Self-Perpetuation of Political Networks: Evidence from Mexico

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Abstract

I test the hypothesis of political elite self-perpetuation and present evidence this phenomenon involves political networks *broader than families*: The prominence of political and government posts a politician is able to attain increases with the prominence of positions previously held by that politician's relatives, but also those held by their friends and business and political associates. To establish the effect is causal, rather than the result of politically valuable resources and traits shared by network members, I use a peers-of-peers instrumental variables approach wherein I exploit the variation in political attainment of the friends and relatives of a politician's own friends and relatives.

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1. Introduction

That power begets power in politics is a well-established notion in political economic research. The self-perpetuation of political elites has been affirmed empirically by the literature that examines the incumbency advantage of political dynasties: families able to retain or regain power not only due to their inherent talents and marketable traits, but also because they are able to leverage the yields —name recognition, contacts, financial resources— of positions of power previously held. This article exploits a novel database of Mexican politicians to contribute to this literature by providing evidence that a) political outcomes can improve with the political power of precursors in *networks broader than families*, and b) beyond better electoral prospects, the political power of precursors within a network allows its members to achieve *more prestigious positions* in government and in other institutions embedded within the political system.

The entrenchment of political families via self-perpetuation has been documented in a variety of democracies, and a broad literature has probed its economic consequences and the institutional frameworks that engender or mitigate it. The seminal work of Dal Bó et al. (2009) established dynastic persistence exists in the U.S. and dynastic politicians are more likely to be unprepared for the office to which they're elected. Querubin (2016) follows a similar approach to confirm established political families have an incumbency advantage in the Philippines. With a different methodology Rossi (2017) provides evidence of dynastic political entrenchment among legislators in Argentina and documents the phenomenon is negatively correlated with legislative effort. Bragança et al. (2015) demonstrate the existence of political family self-perpetuation in Brazil and show that dynastic mayors spend more in infrastructure but achieve no boost in economic performance for their municipalities.

Two common threads in this literature are the focus on political families as representative examples of the political elite, and future relatives attaining (better) elective offices (more easily) as the representative way political families extend their power over time. Neither the focus of scholarly research on political families nor the choice of electoral outcomes as gauges of political perpetuation are surprising given the saliency of both: it's easy to tell families have ingrained in a political system when the same surnames keep showing up in the ballots, and nothing seems more relevant to political life than who the election winners

are. But save, perhaps, for name-recognition, most politically valuable resources that can be inherited from family members can also be received from individuals sharing bonds other than family ties, and those resources can be spent to attain political outcomes other than electoral victories. Furthermore, any reason of concern that political dynasties exist and persist is still a valid reason of concern if the structure that stays in power is broader or more loosely defined: the self-perpetuation of political networks broader than families can just as well reflect or lead to imperfections in democratic representation, policies and rules that facilitate the entrenchment of the group, patronage, and reduced pools of candidates to fill positions of public interest.

A more practical reason the literature has centered its attention on families and electoral outcomes is the availability of data. The surnames of candidates, commonly used to assess membership to a given political family, and the vote tallies for major elections are relatively accessible for many large democracies. Identifying other type of relationships between politicians and measuring other forms of political attainment requires data which may not be readily available for most political contexts.

The novel database I exploit allows me to study political networks where the ties between individuals are not necessarily familial. It also allows me to evaluate how the power of political precursors can lead network members to higher positions of power that are not necessarily elective. Two features of the database permit this. First, the database presents, for most prominent politicians who held office in Mexico between 1935 and 2009, a list of all their documented appointive and elective positions in government, political parties, the military, and special interest groups like labor unions, along with the years during which those positions were held. I am able to assign to most such positions a place on a ranking of political prestige that is well established and referenced within Mexican political literature, and use this placing as a measure of the political attainment of politicians on any given year during their careers. Second, the database reports most documented interpersonal relationships between politicians, allowing me to reconstruct political networks where the nodes are politicians and the links between nodes correspond to family, extended family, friendship, business, employment and other social ties. I use this information to identify, for any given politician, a set of precursors that may have plausibly influenced their career. I

then examine how the political power measures of members within this set affect the political attainment outcomes of the successor politician.

The main challenge when trying to determine if self-perpetuation is a reason behind the permanence in power of any political group is that the political outcomes of its members may correlate with unobserved characteristics inherent to the group. In the case of families, persistence can be the result of political capital amassed through the exercise of public power, like name-recognition, contacts, favors, and other means to influence the political system. But persistence can also merely be due to a talent or vocation for public office running in the family, or to financial and non-tangible resources amassed by the family outside the political system and inherited to successive generations without regard for their political objectives.

To establish a causal relationship between previous and subsequent political outcomes of family members, the literature has relied on a few empirical methodologies that exploit the random or quasi-random assignment of elective positions or tenure length. The most common approach is to implement a regression discontinuity design that compares dynastic politicians who barely won their elections to those who barely lost. In the context of Mexican politics, where elections have been fraught with accusations of manipulation and simulation, this strategy would be unfeasible. Moreover, it is my intention to examine the persistence of power engendered by positions which may be appointive rather than elective. Thus, to establish causality I instead implement an instrumental variable peers-of-peers approach that takes advantage of the structure of political networks and the nature of links between their members. This method exploits the variation in the political outcomes of politicians who may have plausibly influenced the careers of some of their closely related politicians —their "successors" within the network— but not those of politicians further down a path of relationships —the successors of their successors.

I find that the the maximum prominence level ever achieved by some politician i's precursors as of year t has a positive causal effect on the prominence level of the position that i is observed to hold on year t. It also has a positive causal effect on the likelihood that the position politician i holds on year t is more prestigious than the one she last held. This implies that successors of more prominent politicians are more likely to follow an upward trajectory as their career progresses rather than experiencing lateral career moves, in comparison to the

succesors of relatively less prominent politicians. I find evidence that the effect of political power on a succesor's prominence level is larger if the relationship between precursor and successor is one of friendship, business association, or political association, rather than a familial tie. I find no evidence the effect is stronger when the position of power held by a politician's succesor on year t belongs to the same government branch or institutional environment as the most prominent position ever held by the politician as of year t. This indicates the effect of political power can be exerted across government branches, and suggests the mechanisms by which it is exerted are extra-institutional.

2. Literature review

This article contributes to the economic research literature on political elite self-perpetuation.[1] Research efforts in this literature have been devoted, first and foremost, to establish the power of political families indeed permits or facilitates their permanence. The first economic research work to empirically test the hypothesis of dynastic self-perpetuation was Dal Bó et al. (2009). They use a regression discontinuity design to establish a causal effect of incumbency on electoral advantages of dynastic politicians in US Congress. The identifying assumption in their approach is that legislative elections with tight voting margins emulate an experiment in which the victor is as good as randomly assigned. They observe that legislators who just barely achieve reelection are significantly more likely to have relatives in Congress in the future than legislators who barely lost. Since the extended tenure enjoyed by close reelection winners is in essence randomly assigned, this difference must then be attributed to the *power-treatment* effect of holding power for longer, rather than to unobservable advantageous characteristics shared by political family members. Querubin (2016) proves dynastic self-perpetuation also operates in the Philippines. He replicates the regression discontinuity design approach of Dal Bó et al. (2009), exploiting the quasi-random assignment of political power resulting from close elections, and corroborates that candidates who barely win their elections are much more likely to eventually have relatives in public office.

[1] For a comprehensive review of political dynasty works within and outside economics research refer to Geys & Smith (2017).

A departure from regression discontinuity designs can be found in Rossi (2017), who instead exploits a natural experiment that took place in the Argentine Congress in 1983, when the military dictatorship period ended.[2] The newly formed Congress was tasked with randomly assigning its members tenures of either 2 or 4 years. The author finds that legislators assigned the longer tenure lengths were more likely to have relatives enter Congress in the future.

A second category of objectives pursued by the literature on political dynasties involves determining the economic and political consequences of elite self-perpetuation under different institutional contexts. Bragança et al. (2015) first implement a close-election regression discontinuity design to demonstrate there is dynastic self-perpetuation through mayoral races in Brazil. Then, they compare the public spending practices and economic performance of municipalities represented by dynastic and non-dynastic mayors. The authors find dynastic mayors incur larger public investment expenditures which have no significant impact on the economic development of their municipalities. da Costa Oliveira & de Farias Souza (2022) also focus on dynastic mayors in Brazil but their objective is studying the relationship between self-perpetuation and corruption. The authors find that dynastic mayors are more likely to inflate invoices, that is, to purchase goods and services at higher-than-market prices. Asako et al. (2015) studies the effect that being represented by a dynastic legislator has on the economic outcomes of Japan's municipalities. The authors use an instrumental variables approach where the fact a dynastic legislator represents some municipality is instrumented by the proportion of boys among the children of the previous parliament incumbent for that municipality. The idea is that incumbents with more boys are more likely to bequeath their seat to one of their children, and the gender composition of these is unlikely to be correlated with any future economic outcome. Municipalities with a dynastic legislative representative are found to receive more fiscal transfers from the federal government but experience lower GDP growth.

Rossi (2017) shows that Argentine Congress members belonging to a political dynasty

[2]Among the departures from regression discontinuity designs one should also include the secondary empirical strategy of Dal Bó et al. (2009) which employs an instrumental variables approach for the electoral success of legislators using the reelection rates of legislators from the same party competing in the same state and year.

have worse legislative performance as measured by floor and committee attendance and participation metrics. Geys (2017) relies on a natural experiment to assess the effect of dynastic politics on the human capital of local politicians in Italy. In 1993, a law was adopted in Italy by which mayors could start directly appointing aldermen, even if they were not part of the elected municipal council. This policy setting allows the author to implement a differences-in-differences methodology comparing the education levels of dynastic and non-dynastic politicians who were either elected or unelected before being appointed to the alderman position. The author finds that placing political selection in the hands of mayors increased the prevalence of dynastic politicians with lower education levels. George & Ponattu (2019) employs a regression discontinuity design where the focus are India's national parliament members. He determines there is a negative impact on measures of poverty and public good provision for villages represented by dynastic politicans. The author also provides evidence the gap in economic performance between villages represented by dynastic and non-dynastic politicians can be largely attributed to moral hazard: the descendants of previous parliament members are less incentivized to exert effort because they inherit voters from their precursor relatives. Labonne et al. (2019) examines the role played by political self-perpetuation in determining the gender distribution of mayoral candidates in the Philippines. The authors find that the introduction of term-limits in the Philippines led to more women representation in mayoral elections, where the effect was driven by female relatives of politicians previously in power. Evidence reported by the authors indicates differential impact across genders could be the result of strategies implemented by term-limited politicians to conserve power including having their wives and daughters compete to succeed them in office.

A third form of research within the political dynasties literature aims at uncovering the institutional and policy frameworks that engender self-perpetuation and those that place limits on it. Querubin (2012) finds that imposing term limits on elective offices has been a poor tool to fight the persistence of political dynasties in the Philippines. The author finds that the introduction in 1987 of a 3-consecutive-term limit for congressmen, governors and local officials did not significantly reduce the likelihood that incumbents *or their family members* stayed in power —in the same or a different office— after the third term had elapsed. An example of a democracy with political dynasties where the hypothesis of self-

perpetuation has not yet been affirmed can be found in Van Coppenolle (2017). The author finds no evidence that the power-treatment of longer tenure in the UK Parliament has a causal effect on the probability of political dynasty formation. MPs in the House of Commons who barely won their reelection races are no more or less likely to have future relatives join the Parliament than those who barely lost. Fiva & Smith (2018) evaluate whether a politician's incumbency can give an advantage to her successors in political systems where votes are cast for political parties rather than individual candidates. The authors find no evidence that this is the case using election data from Norway.

This paper provides various contributions to the political elites economic research literature: It considers politicians as part of groups broader than families, establishing that positions of power previously held yield benefits to extended family members, friends, collaborators and associates, and not just future relatives with the same surname or spouses. By defining political attainment in terms of the prominence ranking of government and political positions, it allows for a more gradual dosage structure of power-treatments to be studied than what is possible when power-treatments correspond to counts of terms, tenure lengths or other binary outcomes. Methodologically, it is the first paper to test the hypothesis of self-perpetuating political elite power using a peers-of-peers-style instrumental variables approach, and it is the first one to study political elite self-perpetuation in the context of Mexican politics.[3]

3. Data and measures of political attainment

I use an original database populated with the biographical information collected on Camp (2011). This directory presents biographical entries for the most prominent Mexican politicians who held power between 1935 and 2009. In total, 2,953 politicians have an entry in the directory, and these were selected based on two criteria. The first criteria has to do

[3] An examination of patterns of family ties exhibited by Mexican politicians can be found in Camp (1982). The author finds that at least one third of political leaders in each of the eight presidential administrations from 1935 to 1983 had politically active families. He also finds education level and having an upper-class socioeconomic background are positively correlated with the number of political family ties of Mexican politicians.

Table 1: Brandenburg's Ranking of the Prestige of Political and Government Positions

Prominence level	Positions included in level
1	The head of the Revolutionary Family
2	The President of Mexico
3	Members of the inner circle and factional leaders of the Revolutionary Family.
4	Cabinet members, including the governor of the Federal District; the military chief of staff; the private secretary of the president; managers of major state industries; and directors of large semiatonomous agencies, commissions, banks, and boards.
5	Governors of the big states and the federal territories, ambassadors in prestige posts, regional strongmen not in the inner circle, the two presidential legislative spokesmen in the respective houses of congress, military zone commanders, and the official-party president.
6	Supreme court justices; senators; undersecretaries of cabinet ministries and assistant directors of large state industries, commissions, boards, and dependencies; the secretary-general and sector heads of the official party, leaders of major opposition parties; and the secretaries-general of the CTM, CNC, and FSTSE.
7	Directors and managers of medium-size state industries; directors of secondary federal boards, commissions, and agencies; governors of medium and small states; ambassadors, ministers, and consuls general.
8	Municipal presidents in large cities.
9	Federal deputies; federal judges; the president and members of regional executive councils of the official party; leaders of minor opposition parties; labor, agrarian, and federal credit bank bosses at the state level; and state cabinet officers.
10	State deputies, state judges, district official-party officials, federal officials in the states, and local caciques.
11	Municipal presidents, local military commanders, and state and federal officials at the local level.
12	Local party officials and municipal councilmen.

with the prominence of the politician. Ai Camp includes only politicians who attained a government or political position within the first six rungs of the *political prestige ladder* defined in Brandenburg (1964).[4] This is a seminal and widely referenced work on the inner workings of the Mexican political structure in the decades following the Mexican Revolution. Table 1 presents the prestige levels of every position ranked in Brandenburg's text. The

[4]Ai Camp also makes an effort to include most politicians who were, at least twice, elected to be deputies within Mexico's lower House of Congress, even though this position is only at level 9 in Brandenburg's prestige ladder.

second criteria for inclusion in Ai Camp's directory has to do with the reliability of available biographical information. Politician's were only included if information about their most prominent position could be validated using at least two different sources of information.[5]

Every biographical entry in Ai Camp's directory reports, when the information is available, a politician's birth date and place of birth, education institutions attended, education field pursued, and various lists of positions held by the politician. Documented positions belong to one of the following categories[6]:

- Elective positions: those which, either officially or unofficially, were achieved through an electoral process. These positions go all the way from City Council Members and Municipality Mayors, to President of Mexico.

- Party positions: positions within political parties, electoral campaign positions, and prominent positions that politicians were *candidates* for but did not attain.

- Governmental positions: the bulk of positions are in this category, which lists appointive positions at every level of government, including those within the state and federal secretariats.

- Interest group positions: positions in labor unions and politically-oriented groups other than political parties, like student federations.

- Military positions: includes information about the highest military rank achieved by politicians; does not include bureaucratic positions within the Secretariat of Defense and the Secretariat of the Navy, which are listed in the governmental positions category.

Positions listed in the directory are reported along with the time period during which they were held. This allows me to obtain from my database an unbalanced panel data set where politicians appear once for every year during which they held an observed position.

[5]Sources include official federal, state and local level directories, directories published privately by, for example, the main Mexican politcal parties, and selected newspapers, magazines and monographies.

[6]One of the categories also includes private sector positions, but I do not use these when computing measures of political attainment.

3.1. Main political outcome measure

I define a politician's political attainment in terms of the prestige, or prominence, of the positions she holds. This approach requires me to assign a measure of prominence to individual positions. To accomplish this I rely on Brandenburg's political prestige ladder and features like a position's title and the type of organization in which a position was held. I follow two major steps when assigning prominence levels to positions.

First, every position in my database clearly matching to one of the positions explicitly included in Brandenburg's ladder is assigned its corresponding prestige level. For example, senator positions, regardless of the political party or Mexican state they represent, are assigned a prominence level of 6 —because these are included in the sixth rung of Brandenburg's prestige ladder— while federal secretariats and other presidential cabinet members are assigned a prominence level of 4, and so on.

Second, I assign a prominence level to every other government, political-party, union, and autonomous-organization position in my database using positions' specific features and following criteria that can be recognized from the spacing between prestige levels of similar positions in Brandenburg's ladder. To illustrate this approach, consider a politician who was identified as being, at some point in their career, an assistant secretary within a *state-level* secretariat. This is not a position explicitly mentioned in Brandenburg's prestige ladder. However, Brandenburg places undersecretaries of cabinet ministries on level 6, two levels below federal cabinet members, who are on level 4. Since *state-level* cabinet members are on level 9, it's relatively safe to assign a prominence-level of 11 to the *state-level* assistant secretary position in question.

After assigning prominence level to *positions*, the next step is to do the same for *politicians*. I define any given politician's prominence level, on any given year, as the prominence level of whichever position was held by the politician during that year. Some politicians occasionally held more than one position simultaneously, in which case I assigned to that politician-year combination the level of her most prominent position for that year.

3.2. An alternative measure

Going up one rank in the prestige ladder comes with an increase in political power and influence which is unlikely to be uniform across different rungs in the ladder. The difference

in influence between cabinet members and large state governors, which belong to levels 4 and 5, is perhaps not the same as the difference between state deputies and federal deputies, which belong to levels 10 and 9. To account for this disuniformity, I construct a secondary measure of prominence based on the distribution of positions across different prominence levels.

The *prominence-power* of a position with some given *prominence-level* is measured as the proportion of all positions assigned a higher or just as high prominence-level. To be precise, the prominence-power of any distinct database position i, denote it Pow_i, is given by:

$$Pow_i = \frac{\sum_{j=1}^{N} \mathbb{1}(Prom_j \geq Prom_i)}{N}$$

where $Prom_i$ / $Prom_j$ represents the prominence level of position i / j, and N is the total number of distinct positions in my database.

With this measure, going up one level to a rung of the ladder that has relatively few positions in the database translates into a relatively high increase in power [7]. The underlying assumption with this approach is that attaining a one-level-higher position that is relatively competitive —historically held by only a small number of politicians— comes with a higher degree of influence or power than attaining a one-level-higher position that is historically easier to attain.

I then define the prominence-power of any given politician on year t as the prominence-power of the highest ranked position she held on that year.

3.3. Networks, influential nodes, and their political attainment measures

Biographical entries in Ai Camp's directory also include information about politicians' family members, friends, associates and other contacts. When the information is available, a biographical entry will mention the political and government positions of these relatives and contacts, regardless of whether the person has her own entry in the directory. I use this category of biographical information to reconstruct the networks that politicians belong to and to distinguish those individuals who may have plausibly been willing and able to influence

[7] A prominence-power closer to 0 indicates a more powerful position, just like a prominence-level closer to 1 indicates a better ranked position in the prestige ladder

the careers of any given politician within the network. This categorization of political contacts is fundamental for the construction of my main explanatory and instrumental variables, so I provide here definitions that will facilitate describing my methodology.

1. **Extended Documented Network**: A set of politicians, representing the "nodes" of the network, and documented relationships between them, representing the "links" of the network, such that if politician i has any sort of documented direct relationship with j then i and j must belong to the same network, and i and j are "linked" within the network.

2. **Political Network**: Defined similarly to an Extended Document Network, but admits only a specific subset of documented relationships to represent links between politicians. To be precise, this definition allows links to exist only if they're based on a relationship of family (either blood-based or law-based), friendship, *compadrazgo*, or documented business or political association.[8]

3. **Direct nodes**:If politician i has any sort of documented direct relationship with politician j I say j is a **direct node** of i and viceversa. I refer to the set of all direct nodes of i as the **direct set** of i.

    - The politicians within the direct set of i are a subset of the politicians within the Extended Document Network of i but may not necessarily be a subset of the politicians within i's Political Network. For example, if i and j studied together then j is part of i's direct set and Extended Document Network, but would only be part of i's Political Network if they're tied to some intermediate politician k through one of the relationship types allowed to form links in Political Networks (e.g. if they're both cousins of k.)

4. **Influential nodes**: Among the direct nodes of politician i I distinguish those who could have plausibly been willing and able to influence the career of i. I say that politician j is an influential node of i if j is a parent, grandparent, uncle, aunt, or parent-in-law

[8]This definition is consistent with the *Family, Friends & Collaborators* category of relationships described in the accompanying paper, titled "A Database of Prominent 1935-2009 Mexican Politicians"

of i, or if j's political career *occurred before* the career of i and j is a spouse, friend, compadre/comadre, sibling, sibling-in-law, business associate or political collaborator of i. I refer to the set of all influential nodes of i as the **influential set** of i.

- I consider the political career of j to have occurred before i's if i) the first position documented in the directory for j began at least 4 years before the first position of i or ii) the most prominent position of j began at least 4 years before the most prominent position of i.
- The politicians within the influential set of i are a subset of the politicians within the Extended Document Network of i and *also* a subset of the politicians within i's Political Network. This is because all relationship types distinguished as plausibly influential belong to the category of relationship types allowed to form links within Political Networks.

5. **Non influential nodes**: Any politician who is a *direct node* but not an *influential node* of politician i is considered a *non influential node* of i. The set of all such nodes is the **non influential set** of i.

   - Example: politician j is a non-influential node of i if j is the child of i, or if i and j studied together.

6. **Parallel nodes**: A politician j who is a *non influential node* of i, such that i is also a *non influential node* of j is referred to as a parallel node of j. Parallel nodes are two politicians who have a documented relationship but it can't be safely assumed that either of them was plausibly able or willing to influence the career of each other. I refer to the set of all parallel nodes of i as the **parallel set** of i.

   - Example: politician j is a parallel node of i if i and j studied together. But politician j would *not* be considered a parallel node of i if j is the child of i because in this case i is considered an influential node of j.

4. Empirical strategy

My main explanatory variable of interest is constructed with the political prominence levels of a politician's influential nodes. I'm interested in estimating the degree to which a politician i's political outcomes are affected by the political power of politicians who could have plausibly influenced i's career. Given that politicians in Ai Camp's directory are selected based on their prominence, there is a concern that very prominent politicians have more influential nodes simply because their lives are better documented. To address this, I define my explanatory variable of interest using the *maximum* prominence level ever achieved by politicians in the influential set of i by some year t. I argue that defining my explanatory variable in terms of the *maximum* is preferable to defining it in terms of the *average* prominence level of i's influential nodes. The reason is that it is very likely the documented relationships of any given politician are a selection of that politician's most prominent relationships to begin with; we are more likely to know if some relatively obscure politician was friends with the President of Mexico than if she was friends with a cabinet member. Using the average prominence level of politicians' influential nodes would therefore result in lower values for politicians with highly documented relationships relative to politicians for whom only a few *highly prominent* relationships are known.

It is very likely the political attainment of i's most prominent influential node and the prominence level of i herself are correlated for the same reason the outcomes of political dynasties are correlated: i and her influential nodes are bound to share unobserved characteristics which may be determinants of political attainment. To address this concern of endogeneity I implement a peers-of-peers instrumental variables approach whereby the political attainment of i's most prominent influential node, say j, is instrumented with the maximum prominence level found among the influential nodes of j who **are not influential nodes of** i.

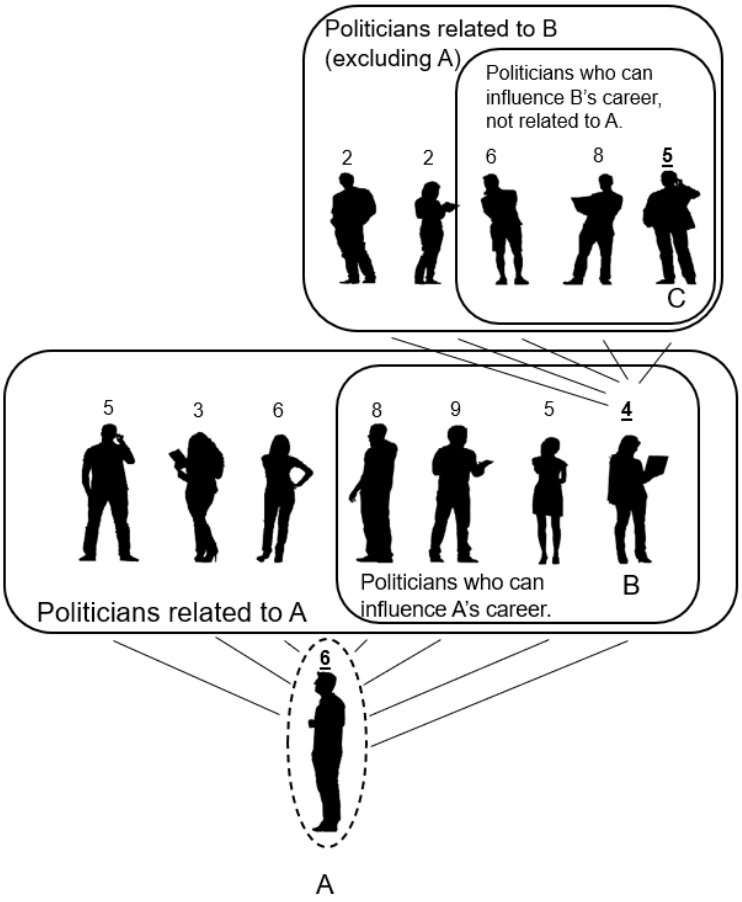

Fig. 1. A Chain of Influential Nodes

Figure 1 illustrates how the values of my main explanatory and instrumental variables are determined: On some year t of politician A's career the most prominent political or government position she holds is on place 6 within the prestige ranking ladder, so A's own prominence level is 6. The middle row of the figure illustrates all the direct nodes of A and the highest prominence level they have ever reached by year t. In the set of influential nodes of A there are politicians who, by year t, have reached prominence levels of 8, 9, 5 and 4. The most prominent of these influential nodes is therefore the one who's reached a prominence level of 4, which means the value for my main explanatory variable associated with politician A on year t is 4. The set of direct nodes of i's most prominent influential node, politician B, is illustrated in the top row of the figure. Within the influential nodes of B, the most prominent is the one who, by year t, has reached a prominence level of 5, politician C. This means the value for my instrumental variable associated with politician

A on year t is 5. The identifying assumption for my instrumental variable approach is then that, conditional on a set of exogenously determined characteristics affecting political career success, the prominence level of "C" affects the political outcome of "A" only through its effect on "B".

5. Econometric model and results

I estimate the coefficients in variations of the following baseline regression equation:

$$Y_{ikt} = \beta_0 + \beta_1 M_{ikt}^{INF} + X_{ikt}\beta_2 + \tau_i + \eta_k + \gamma_t + \varepsilon_{ikt} \tag{1}$$

where Y_{ikt} is a prominence outcome of interest defined for politician i, who belongs to network k, at year t, X_{ikt} is a vector of time-varying individual characteristics, and δ_i, η_k and γ_t are politician, network and year fixed effects. δ_i and η_k are necessary if my instrumental variable is correlated with the error term due to political capital being inherited or shared by politicians within the same network. Year fixed effects are necessary if there exist time-dependent correlations between my instrumental variable and the error term, including those which may arise due to presidential or state administrations being differentially selective when forming their cabinets.

X_{ikt} includes a term representing the chronological order of positions held by a politician within her career. This term addresses the possibility there is a natural progression in prominence during politicians' careers. If, absent any political career influence, my dependent variable and independent variable of interest both naturally decrease (that is, improve) over time, failing to control for career progression would lead me to overestimate the effect of interest. In some specifications I also include a control for the maximum education level achieved by politicians. This variable is fixed so when it is not included in a specification its effect is simply "absorbed" by the politician-level fixed effects.

The term M_{ikt}^{INF} represents the maximum value achieved by the influential nodes of politician i as of year t for either of the prominence-level or prominence-power variables. The first

stage for this endogenous regressor is given by the estimation equation:

$$M_{ikt}^{INF} = \alpha_0 + \alpha_1 M2_{ikt}^{INF} + X_{ikt}\alpha_2 + \tau_i + \eta_k + \gamma_t + \nu_{ikt} \tag{2}$$

Here, if we let $b_t^{INF}(i)$ represent the best influential node of i by year t —the one with the maximum prominence level ever achieved as of year t— then $M2_{ikt}^{INF}$ is the maximum outcome value achieved as of year t by the influential nodes of $b_t^{INF}(i)$ who are not themselves in the set of influential nodes of i.[9]

I present in Table 2 the relevant summary statistics for two samples of observations: a sample containing all politicians in my database for whom at least one position is provided that can be dated and assigned a prominence ranking ($N = 2,941$), and a *usable subsample* containing all such politicians for whom I'm also able to observe M_{ikt}^{INF} and $M2_{ikt}^{INF}$ for at least one year in i's career ($N = 318$).

I estimate my econometric models using this second subsample. To be part of the usable subsample, politician i must have at least one influential node with at least one "prominence-rankable" position dated before the end of i's career. It's also necessary that i's most prominent influential node for at least one year during i's career has a non-empty influential-nodes set after discarding nodes that can influence i's career, and members of these set held at least one political position before the end of i's career. Statistics in Table 2 are computed using only politicians within each subsample for whom the relevant variable is defined. In my full sample, for example, there are $2,523$ politicians for whom their maximum education level is known, and there are $2,446$ politicians for whom their biographical entry contains information about family members and other relationships.

My usable subsample is **not** a representative subset of the full sample, as can be seen by comparing the average maximum prominence levels of politicians' nodes across samples. Compared to politicians in the full sample, usable politicians have on average more prominent politician nodes (5.11 vs 6.26 units) and also more prominent influential politician nodes (5.56

[9]When more than one of the influential nodes of i has the maximum outcome value as of year t, then $b_t^{INF}(i)$ is the set containing those politicians, and $M2_{ikt}^{INF}$ is the maximum outcome value achieved as of year t by any of the influential nodes of the members of $b_t^{INF}(i)$, provided said nodes are not influential nodes of i.

vs 6.61). Because of this disparity, the estimates I obtain can be thought of as measuring only a local average treatment effect where the treatment is being part of a chain of influential political nodes with at least three members.

Table 2: Summary Statistics - Full Sample & Usable Subsample

	Full Sample of Politicians, ($N = 2941$)						Sample with $M1_{ikt}^{INF}$ and $M2_{ikt}^{INF}$ defined for at least one t, ($N = 318$)					
	N	Min	Max	Avg.	SD	Med	N	Min	Max	Avg.	SD	Med
Prominence Level on First Career Year	2,941	4	14	9.36	2.42	9	318	4	14	8.96	2.33	9
Avg. Prom. Level over Whole Career	2,941	4.00	13.67	8.17	1.42	8.20	318	4.00	11.00	7.69	1.24	7.67
Prominence Level on Last Career Year	2,941	2	14	7.39	2.13	7	318	2	14	7.03	2.26	7
Max. Education	2,523	1	8	6.04	1.19	6	284	1	8	6.01	1.08	6
Avg. Max. Education of i s Influential Nodes	474	1	8	5.80	1.25	6	272	1	8	5.76	1.23	6
Num. Documented Relations (Politicians or not)	2,446	1	81	4.86	4.69	3	318	1	81	10.02	8.53	8
Num. Nodes by Node Set												
Direct	1,637	1	78	3.20	4.16	2	318	1	78	6.27	7.26	4
Influential	926	1	10	1.64	1.17	1	318	1	10	2.22	1.63	2
Non Influential	1,297	1	70	2.87	3.85	2	254	1	70	5.07	6.79	3
Parallel	943	1	45	2.52	2.99	2	222	1	45	3.88	4.84	2
Influential, Family	702	1	5	1.36	0.72	1	177	1	5	1.69	0.98	1
Influential, Non Fam.	371	1	10	1.52	1.16	1	239	1	10	1.71	1.37	1
Max Prominence Level at Start of i's career by Node Set												
Direct	1,091	2	14	6.26	2.43	6	294	2	14	5.11	1.88	5
Influential	707	2	14	6.61	2.48	6	282	2	14	5.56	2.06	5
Non Influential	676	2	14	6.35	2.37	6	180	2	14	5.99	2.24	6
Parallel	638	2	14	6.29	2.38	6	171	2	14	5.89	2.17	6
Influential, Family	505	2	14	7.01	2.53	6	149	2	14	5.99	2.25	6
Influential, Non Fam.	292	2	14	6.32	2.37	6	197	2	14	5.81	2.13	6
Max Prominence Level at End of i's career by Node Set												
Direct	1,444	2	14	5.15	2.48	4	318	2	14	3.57	1.59	4
Influential	810	2	14	5.84	2.62	5	318	2	14	4.17	1.75	4
Non Influential	1,128	2	14	5.13	2.34	4	239	2	14	4.56	2.16	4
Parallel	882	2	14	4.71	2.01	4	216	2	12	4.55	2.05	4
Influential, Family	568	2	14	6.86	2.59	6	163	2	14	5.60	2.41	5
Influential, Non Fam.	367	2	14	4.71	2.10	4	239	2	10	4.04	1.63	4

5.1. Main results

Table 3: Main IV Regressions, Effect on Prominence Level

SE Cluster Level:	(1) Network	(2) Politician	(3) Politician	(4) Network	(5) Politician	(6) Politician	(7) Politician
						First Year of Positions Only	
First Stage							
Dependent Variable:	Influential Nodes' Max. Prominence Level as of Observation Year						
Max. Prominence Level of Inf. Nodes of Best Node as of Observation Year	0.10***	0.27***	0.27***	0.08***	0.27***	0.28***	0.28***
	(0.02)	(0.08)	(0.08)	(0.01)	(0.08)	(0.08)	(0.10)
Max. Education Level	0.13***	0.52***	0.38***	0.13***	0.55***	0.34***	
	(0.02)	(0.06)	(0.07)	(0.01)	(0.06)	(0.08)	
Chronological Order of Position in Career			-0.14***			-0.18***	-0.11**
			(0.04)			(0.05)	(0.04)
Max. Prominence Level of **NON** Infl. Nodes as of Observation Year							0.14***
							(0.05)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Network Fixed Effects	Yes	No	No	Yes	No	No	No
Politician Fixed Effects	No	Yes	Yes	No	Yes	Yes	Yes
F-stat	22.73	11.82	11.86	46.99	12.04	12.70	7.09
Second Stage							
Dependent Variable:	Politician's Prominence Level on Observation Year						
Instrumental Variable:	Max. Prominence Level of Influential Nodes of Best Node as of Observation Year						
Max. Prominence Level of Influential Nodes as of Observation Year	0.57***	0.98***	0.96***	0.69***	0.87***	0.90***	0.74*
	(0.09)	(0.37)	(0.37)	(0.11)	(0.33)	(0.32)	(0.44)
A.R. Weak-Instrument Robust p-value							(0.09)
Max. Education Level	-0.04	-0.13	-0.34	-0.04	-0.02	-0.29	
	(0.04)	(0.28)	(0.26)	(0.03)	(0.25)	(0.20)	
Chronological Order of Position in Career			-0.22**			-0.22***	-0.31***
			(0.09)			(0.09)	(0.09)
Max. Prominence Level of **NON** Infl. Nodes as of Observation Year							0.06
							(0.11)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Network Fixed Effects	Yes	No	No	Yes	No	No	No
Politician Fixed Effects	No	Yes	Yes	No	Yes	Yes	Yes
Observations	6075	6075	6075	1713	1713	1713	1329

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3 presents estimates of my baseline regressions using as dependent variable politicians' observed prominence level on year t. The first three columns use all observations in

my panel for which the necessary dependent, independent, and instrumental variables are defined. The last four columns use a subsample of my panel that contains only the first observation corresponding to any given position held by a politician. For example, politician Santiago Creel Miranda held the position of Federal Deputy from 1997 to 1999, Secretary of Government from 2000 to 2005, and Senator from 2006 to 2012, so he has observations for every year from 1997 to 2012 in the full panel, but only three observations in the subsample, corresponding to the first year in each of his three positions. Using only one observation for each position addresses the concern that most positions in government, especially in the top ranks of prominence, have to be held for a fixed number of years. Keeping every year for which any given position was held could have a similar effect to artificially adding multiple copies of observations, thus reducing standard errors and inflating the statistical significance of my estimates.

Columns 1 and 4 correspond to specifications with fixed effects for politicians' networks which cluster standard errors at the network level. The remaining columns cluster standard errors and control for individual politician fixed effects. All specifications include year fixed effects. Specifications in Columns 3 and 6 control for the chronological order of positions within a politicians' careers. Lastly, Column 7 omits the control for maximum education level —which is absorbed by the politician fixed effects control— and includes one for the prominence outcome of politicians' Non-Influential Nodes. The purpose of this last regressor is to control for time-dependent network effects; it accounts for the possibility that my instrument is correlated with the political attainment of the target politician's network members over time, as may happen if some political group undergoes a scandal, or some region of the country is favored in the cabinet selection process of some presidential administration.

The top panel presents the first-stage estimates and Kleibergen-Paap rk Wald F-statistics for each specification. The main coefficient in all these specifications is estimated to be statistically significant.

My preferred specifications are those in Columns 6 and 7, which use only one year for each position held by a politician and control for the chronological order of positions in politicians' careers. Under the assumption that my instrument is exogenous with political attainment over time after controlling for politician fixed characteristics and the order in which positions

are held, I estimate the effect of a one-unit increase in the prominence-level of a politicians' Influential-Nodes to be a 0.9 units increase in the prominence-level of the politician herself. If the exogeneity condition of my IV holds only after controlling for time-dependent network effects, then the estimated effect is an increase of 0.74 units in prominence-level.

Interpreting these results is easier if we consider the median placing in the prominence ladder of politicians and their influential nodes. The median prominence level at the career start of politicians in my usable subsample is 9, and the sample median of the best prominence level achieved by influential nodes of these politicians at their career start is 5 units. This means the median politician in my usable subsample begins their political career at the "federal deputy / minor opposition party leader" level of the prominence ladder, while the median influential node available to new politicians has by then achieved the "governor of a big state / prestigious ambassador" level. If incoming median politician i's most prominent influential node is randomly assigned to a one-level higher position, say that of "cabinet member', that is expected to increase i's entry-level prominence by 0.75 to 0.90 units on average, allowing her to start -almost- at the "large city municipal president" level instead.

In both my preferred specifications the coefficient estimate corresponding to the chronological position order control is significant and negative. Since my prominence measures indicate higher political attainment the lower they are, the interpretation of these estimates is that, ceteris paribus, when politicians change positions their political prominence increases on average about one-quarter of a level.

With the specifications in Table 4 I evaluate if the effect of influential nodes on political attainment depends on the relationship type between politicians. Specifically, I consider the possibility that politicians are differentially willing or able to influence the political careers of their family members than the careers of nodes outside their family. Regressions reported in this table are of the form:

$$\begin{aligned} Y_{ikt} = \beta_0 + \beta_1(M_{ikt}^{FamINF} \times B_{ikt}^{Fam}) + \beta_2(M_{ikt}^{NonFamINF} \times B_{ikt}^{NonFam}) \\ +\beta_3 B_{ikt}^{Fam} + \beta_4 B_{ikt}^{NonFam} + X_{ikt}\beta_5 + \tau_i + \eta_k + \gamma_t + \varepsilon_{ikt} \end{aligned} \tag{3}$$

Table 4: Family Vs Non Family Effect

SE Cluster Level:	(1) Network	(2) Politician	(3) Politician	(4) Network	(5) Politician	(6) Politician	(7) Politician
					First Year of Positions Only		
	Second Stage						
Dependent Variable:	Politician's Prominence Level on Observation Year						
Instrumental Variable 1	Max. Prominence Level of Influential Nodes of Best **Family** Node as of Observation Year $\times \mathbb{1}(M_{ikt}^{FamINF}$observed) : IV1						
Instrumental Variable 2	Max. Prominence Level of Influential Nodes of Best **Non-Family** Node as of Observation Year $\times \mathbb{1}(M_{ikt}^{NonFamINF}$observed) : IV2						
Max Prom. Level of **Family** Infl. Nodes as of Observation Year $\times \mathbb{1}(M_{ikt}^{FamINF}$observed)	-0.38	-0.53	-0.11	-1.32	-0.30	0.14	-0.99
	(0.56)	(1.52)	(1.10)	(1.04)	(1.12)	(0.91)	(1.52)
Max Prom. Level of **Non-Fam** Infl. Nodes as of Observation Year $\times \mathbb{1}(M_{ikt}^{NonFamINF}$observed)	0.32**	0.91***	0.88***	0.50***	0.68**	0.70***	0.75*
	(0.12)	(0.35)	(0.34)	(0.16)	(0.28)	(0.27)	(0.39)
A.R. p-value for Joint Significance Test		(0.01)	(0.01)		(0.03)	(0.03)	(0.03)
$\mathbb{1}(M_{ikt}^{FamINF}$observed)	2.46	1.45	-0.16	6.98	0.75	-1.19	4.94
	(2.81)	(6.94)	(5.08)	(4.96)	(5.54)	(4.53)	(7.55)
$\mathbb{1}(M_{ikt}^{NonFamINF}$observed)	-1.70***	-7.11***	-6.67***	-2.31***	-5.16***	-5.00***	-8.75**
	(0.44)	(2.25)	(2.12)	(0.73)	(1.94)	(1.72)	(3.78)
Chronological Order of Position in Career			-0.26***			-0.28***	-0.34***
			(0.08)			(0.08)	(0.09)
Max. Prominence Level of **NON** Infl. Nodes as of Observation Year							0.07
							(0.10)
Constant term	4.47***	3.35	1.14	3.79***	3.41	0.53	2.57
	(0.44)	(3.30)	(2.72)	(0.37)	(3.00)	(2.29)	(3.95)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Network Fixed Effects	Yes	No	No	Yes	No	No	No
Politician Fixed Effects	No	Yes	Yes	No	Yes	Yes	Yes
Observations	6640	6640	6640	1876	1876	1876	1329
F-stat, First Stage IV1	10.48	1.53	1.70	10.42	2.41	2.54	2.54
F-stat, First Stage IV2	497.10	6.42	6.27	678.77	7.18	7.07	7.07

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The terms M_{ikt}^{FamINF} / $M_{ikt}^{NonFamINF}$ represent the maximum prominence level achieved as of year t by *family members* / *non family members* in the set of influential nodes of politician i. The terms B_{ikt}^{Fam} / B_{ikt}^{NonFam} are indicator variables that equal 1 for observations for which M_{ikt}^{FamINF} / $M_{ikt}^{NonFamINF}$ are observed. If, for example, the influential-nodes set of politician i contains no family members of i then B_{ikt}^{Fam} equals 0 for every observation of i. If

i does have family members in her influential-nodes set but these are only observed to hold positions mid-way through i's political career and onward, then B_{ikt}^{Fam} equals 0 for a number of observations before "activating". B_{ikt}^{NonFam} is similarly defined.

With this design, the coefficient β_1 represents the average increase in i's political attainment on year t associated with a one unit increase in the prominence level of the most prominent of her *family* influential nodes —conditional on M_{ikt}^{FamINF} being defined on year t. Similarly, β_2 represents the average increase in political attainment of i resulting from a one-unit increase in the prominence level of i's most prominent *non-family* influential node, provided $M_{ikt}^{NonFamINF}$ has a value on year t. Most specifications in Table 4 suffer from weak-instruments; their first-stage effective F-statistics are below the threshold of 10. However, Anderson Rubin p-values for a joint-significance test of the first-state regressions allow me to reject the null of no joint-significance. Estimates have to be interpreted with caution due to the possibility my IV approach does not reduce the estimation bias. Biased or not, only one of my estimates is statistically significant, the one corresponding to the "non-family" influential nodes prominence level coefficient. This suggests the political attainment of any given politician is more strongly correlated with the prominence of her influential nodes outside the family —friends, business associates, political collaborators, spouses and in-laws— than with the prominence of influential family members —parents, grandparents, siblings, and uncles and aunts. Estimates for the first stage regressions associated with these results are in Tables 2 and 3 in the Appendix.

5.2. Secondary results

The estimates on Table 5 are for a version of my baseline regressions that uses prominence-power instead of prominence-level measures. These specifications suffer from weak-instruments. However, the level of statistical significance inferred from the Anderson Rubin weak-instrument-robust p-values is consistent with the statistical significance inferred from the original p-values, so I discount the possibility of large bias in these estimates. Nevertheless, with my preferred specification the estimate for the effect of influential-nodes prominence-power is not statistically significant.

If variation in my instrumental variable, that is the prominence-power of i's influential *"peers-of-peers"*, is uncorrelated with any time-dependent unobserved phenomena affecting

Table 5: IV Regressions, Effect on Prominence Power

SE Cluster Level:	(1) Network	(2) Politician	(3) Politician	(4) Network	(5) Politician	(6) Politician	(7) Politician
					First Year of Positions Only		
First Stage							
Dependent Variable:	Influential Nodes' Max. Prominence Power as of Observation Year						
Max. Prominence Power of Inf. Nodes of Best Node as of Observation Year	0.07***	0.12**	0.12**	0.10***	0.15**	0.16**	0.14
	(0.02)	(0.06)	(0.06)	(0.02)	(0.06)	(0.07)	(0.09)
Max. Education Level	0.01***	0.06***	0.04***	0.01***	0.06***	0.04***	
	(0.00)	(0.00)	(0.01)	(0.00)	(0.01)	(0.01)	
Chronological Order of Position in Career			-0.01***			-0.02***	-0.01*
			(0.00)			(0.00)	(0.00)
Max. Prominence Power of **NON** Infl. Nodes as of Observation Year							0.10**
							(0.05)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Network Fixed Effects	Yes	No	No	Yes	No	No	No
Politician Fixed Effects	No	Yes	Yes	No	Yes	Yes	Yes
F-stat	7.58	4.53	4.94	42.18	5.57	5.98	2.39
Second Stage							
Dependent Variable:	Politician's Prominence Power on Observation Year						
Instrumental Variable:	Max. Prominence Power of Influential Nodes of Best Node as of Observation Year						
Max. Prominence Power of Influential Nodes as of Observation Year	0.16	2.73**	2.75**	0.44***	1.83**	1.90**	1.69
	(0.20)	(1.38)	(1.35)	(0.12)	(0.84)	(0.79)	(1.51)
A.R. Weak-Instrument Robust p-value	(0.65)	(0.01)	(0.01)		(0.02)	(0.01)	(0.15)
Max. Education Level	0.00	-0.09	-0.10	0.00	-0.05	-0.07*	
	(0.00)	(0.08)	(0.07)	(0.00)	(0.06)	(0.04)	
Chronological Order of Position in Career			-0.01			-0.02	-0.04**
			(0.02)			(0.02)	(0.02)
Max. Prominence Power of **NON** Infl. Nodes as of Observation Year							-0.03
							(0.18)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Network Fixed Effects	Yes	No	No	Yes	No	No	No
Politician Fixed Effects	No	Yes	Yes	No	Yes	Yes	Yes
Observations	6075	6075	6075	1713	1713	1713	1329

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

the political outcomes of i and her immediate network, then the Column 6 specification in Table 5 is adequate. In this case, the interpretation of the main estimate is that a 10 percentage point increase in the prominence-power of the influential nodes of i would result

in a 19 percentage point increase in the prominence-power of i; in other words, the proportion of politicians whose prominence-level is as good as i's or better would fall by 19 percentage points. A 10 percentage point increase in the political power of i's nodes inducing almost twice an increase in the power of i does not seem unreasonable taking into account that i's most prominent influential nodes are usually better ranked than i in the ladder: a 10 percentage point increase in *their* power is harder to achieve than a 10 percentage point in i's power.

I am also interested in the effect of political influence on *long-term* political attainment. In Table 6 I examine the estimation results for empirical models of the form

$$Ymax_{ik} = \beta_0 + \beta_1 Mmax_{ik}^{INF} + X_{ik}\beta_2 + \varepsilon_{ik} \tag{4}$$

where $Ymax_{ik}$ is the maximum political prominence level achieved by politician i, who belongs to network k, during her lifetime. $Mmax_{ik}^{INF}$ is the maximum political prominence level ever achieved by the influential nodes of i. If b_{ik}^{INF} represents the influential node of i who achieves $Mmax_{ik}^{INF}$ then this control is instrumented by, $M2max_{ik}^{INF}$, the maximum prominence level achieved by influential nodes of b_{ik}^{INF} who are not themselves influential nodes of i. This means the first stage regression in the instrumental variables estimation of β_1 is:

$$Mmax_{ik}^{INF} = \alpha_0 + \alpha_1 M2max_{ik}^{INF} + X_{ik}\alpha_2 + \nu_{ik} \tag{5}$$

X_{ik} is a vector of politician-level characteristics including i's highest educational level, the average of the highest educational levels of politicians in her Influential-Nodes set for whom education is known, and controls for the maximum prominence level of non-influential nodes of i. Including non-influential nodes' political attainment is necessary if the instrumental variable $M2max_{ik}^{INF}$ is correlated with fixed characteristics of i's political network. Some specifications in Table 6 instead have X_{ik} directly include a network-level fixed effects term, and some restrict this network control to be calculated as the maximum prominence found within the subset of i's non-influential nodes for whom i is also non-influential, that is, i's parallel nodes. Restricting network prominence controls to use only parallel nodes addresses

the possibility that i's own outcome may affect the political attainments of members in i's network that i is able and willing to influence.

Table 6: Effect on Maximum Achieved Prominence Level

	(1)	(2)	(3)	(4)	(5)	(6)
SE Cluster Level:	No Clustering			Network Level		
	First Stage					
Dependent Variable:	Max. Prominence Level of Influential Nodes					
Max. Prominence Level of Inf. Nodes of Best Node	0.14***	0.17***	0.18***	0.14***	0.17***	0.18***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.04)	(0.04)
Max. Education Level	0.19**	0.20**	0.25**	0.19***	0.20***	0.25***
	(0.09)	(0.10)	(0.11)	(0.03)	(0.05)	(0.04)
Mean Education Level of Influential Nodes	0.05	-0.03	-0.06	0.05***	-0.03	-0.06
	(0.08)	(0.09)	(0.09)	(0.01)	(0.06)	(0.07)
Max. Prominence Level of Not Influential Nodes		-0.05			-0.05*	
		(0.05)			(0.03)	
Max. Prominence Level of Parallel Nodes			-0.11**			-0.11***
			(0.05)			(0.02)
Network Fixed Effects	Yes	No	No	Yes	No	No
F-stat	7.61	12.54	10.95	7.81	22.33	22.59
	Second Stage					
Dependent Variable:	Politician's Max. Prominence Level					
Instrumental Variable:	Max. Prominence Level of Influential Nodes of Best Node					
Max. Prominence Level of Influential Nodes	0.40	0.60**	0.30	0.40***	0.60**	0.30**
	(0.36)	(0.30)	(0.29)	(0.14)	(0.24)	(0.15)
A.R. Weak-Instrument Robust p-value	(0.25)			(0.27)		
Max. Education Level	-0.08	-0.06	-0.03	-0.08**	-0.06	-0.03
	(0.12)	(0.12)	(0.13)	(0.04)	(0.09)	(0.06)
Mean Education Level of Influential Nodes	0.05	0.08	0.05	0.05	0.08*	0.05*
	(0.08)	(0.10)	(0.09)	(0.03)	(0.05)	(0.03)
Max. Prominence Level of Not Influential Nodes		0.24***			0.24***	
		(0.05)			(0.02)	
Max. Prominence Level of Parallel Nodes			0.17***			0.17***
			(0.06)			(0.02)
Network Fixed Effects	Yes	No	No	Yes	No	No
Observations	258	211	188	258	211	188

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Estimates in Columns 4, 5 and 6 are obtained from identical specifications to Columns

1, 2 and 3, but the former cluster standard errors at the political network level. My preferred specifications are those in Columns 4 and 6. The specification in Column 4, which directly includes controls for network fixed effects, has the advantage of being defined for a larger subsample of politicians ($N = 258$). However, the coefficient of interest here may be overestimated if, as assessed from my Placebo regressions, the instrumental variable I use is correlated with outcome determining characteristics at the sub-network level. The specification in Column 6, defined for a smaller subsample ($N = 188$), addresses this issue by controlling for the prominence level of individuals within politician i's sub network who themselves are, by assumption, not directly affected by i's political attainment.

All estimates of the main coefficient with specifications that cluster standard errors at the network level are positive and statistically significant. With my preferred specifications, the results indicate that a one-unit increase in the prominence level of average politician i's most prominent influential node results in a 0.30 to 0.40 units increase in the prominence level of politician i. An interpretation of these results is that, ceteris-paribus and conditional on having relatives willing and able to influence their career, politicians long-term political attainment is expected to increase if their relatives become more prominent themselves.

With the specifications reported in Table 7 I evaluate the possibility —and ultimately reject— that political attainment is differentially affected when politicians hold positions in the same government branch or institutional environment as their most prominent influential node [10] . The regression equation I estimate for all Table 7 specifications is of the form:

$$Y_{ikt} = \beta_0 + \beta_1 M_{ikt}^{INF} + \beta_2 (M_{ikt}^{INF} \times B_{ikt}^{same}) + \beta_3 B_{ikt}^{same} + X_{ikt}\beta_4 + \tau_i + \eta_k + \gamma_t + \varepsilon_{ikt} \qquad (6)$$

where B_{ikt}^{same} is an indicator variable equal to 1 if the position held by politician i at time t belongs to the same branch as the last position held by the most prominent of politician i's influential nodes, $b_t^{INF}(i)$. The coefficient of the interaction term $M_{ikt}^{INF} \times B_{ikt}^{same}$ represents the average *additional* change in the political attainment of i associated with a one unit change in the prominence of $b_t^{INF}(i)$ when B_{ikt} equals one. This empirical model contains

[10] In what follows I use the word *branch* to refer to any of the main government branches —executive, judicial, legislative— and to the institutional environments of the military, labor unions, political parties, and autonomous federal organizations.

two endogenous regressors, M_{ikt}^{INF} and $M_{ikt}^{INF} \times B_{ikt}^{same}$, so estimation requires two instrumental variables. These are the usual instrument $M2_{ikt}^{INF}$ and its interaction with the indicator for sharing a branch, $M2_{ikt}^{INF} \times B_{ikt}^{same}$.

In the third row of this table I provide the Anderson-Rubin p-value for a test of the joint-significance of my two endogenous regressors' estimates.

Table 7: Same Branch/Sector Effect

SE Cluster Level:	(1) Network	(2) Politician	(3) Politician	(4) Network	(5) Politician	(6) Politician	(7) Politician
					First Year of Positions Only		
			Second Stage				
Dependent Variable:			Politician's Prominence Level on Observation Year				
Instrumental Variable 1			Max. Prominence Level of Influential Nodes of Best Node as of Observation Year				
Instrumental Variable 2			IV 1 $\times \mathbb{1}$(Same Branch as Best Node)				
Max. Prominence Level of Influential Nodes as of Observation Year : IV1	1.27***	0.95**	0.93**	0.96***	0.83**	0.86***	0.81*
	(0.29)	(0.39)	(0.39)	(0.14)	(0.34)	(0.33)	(0.45)
Max. Prominence Level of Influential Nodes as of Observation Year $\times \mathbb{1}$(Same Branch as Best Node) : IV2	-0.72*	0.21	0.20	0.05	0.40	0.37	-0.00
	(0.42)	(0.33)	(0.32)	(0.24)	(0.35)	(0.34)	(0.39)
A.R. p-value for Joint Significance Test		(0.01)	(0.01)		(0.02)	(0.02)	(0.20)
$\mathbb{1}$(Same Branch as Best Node)	2.21	-1.65	-1.56	-1.12	-2.50	-2.33	-0.50
	(1.86)	(1.56)	(1.53)	(1.14)	(1.71)	(1.68)	(1.87)
Max. Education Level	-0.05	-0.17	-0.38	-0.06**	-0.06	-0.32	
	(0.04)	(0.32)	(0.29)	(0.03)	(0.27)	(0.21)	
Chronological Order of Position in Career			-0.21**			-0.21**	-0.30***
			(0.09)			(0.09)	(0.09)
Max. Prominence Level of **NON** Infl. Nodes as of Observation Year							0.04
							(0.11)
Constant term	-5.88***	-3.16**	0.38	-7.55***	-6.61***	-2.75	-6.02
	(0.88)	(1.56)	(2.33)	(1.65)	(1.78)	(2.69)	(5.10)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Network Fixed Effects	Yes	No	No	Yes	No	No	No
Politician Fixed Effects	No	Yes	Yes	No	Yes	Yes	Yes
Observations	6075	6075	6075	1713	1713	1713	1329
F-stat, First Stage IV1	21.96	6.28	6.33	21.21	6.26	6.85	3.62
F-stat, First Stage IV2	10.21	9.53	9.45	13.54	5.33	5.21	3.78

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Of my two preferred specifications, I can only reject the null of joint statistical insignifi-

cance for the one in Column 6. The estimate for the interaction term $M_{ikt}^{INF} \times B_{ikt}^{same}$ in this and all other specifications that control for politician fixed effects is statistically insignificant. Thus, no evidence can be provided with this exercise that political prominence is more strongly affected by influential nodes belonging to the same government branch or institutional environment. This is inconsistent with what one would expect if political influence were more commonly exerted through the official institutional mechanisms within any given branch. First stage regression estimates for these specifications are in Tables 4 and 5 in the Appendix.

5.3. Robustness checks

Table 8 estimates my baseline regressions using as dependent variable an indicator for whether or not politicians' prominence level increased on year t. As such, the regressions used for Table 8 estimate a linear probability model of the form,

$$P(Y_{ik,t} > Y_{ik,t-1}) = \beta_0 + \beta_1 M_{ikt}^{INF} + X_{ikt}\beta_2 + \tau_i + \eta_k + \gamma_t + \varepsilon_{ikt} \tag{7}$$

where estimated coefficients can be interpreted as the average change in the probability a politician's prominence increases associated with a one unit change in the corresponding regressor. The specifications reported in this table are otherwise identical to those analyzed in Table 3, both in the controls they include and in the data samples I used to estimate them.

The estimates indicate that having influential nodes go up in prominence increases the probability that a position change comes with a *raise in political attainment*, rather than being a lateral career move.

When the prominence-level measure of politician i's most prominent influential node decreases (that is, improves) by one unit, it raises by 14 to 23 percentage units the probability the next career move for i will be to a better ranking position. Table 1 in the Appendix presents estimates for specifications of my model which use as dependent variable the size of the change in prominence-level of politicians, $\Delta Y_{ik,t} = Y_{ik,t} - Y_{ik,t-1}$.The relevant preferred-specification estimates there are not statistically different from 0. Combined with the results in Table 8, this suggests influential nodes' prominence affects political attainment by raising the *frequency* of prominence increases, though not necessarily their size.

Table 8: Probability of Prominence Increase
(IV Linear Probability Model)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
SE Cluster Level:	Network	Politician	Politician	Network	Politician	Politician	Politician
					First Year of Positions Only		
Second Stage							
Dependent Variable:	𝟙(Politician's Prominence Level **Increased** on Observation Year)						
Instrumental Variable:	Max. Prominence Level of Influential Nodes of Best Node as of Observation Year						
Max. Prominence Level of Influential Nodes as of Observation Year	-0.02	-0.05*	-0.04	-0.01	-0.14**	-0.14**	-0.23**
	(0.02)	(0.03)	(0.03)	(0.01)	(0.06)	(0.06)	(0.10)
A.R. Weak-Instrument Robust p-value							(0.01)
Max. Education Level	0.00	0.05***	0.08***	-0.02***	0.09*	0.12***	
	(0.00)	(0.02)	(0.02)	(0.00)	(0.05)	(0.04)	
Chronological Order of Position in Career			0.03***			0.03*	0.05**
			(0.01)			(0.02)	(0.02)
Max. Prominence Level of **NON** Infl. Nodes as of Observation Year							0.04
							(0.02)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Network Fixed Effects	Yes	No	No	Yes	No	No	No
Politician Fixed Effects	No	Yes	Yes	No	Yes	Yes	Yes
Observations	6075	6075	6075	1713	1713	1713	1329

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 9 reports Placebo regressions constructed equivalently to the specifications in Table 3. These Placebo specifications use as main regressor the maximum value of the prominence measures of **non-influential** nodes of politician i by year t. The instrumental variable used is the maximum prominence found among the influential nodes of the most prominent non-influential node of i who can't, themselves, directly influence the career of i. If my specifications, and the conditions a politician must satisfy to be labeled either an influential or non-influential node of politician i, are well defined, then i's political attainment should not be observed to be significantly affected by changes in the prominence of her non-influential nodes.

These Placebo specifications use as main regressor the maximum value of the prominence measures of **non-influential** nodes of politician i by year t. The instrumental variable used is the maximum prominence found among the influential nodes of the most prominent

non-influential node of i who can't, themselves, directly influence the career of i. If my specifications, and the conditions a politician must satisfy to be labeled either an influential or non-influential node of politician i, are well defined, then i's political attainment should not be observed to be significantly affected by changes in the prominence of her non-influential nodes.

Table 9: **Placebo** IV Regressions, Effect on Prominence Level

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
SE Cluster Level:	Network	Politician	Politician	Network	Politician	Politician	Politician
					First Year of Positions Only		
First Stage							
Dependent Variable:	**NON** Influential Nodes' Max. Prom. Level as of Observation Year						
Max. Prom. Level of Inf. Nodes of **NON** Infl. Node as of Observation Year	0.49***	0.25***	0.24***	0.36***	0.31***	0.30***	0.27***
	(0.01)	(0.07)	(0.07)	(0.01)	(0.08)	(0.08)	(0.07)
Max. Education Level	0.21***	1.97***	1.29	0.33***	0.76**	-0.04	
	(0.08)	(0.74)	(0.80)	(0.05)	(0.38)	(0.47)	
Chronological Order of Position in Career			-0.14**			-0.18**	-0.18**
			(0.07)			(0.08)	(0.08)
Max. Prominence Level of Influential Nodes as of Observation Year							0.17*
							(0.09)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Network Fixed Effects	Yes	No	No	Yes	No	No	No
Politician Fixed Effects	No	Yes	Yes	No	Yes	Yes	Yes
F-stat	3536.52	13.76	13.22	1385.79	15.97	14.99	13.31
Second Stage							
Dependent Variable:	Politician's Prominence Level on Observation Year						
Instrumental Variable:	Max. Prom. Level of Influential Nodes of Best **NON** Influential Node as of Observation Year						
Max. Prom. Level of **NON** Influential Nodes as of Observation Year	0.26***	0.55	0.48	0.19***	0.35	0.26	0.37
	(0.00)	(0.34)	(0.35)	(0.03)	(0.32)	(0.31)	(0.33)
Max. Education Level	-0.09***	2.09	0.93	-0.03*	3.49***	1.69**	
	(0.02)	(1.33)	(1.26)	(0.02)	(0.75)	(0.70)	
Chronological Order of Position in Career			-0.28**			-0.42***	-0.43***
			(0.13)			(0.11)	(0.11)
Max. Prominence Level of Influential Nodes as of Observation Year							0.08
							(0.13)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Network Fixed Effects	Yes	No	No	Yes	No	No	No
Politician Fixed Effects	No	Yes	Yes	No	Yes	Yes	Yes
Observations	2762	2762	2762	717	717	717	779

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Estimates in my preferred specification columns for this table are not statistically distinct from 0. However, estimates in Columns 1 and 4, which control for network rather than politician-level fixed effects, are found to be statistically significant. This suggests that, within any given political network, a degree of correlation exists between the political attainments of directly-linked individuals, even when their links are not of the ones considered "of influence". This correlation can be attributed, for example, to any form of political capital which may be inherited or shared by members of sub-networks like extended political families, or school class generations, but which varies from one sub-network to another.

6. Discussion

I test the hypothesis that political networks are self-perpetuating. I present evidence that the prominence level of political or governmental positions held by a politician has a positive causal effect on the political career outcomes of close members within that politician's network. The estimated effect is driven by non-kinship ties, that is, politicians benefit more from having highly politically prominent friends, business and political associates than from having highly politically prominent relatives. The prominence of influential relations also has a positive causal effect on the probability that any given political career change by a politician leads to a more prominent position than to a position with the same or lower prominence level. However, it has no statistically significant effect on the size of prominence level variations that result from a political career change. These two results indicate that politicians endowed with highly prominent influential relations experience "jumps" to better ranking positions *more frequently*, but not necessarily *larger* prominence jumps. I find no evidence the effect of influential relations' prominence on a politician's own prominence level is stronger if the politician in question and their influential relations are associated with the same government branch. The results I obtain deliver two major contributions to the literature of political elite self-perpetuation.

First, the political networks I analyze are *broader than families*, including politicians that share not only familial, but also friendship, business and political association ties. Among the reasons political families tend to stay in power one may include the relative ease with

which valuable political resources can be transferred to family members, and also the desire of power-holders that elected or recruited individuals are loyal to them —or that their aptitudes and political preferences are clear or manageable. But neither this transferability of resources nor the boons of loyalty and acquaintancy require the ties between politicians to be of blood: a politician's good old friend can be the heir of political yields —other than name-recognition— - just as easy as their son, daughter or spouse, and can be just as willing to repay them a favor of political accommodation and likely to share their political ideology. Furthermore, the consequences of political self-perpetuation should not differ substantially if the units that persist in power over time are in fact networks rather than families. The entrenchment of any ideologically homogeneous political group is likely to lead to imperfections in democratic representation, and expectations of loyalty among group members can give rise to political patronage whether the group contains only family members or not.

Second, I show that power begets power not only in the form of improved electoral outcomes, but also in the form of more prominent political and governmental *appointive* positions. There is no reason to expect that candidates in democratic contests should be the only ones propped up by the influence and capital of those endowed with political power. The recruitment process of high-level bureaucrats, less publicly scrutinized than the electoral process and determined by relatively fewer interests, is evidently subject to similar efforts to leverage political connections in exchange for favorable outcomes. Allocating positions among network members may improve governance by allowing leadership to place higher trust in their appointees or by incentivizing these to exert effort to reciprocate their appointment. But it can hinder governance by constraining leadership to select from a reduced pool of candidates that may not include the most qualified for the position.

Appendix A. Additional results and alternative specifications

Table A.1: IV Regressions: Effect on Prominence Level Changes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
SE Cluster Level:	Network	Politician	Politician	Network	Politician	Politician	Politician
					First Year of Positions Only		
	Second Stage						
Dependent Variable:	**Change** in Politician's Prominence Level on Observation Year						
Instrumental Variable:	Max. Prominence Level of Influential Nodes of Best Node as of Observation Year						
Max. Prominence Level of Influential Nodes as of Observation Year	0.09***	0.07	0.06	0.32***	0.38	0.39	0.37
	(0.03)	(0.08)	(0.09)	(0.06)	(0.27)	(0.27)	(0.38)
A.R. Weak-Instrument Robust p-value							(0.33)
Max. Education Level	-0.02**	-0.13**	-0.18***	-0.06**	-0.50**	-0.62***	
	(0.01)	(0.06)	(0.05)	(0.03)	(0.22)	(0.19)	
Chronological Order of Position in Career			-0.06***			-0.10	-0.16**
			(0.02)			(0.07)	(0.08)
Max. Prominence Level of **NON** Infl. Nodes as of Observation Year							-0.02
							(0.09)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Network Fixed Effects	Yes	No	No	Yes	No	No	No
Politician Fixed Effects	No	Yes	Yes	No	Yes	Yes	Yes
Observations	6075	6075	6075	1713	1713	1713	1329
First Stage F-stat	22.73	11.82	11.86	46.99	12.04	12.70	7.09

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.2: Family Vs Non Family Effect: First Stage IV 1

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
SE Cluster Level:	Network	Politician	Politician	Network	Politician	Politician	Politician
					First Year of Positions Only		
First Stage, for Instrumental Variable 1							
Dependent Variable:	Maximum Prominence Level of **Family** Influential Nodes as of Observation Year $\times \mathbb{1}(M_{ikt}^{FamINF}$observed)						
IV1: Max. Prom. Level of Infl. Nodes of Best **Family** Node as of Observation Year $\times \mathbb{1}(M_{ikt}^{FamINF}$observed)	-0.09*	0.18	0.19*	-0.06	0.24*	0.25**	0.24
	(0.05)	(0.12)	(0.11)	(0.04)	(0.12)	(0.13)	(0.17)
IV2: Max. Prom. Level of Infl. Nodes of Best **Non Family** Node as of Observation Year $\times \mathbb{1}(M_{ikt}^{NonFamINF}$observed)	0.03***	-0.01	-0.01	0.02***	-0.01	-0.01	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)
$\mathbb{1}(M_{ikt}^{FamINF}$observed)	5.40***	3.49***	3.48***	5.16***	3.54***	3.50***	3.52***
	(0.30)	(0.68)	(0.66)	(0.28)	(0.75)	(0.75)	(1.02)
$\mathbb{1}(M_{ikt}^{NonFamINF}$observed)	0.09***	-0.55	-0.54	-0.01	-0.74	-0.74	-2.09***
	(0.03)	(0.41)	(0.40)	(0.06)	(0.86)	(0.86)	(0.10)
Chronological Order of Position in Career			-0.02			-0.04	-0.02
			(0.02)			(0.03)	(0.02)
Max. Prominence Level of **NON** Infl. Nodes as of Observation Year							0.01
							(0.02)
Constant term	-0.38***	0.94**	0.76*	-0.19	0.96	0.65	2.02***
	(0.08)	(0.42)	(0.43)	(0.12)	(0.86)	(0.90)	(0.22)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Network Fixed Effects	Yes	No	No	Yes	No	No	No
Politician Fixed Effects	No	Yes	Yes	No	Yes	Yes	Yes
Observations	6640	6640	6640	1876	1876	1876	1329
First Stage F-stat	10.48	1.53	1.70	10.42	2.41	2.54	1.05

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.3: Family Vs Non Family Effect: First Stage IV 2

SE Cluster Level:	(1) Network	(2) Politician	(3) Politician	(4) Network	(5) Politician	(6) Politician	(7) Politician
					First Year of Positions Only		
First Stage, for Instrumental Variable 2							
Dependent Variable:	Maximum Prominence Level of **Non Family** Influential Nodes as of Observation Year $\times \mathbb{1}(M_{ikt}^{NonFamINF}$observed)						
IV1: Max. Prom. Level of Infl. Nodes of Best **Family** Node as of Observation Year $\times \mathbb{1}(M_{ikt}^{FamINF}$observed)	0.01	-0.03	-0.00	0.02	-0.17	-0.12	-0.23*
	(0.03)	(0.17)	(0.19)	(0.02)	(0.19)	(0.20)	(0.12)
IV2: Max. Prom. Level of Infl. Nodes of Best **Non Family** Node as of Observation Year $\times \mathbb{1}(M_{ikt}^{NonFamINF}$observed)	0.17***	0.29***	0.29***	0.13***	0.32***	0.32***	0.33***
	(0.01)	(0.08)	(0.08)	(0.01)	(0.09)	(0.09)	(0.12)
$\mathbb{1}(M_{ikt}^{FamINF}$observed)	-0.32***	0.28	0.20	-0.34***	1.13	0.95	1.42*
	(0.12)	(1.02)	(1.12)	(0.07)	(1.13)	(1.20)	(0.74)
$\mathbb{1}(M_{ikt}^{NonFamINF}$observed)	3.53***	4.99***	5.02***	3.87***	4.55***	4.53***	6.00***
	(0.07)	(0.90)	(0.93)	(0.04)	(0.93)	(0.94)	(0.59)
Chronological Order of Position in Career			-0.11***			-0.14***	-0.09**
			(0.04)			(0.04)	(0.04)
Max. Prominence Level of **NON** Infl. Nodes as of Observation Year							0.11**
							(0.05)
Constant term	1.92***	6.42***	5.53***	1.94***	6.89***	5.74***	3.40***
	(0.06)	(0.88)	(0.95)	(0.04)	(0.89)	(0.94)	(0.75)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Network Fixed Effects	Yes	No	No	Yes	No	No	No
Politician Fixed Effects	No	Yes	Yes	No	Yes	Yes	Yes
Observations	6640	6640	6640	1876	1876	1876	1329
First Stage F-stat	497.10	6.42	6.27	678.77	7.18	7.07	6.37

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.4: Same Branch/Sector Effect: First Stage IV 1

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
SE Cluster Level:	Network	Politician	Politician	Network	Politician	Politician	Politician
					First Year of Positions Only		
First Stage, for Instrumental Variable 1							
Dependent Variable:	Influential Nodes' Max. Prominence Level as of Observation Year						
IV 1: Max. Prominence Level of Infl. Nodes of Best Node as of Observation Year	0.06***	0.28***	0.28***	0.07***	0.28***	0.28***	0.27**
	(0.01)	(0.08)	(0.08)	(0.01)	(0.08)	(0.08)	(0.11)
IV 2: Max. Prominence Level of Infl. Nodes of Best Node as of Observation Year $\times \mathbb{1}$(Same Branch as Best Node)	0.06	-0.02	-0.02	0.01	-0.02	-0.02	-0.00
	(0.04)	(0.04)	(0.04)	(0.02)	(0.04)	(0.04)	(0.06)
$\mathbb{1}$(Same Branch as Best Node)	0.09	0.22	0.24	0.18***	0.28	0.31	0.18
	(0.14)	(0.22)	(0.22)	(0.06)	(0.22)	(0.21)	(0.29)
Max. Education Level	0.13***	0.53***	0.40***	0.13***	0.58***	0.37***	
	(0.02)	(0.06)	(0.07)	(0.01)	(0.06)	(0.07)	
Chronological Order of Position in Career			-0.14***			-0.18***	-0.11**
			(0.04)			(0.05)	(0.04)
Max. Prominence Level of **NON** Infl. Nodes as of Observation Year							0.14***
							(0.05)
Constant term	9.44***	1.66***	3.93***	9.53***	1.21***	4.52***	9.25***
	(0.10)	(0.35)	(0.68)	(0.08)	(0.37)	(0.82)	(0.88)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Network Fixed Effects	Yes	No	No	Yes	No	No	No
Politician Fixed Effects	No	Yes	Yes	No	Yes	Yes	Yes
Observations	6075	6075	6075	1713	1713	1713	1329
First Stage F-stat	21.96	6.28	6.33	21.21	6.26	6.85	3.62

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.5: Same Branch/Sector Effect: First Stage IV 2

SE Cluster Level:	(1) Network	(2) Politician	(3) Politician	(4) Network	(5) Politician	(6) Politician	(7) Politician
					First Year of Positions Only		
First Stage, for Instrumental Variable 2							
Dependent Variable:	Influential Nodes' Max. Prominence Level as of Observation Year ×𝟙(Same Branch as Best Node)						
IV 1: Max. Prominence Level of Infl. Nodes of Best Node as of Observation Year	-0.03***	-0.02	-0.02	-0.03***	-0.06	-0.06	-0.10
	(0.01)	(0.07)	(0.07)	(0.01)	(0.07)	(0.07)	(0.10)
IV 2: Max. Prominence Level of Infl. Nodes of Best Node as of Observation Year ×𝟙(Same Branch as Best Node)	0.16***	0.23***	0.23***	0.13***	0.20***	0.19***	0.24***
	(0.04)	(0.06)	(0.06)	(0.02)	(0.06)	(0.06)	(0.09)
𝟙(Same Branch as Best Node)	4.14***	3.77***	3.77***	4.36***	4.01***	4.02***	3.62***
	(0.21)	(0.31)	(0.31)	(0.13)	(0.32)	(0.32)	(0.42)
Max. Education Level	0.09***	-0.13***	-0.17***	0.05***	-0.01	-0.07	
	(0.01)	(0.05)	(0.06)	(0.01)	(0.06)	(0.07)	
Chronological Order of Position in Career			-0.03			-0.06	0.02
			(0.03)			(0.04)	(0.04)
Max. Prominence Level of **NON** Infl. Nodes as of Observation Year							0.05
							(0.03)
Constant term	5.57***	3.89***	4.46***	5.81***	4.96***	5.95***	1.80**
	(0.07)	(0.42)	(0.65)	(0.10)	(0.46)	(0.78)	(0.77)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Network Fixed Effects	Yes	No	No	Yes	No	No	No
Politician Fixed Effects	No	Yes	Yes	No	Yes	Yes	Yes
Observations	6075	6075	6075	1713	1713	1713	1329
First Stage F-stat	10.21	9.53	9.45	13.54	5.33	5.21	3.78

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

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