359,171
<i>N (municipalities)</i>	6,893	7,906	3,124	8,127
<i>Panel II: Excluding 10% most frequent surnames at provincial level</i>				
<i>Dynasty</i>	-0.015 (-0.13)	-0.117 ** (-2.36)	-0.462 *** (-3.97)	-0.005 (-0.28)
<i>Education ancestors</i>	0.048 ** (2.04)	0.075 *** (7.14)	0.040 (1.59)	0.070 *** (19.84)
<i>Woman</i>	0.824 *** (4.64)	1.101 *** (24.18)	0.898 *** (8.11)	1.040 *** (59.22)
<i>Age</i>	-0.065 *** (-12.55)	-0.078 *** (-35.82)	-0.067 *** (-13.36)	-0.070 *** (-92.84)
<i>Year FE</i>	YES	YES	YES	YES
<i>Municipality FE</i>	YES	YES	YES	YES
<i>R</i> ²	0.077	0.104	0.071	0.085
<i>N (obs.)</i>	10,354	39,923	7,944	308,339
<i>N (municipalities)</i>	6,233	7,522	2,820	7,858

Note: The dependent variable is a politician's level of education (measured in years) in the year of her first election. Coefficient estimates derive from linear panel models, with t-statistics based on standard errors clustered at the level of the municipality in parentheses. The *Dynasty* variable is an indicator variable for politicians with a family member who held elected office in the same municipality prior to their first election (reference category consists of politicians that are the first member of a political dynasty and non-dynastic politicians). *Education ancestors* is equal to the average education level of previously elected family members of dynastic politicians. For non-dynastic politicians, it is set equal to the average education level of all council members elected three years prior to the politicians' first election. Panel I includes the entire dataset, whereas panel II excludes all politicians whose surname is among the 10% most common surnames at the provincial level. * p<0.1; ** p<0.05; *** p<0.01.

Table 2: Results comparing elected and unelected aldermen and vice-mayors

	(1)	(2)	(3)	(4)
	All	Exclude 10% surnames nationally	Exclude 10% surnames regionally	Exclude 10% surnames provincially
<i>Panel I: Aldermen only</i>				
<i>Dynasty</i>	-0.101 ** (-2.39)	-0.086 * (-1.84)	-0.109 ** (-2.29)	-0.108 ** (-2.25)
<i>Unelected</i>	0.844 *** (13.32)	0.867 *** (12.58)	0.874 *** (12.88)	0.857 *** (12.54)
<i>Dynasty * Unelected</i>	-0.346 *** (-3.43)	-0.386 *** (-3.50)	-0.368 *** (-3.26)	-0.374 *** (-3.29)
<i>Education ancestors</i>	0.066 *** (7.87)	0.069 *** (7.49)	0.071 *** (7.55)	0.072 *** (7.59)
<i>Woman</i>	1.081 *** (28.56)	1.088 *** (26.21)	1.073 *** (25.93)	1.068 *** (26.06)
<i>Age</i>	-0.079 *** (-44.66)	-0.077 *** (-40.06)	-0.077 *** (-40.24)	-0.076 *** (-39.62)
<i>Year FE</i>	YES	YES	YES	YES
<i>Municipality FE</i>	YES	YES	YES	YES
<i>R</i> ²	0.109	0.106	0.107	0.106
<i>N (obs.)</i>	55,080	47,143	47,262	47,281
<i>N (municipalities)</i>	7,987	7,644	7,609	7,618
<i>F-test</i>	22.75 ***	21.24 ***	20.82 ***	20.93 ***
<i>Panel II: Vice-mayors only</i>				
<i>Dynasty</i>	-0.012 (-0.07)	-0.008 (-0.04)	-0.076 (-0.40)	-0.130 (-0.70)
<i>Unelected</i>	0.382 (1.22)	0.430 (1.25)	0.545 (1.56)	0.308 (0.88)
<i>Dynasty * Unelected</i>	-0.992 ** (-2.15)	-1.312 ** (-2.51)	-1.301 ** (-2.49)	-1.203 ** (-2.33)
<i>Education ancestors</i>	0.054 * (1.80)	0.031 (0.87)	0.051 (1.45)	0.063 * (1.76)
<i>Woman</i>	1.118 *** (6.52)	1.126 *** (5.85)	1.019 *** (5.23)	1.018 *** (5.21)
<i>Age</i>	-0.072 *** (-11.09)	-0.075 *** (-10.03)	-0.077 *** (-10.25)	-0.075 *** (-9.95)
<i>Year FE</i>	YES	YES	YES	YES
<i>Municipality FE</i>	YES	YES	YES	YES
<i>R</i> ²	0.081	0.088	0.087	0.086
<i>N (obs.)</i>	7,900	6,736	6,723	6,708
<i>N (municipalities)</i>	5,153	4,601	4,574	4,568
<i>F-test</i>	5.26 **	7.13 ***	7.80 ***	7.45 ***

Note: The dependent variable is a politician's level of education (measured in years) in the year of her first election. Coefficient estimates derive from linear panel models, with t-statistics based on standard errors clustered at the level of the municipality in parentheses. The *Dynasty* variable is an indicator variable for politicians with a family member who held elected office in the same municipality prior to their first election (reference category consists of politicians that are the first member of a political dynasty and non-dynastic politicians). *Unelected* is an indicator variable for politicians appointed by the mayor without having been elected. *Education ancestors* is equal to the average education level of previously elected family members of dynastic politicians. For non-dynastic politicians, it is set equal to the average education level of all council members elected three years prior to the politicians' first election. Panel I includes only (elected and unelected) aldermen, whereas panel II includes only (elected and unelected) vice-mayors. The first column includes all observations, whereas columns 2-4 exclude all politicians whose surname is among the 10% most common surnames at the national, regional or provincial level. The F-tests assess whether *Dynasty* + (*Dynasty* * *Unelected*) is statistically significantly different from zero. * p<0.1; ** p<0.05; *** p<0.01.

Table 3: Results accounting for the level of electoral competition

	(1)	(2)	(3)	(4)	(5)
	All	Contested elections	Contested elections (10% surnames nationally)	Contested elections (10% surnames regionally)	Contested elections (10% surnames provincially)
<i>Dynasty</i>	-0.129 (-1.24)	-0.138 (-1.25)	-0.105 (-0.84)	-0.110 (-0.86)	-0.127 (-0.99)
<i>Unelected</i>	0.434 ** (2.17)	0.533 *** (2.59)	0.505 ** (2.19)	0.617 *** (2.77)	0.547 ** (2.46)
<i>Closeness</i>	-0.0004 (-0.14)	-0.0006 (-0.20)	0.002 (0.68)	0.003 (0.90)	0.003 (0.87)
<i>Dynasty * Unelected</i>	0.160 (0.53)	0.219 (0.72)	0.365 (1.06)	0.312 (0.89)	0.214 (0.62)
<i>Dynasty * Closeness</i>	0.002 (0.62)	0.002 (0.55)	-0.001 (-0.28)	-0.001 (-0.26)	-0.003 (-0.55)
<i>Unelected * Closeness</i>	0.011 (1.61)	0.006 (0.76)	0.004 (0.47)	0.002 (0.19)	0.003 (0.038)
<i>Dynasty * Unelected * Closeness</i>	-0.020 * (-1.66)	-0.023 * (-1.91)	-0.029 ** (-2.08)	-0.024 * (-1.67)	-0.013 (-0.92)
<i>Controls</i>	YES	YES	YES	YES	YES
<i>Year FE</i>	YES	YES	YES	YES	YES
<i>Municipality FE</i>	YES	YES	YES	YES	YES
R^2	0.088	0.087	0.083	0.081	0.079
N (obs.)	17,471	17,005	14,351	14,280	14,312
N (municipalities)	5,671	5,471	5,030	4,990	4,990

Note: The dependent variable is a politician's level of education (measured in years) in the year of her first election. Coefficient estimates for the central three-way interaction term derive from linear panel models with controls for gender, age, year of first election, ancestor education, and t-statistics based on standard errors clustered at the level of the municipality in parentheses. The *Dynasty* variable is an indicator variable for politicians with a family member who held elected office in the same municipality prior to their first election (reference category consists of politicians that are the first member of a political dynasty and non-dynastic politicians). *Unelected* is an indicator variable for politicians appointed by the mayor without having been elected. *Closeness* measure the difference in vote share between the mayor and the runner-up in the most recent mayoral election. All constituent terms of the three-way interaction are included as controls to achieve valid estimates. The first column includes all available observations, whereas column 2 includes only municipalities with contested elections. Columns 3-5 includes only municipalities with contested elections and excludes all politicians whose surname is among the 10% most common surnames at the national, regional or provincial level. * p<0.1; ** p<0.05; *** p<0.01.

Appendix A

Table A.1: Summary statistics

Variable		All	Dynastic politicians	Non-dynastic politicians	Mayors	Vice-mayors	Alderman	Councillors	Unelected politicians
Education	<i>N</i>	539,466	120,438	419,028	14,031	8,809	61,940	444,545	9,393
	<i>Mean</i>	12.329	12.491	12.282	14.454	13.365	13.411	12.102	13.946
	<i>St. dev.</i>	4.214	3.985	4.276	3.746	4.001	4.066	4.199	3.708
	<i>[min – max]</i>	[5 – 18]	[5 – 18]	[5 – 18]	[5 – 18]	[5 – 18]	[4.8 – 18]	[4.8 – 18]	[5 – 18]
Dynasty	<i>N</i>	539,466	120,438	419,028	14,031	8,809	61,940	444,545	9,393
	<i>Mean</i>	0.223	1	0	0.272	0.292	0.237	0.220	0.259
	<i>St. dev.</i>	0.416	0	0	0.445	0.455	0.425	0.414	0.438
	<i>[min – max]</i>	[0 – 1]	[1 – 1]	[0 – 0]	[0 – 1]	[0 – 1]	[0 – 1]	[0 – 1]	[0 – 1]
Age	<i>N</i>	539,466	120,438	419,028	14,031	8,809	61,940	444,545	9,393
	<i>Mean</i>	41.280	39.854	41.690	47.685	45.154	42.719	40.798	43.122
	<i>St. dev.</i>	11.403	11.554	11.326	10.266	10.872	10.748	11.446	11.468
	<i>[min – max]</i>	[18 – 102]	[18 – 100]	[18 – 102]	[19 – 100]	[19 – 82]	[18 – 88]	[18 – 100]	[18 – 83]
Woman	<i>N</i>	539,466	120,438	419,028	14,031	8,809	61,940	444,545	9,393
	<i>Mean</i>	0.164	0.193	0.156	0.081	0.150	0.175	0.167	0.221
	<i>St. dev.</i>	0.371	0.394	0.363	0.273	0.357	0.380	0.373	0.415
	<i>[min – max]</i>	[0 – 1]	[0 – 1]	[0 – 1]	[0 – 1]	[0 – 1]	[0 – 1]	[0 – 1]	[0 – 1]
Year of entry into politics	<i>N</i>	539,466	120,438	419,028	14,031	8,809	61,940	444,545	9,393
	<i>Mean</i>	1996.893	2001.222	1995.649	1998.201	1999.962	1998.932	1996.590	2001.429
	<i>St. dev.</i>	8.032	6.543	7.988	7.508	7.121	7.685	8.001	5.690
	<i>[min – max]</i>	[1983 – 2012]	[1983 – 2012]	[1983 – 2012]	[1983 – 2012]	[1983 – 2012]	[1983 – 2012]	[1983 – 2012]	[1991 – 2012]
Education ancestors (3y)	<i>N</i>	440,049	117,663	322,386	12,183	7,900	55,080	359,171	9,248
	<i>Mean</i>	12.025	11.023	12.391	11.938	12.049	12.511	11.954	12.450
	<i>St. dev.</i>	2.736	4.001	1.968	2.748	2.764	2.661	2.735	2.373
	<i>[min – max]</i>	[4.8 – 18]	[5 – 18]	[4.8 – 18]	[4.8 – 18]	[5 – 18]	[4.8 – 18]	[4.8 – 18]	[5 – 18]

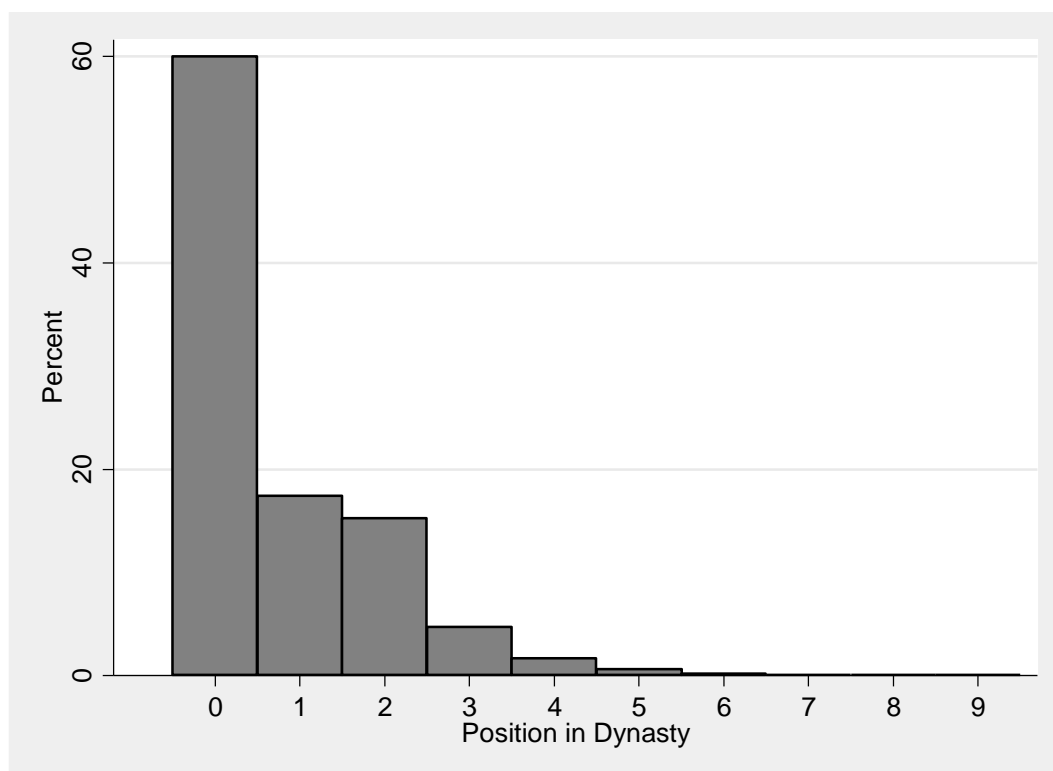
Note: ‘Education ancestors’ is equal to the average education level of previously elected family members of dynastic politicians. For non-dynastic politicians, it is set equal to the average education level of all council members elected three years prior to the politicians’ first election.

Table A.2: Results comparing elected aldermen with elected councillors/mayors

	(1)	(2)	(3)	(4)
	All	Exclude 10% surnames nationally	Exclude 10% surnames regionally	Exclude 10% surnames provincially
<i>Panel I: Elected aldermen versus councillors</i>				
<i>Dynasty</i>	0.012 (0.81)	0.009 (0.51)	0.008 (0.45)	0.011 (0.61)
<i>Alderman</i>	0.865 *** (37.06)	0.869 *** (35.29)	0.878 *** (35.84)	0.877 *** (35.62)
<i>Dynasty * Alderman</i>	-0.236 *** (-6.04)	-0.225 *** (-5.29)	-0.244 *** (-5.63)	-0.248 *** (-5.69)
<i>Controls</i>	YES	YES	YES	YES
<i>Year FE</i>	YES	YES	YES	YES
<i>Municipality FE</i>	YES	YES	YES	YES
R^2	0.092	0.092	0.092	0.091
N (obs.)	405,677	348,105	348,510	348,262
N (municipalities)	8,127	7,858	7,858	7,858
<i>F-test</i>	35.96 ***	28.62 ***	32.76 ***	32.60 ***
<i>Panel II: Elected aldermen versus mayors</i>				
<i>Dynasty</i>	0.159 ** (2.17)	0.166 ** (2.04)	0.154 * (1.87)	0.154 * (1.87)
<i>Alderman</i>	-2.247 *** (-45.86)	-2.233 *** (-41.94)	-2.206 *** (-41.80)	-2.199 *** (-41.49)
<i>Dynasty * Alderman</i>	-0.371 *** (-4.55)	-0.360 *** (-3.96)	-0.374 *** (-4.08)	-0.374 *** (-4.09)
<i>Controls</i>	YES	YES	YES	YES
<i>Year FE</i>	YES	YES	YES	YES
<i>Municipality FE</i>	YES	YES	YES	YES
R^2	0.141	0.136	0.137	0.137
N	58,689	50,255	50,232	50,277
N (municipalities)	8,087	7,775	7,746	7,747
<i>F-test</i>	26.02 ***	17.98 ***	22.38 ***	22.02 ***

Note: The dependent variable is a politician's level of education (measured in years) in the year of her first election. Coefficient estimates derive from linear panel models with controls for gender, age, year of first election, ancestor education, and with t-statistics based on standard errors clustered at the level of the municipality in parentheses. The *Dynasty* variable is an indicator variable for politician with a family member who held elected office in the same municipality prior to her first election (reference category consists of politicians that are the first member of a political dynasty and non-dynastic politicians). Panel I includes only elected aldermen and councillors, whereas panel II includes only elected aldermen and mayors. The first column includes all observations, whereas columns 2-4 exclude all politicians whose surname is among the 10% most common surnames at the national, regional or provincial level. The F-tests assess whether *Dynasty* + (*Dynasty* * *Alderman*) is statistically significantly different from zero. * p<0.1; ** p<0.05; *** p<0.01.

Figure A.1: Distribution of politicians' position in a political dynasty



Note: The figure depicts the distribution of politicians' position in their political dynasty. Position 0 indicates that a politician had *no* family members holding elected office in the same municipality before or after her first election. Position 1 indicates that politicians had at least one family member holding elected office in the same municipality *after* their first election (but not before). Position 2 (3, 4, ...) indicates that politicians had family members holding elected office in the same municipality *prior to* their first election, and specifically refers to the order in which politicians appear in the list of politicians with the same surname in a given municipality. Hence, it indicates political rather than familial 'generations'.