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Dynastic Politicians: Theory and Evidence from Japan

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Abstract

Dynastic politicians, defined as those whose family members have also served in the same position in the past, occupy a sizable portion of offices in many parts of the world. We develop a model of how dynastic politicians with inherited political advantages affect electoral outcomes and policy choices. Our model predicts that, as compared with non-dynastic legislators, dynastic legislators bring more distributions to the district, enjoy higher electoral success, and harm the economic performance of the districts despite the larger amount of distributive benefits they bring. We test the implications of the model using data from Japan between 1997 and 2007.

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1 Introduction

It is widely known that institutional structures constrain the actions of elected officials, yet less is known about how the types of elected officials affect policy choices. As Besley (2005) and Jones and Olken (2005) point out, implicit in most of the previous work is the assumption that politicians act in a similar fashion under a certain institutional rule, no matter who they are. In other words, previous research neglects the possibility that the personal characteristics of politicians also constrain their actions in the democratic policymaking process, which then affect policies. As Key (1949, 10) notes, "the nature of the working of government depends ultimately on the men who run it. The men we elect to office and the circumstances we create that affect their work determine the nature of popular government."

Politicians differ along a variety of dimensions such as their preferences and competence (Besley, 2005). Previous research has found that policy preferences reflected in a politician's identity such as gender and race are associated with particular policy choices (Chattopadhyay and Duflo, 2004; Lublin, 1997). The personal ideology of the members of U.S. Congress plays a pivotal role in their roll-call voting patterns (Levitt, 1996). The political competence of politicians refers to the ability to achieve desired policies at a minimum social cost (Caselli and Morelli, 2004) and is equivalent to individual abilities required for certain nonpolitical jobs (Besley, 2005).[1] In fact, Jones and Olken (2005) show that some national leaders have the ability to achieve a higher rate of economic growth.

This paper focuses on another dimension of personal features that characterize politicians. Specifically, we study dynastic politicians with inherited political resources. Political positions are no longer hereditary in modern democracies, but political dynasties continue to exist. Some democracies allow for "the de facto inheritance of political power" (Dal Bo, Dal Bo, and Snyder, 2009, 116). Dynastic politicians, whose family members have also held similar political positions in the past,

[1] Besley (2005, 48) notes that political competence "could include intangible leadership skills, like persuading others in debate or inspiring trust, and also more standard analytical skills, such as spotting flaws in policy proposals."

have occupied a sizable portion of political offices in many parts of the world.[2] Despite the persistence of political dynasties in many democratic countries, little is known about the political consequences of dynastic legislators. Does the presence of political dynasties have any impact on electoral competitiveness and policy outcomes? If so, how? What is a normative implication of their presence for the democratic political process?

Only a few prior studies offer answers to these questions. Using data on political dynasties in the United States, Dal Bo, Dal Bo and Snyder (2009) show that legislators who served for multiple terms increase a probability that their relatives are elected for the same office in the future. This is partly because political capital, such as name recognition and ties with political machines, can be inherited within families. Feinstein (2010) shows that dynastic politicians receive an additional 4 percent increase in the two-party vote share in congressional elections because of their brand name advantage.

This paper offers a new theory and evidence for the political consequences of dynastic politicians. We ask whether dynastic politicians with electoral and bargaining advantages undermine the role of electoral competition as a device for achieving desirable policies for the citizens. Unlike the prior works on political dynasties in the United States (Dal Bo, Dal Bo and Snyder, 2009; Feinstein 2010) or works on Japanese dynastic legislators (Asano, 2006; Ishibashi and Reed, 1992; Taniguchi, 2008; Smith, 2012), we develop a formal model of dynastic politicians and then empirically test a few implications from the model. Another notable feature of this paper is that we examine the influence of dynastic politicians on a variety of political consequences such as electoral competitiveness, policy choices, and economic performance.

[2] In the United States, Hess (1966, 1) notes that "there have been some 700 families in which two or more members served in Congress, and they account for nearly 1,700 of the 10,000 men and women who have been elected to the federal legislature since 1774." The proportion of dynastic legislators has decreased over the years (Clubok, Wilensky, and Berghorn, 1969), yet even after the 1960s, 7 percent of the U.S. House members can still be classified as dynastic (Dal Bo, Dal Bo and Snyder, 2009). In Japan, about one third of the legislators in the Lower House between 1970 and 2000 had relatives who served in the national parliament (Taniguchi, 2008). Another example is Mexico, where 20 to 40 percent of the politicians at the national level have family ties to other politicians (Camp, 1995). In Italy, some famous politicians are the relatives of other politicians (Chirico and Lupoli, 2008). In the Philippines, about 40 percent of national-level legislators in the 2000s are dynastic (Mendoza et al., 2012). In addition, India has a sizable number of dynastic politicians in the parliaments.

The first part of this paper develops a model that shows when dynastic candidates with inherited electoral and bargaining advantages crowd out non-dynastic candidates and how their dynastic status affects policy decisions on distributive benefits. Our model combines the citizen candidate model (Osborne and Slivinski, 1996; Besley and Coate, 1997) and the legislative bargaining model (Baron and Ferejohn, 1989).[3] Building on the assumptions that dynastic politicians enjoy higher bargaining power and lower cost of running for office, our model predicts the following: (1) dynastic legislators bring more distributions to the district than non-dynastic legislators; (2) dynastic candidates enjoy a higher probability of winning and a higher vote share; (3) dynastic legislators harm the economic performance of the districts despite the larger amount of distributive benefits they bring to their constituents because dynastic legislators spend the amount on a small fraction of people in the district.

The second part of the paper offers an empirical test for the predictions from the model using data on Japanese politicians. Japan is an ideal case for this study because dynastic legislators occupy a sizable portion of the Japanese parliament. Seven out of eleven prime ministers in the last two decades were a dynastic legislator. For example, Jyunnichiro Koizumi, who served as a prime minister between 2001 and 2006 had a grandparent who was a legislator in the Lower House. Shinzo Abe is a son of Shintaro Abe who was one of the major leaders of the LDP in the 1980s. On average, 20 to 30 percent of legislators in the Lower House have been from families of political dynasties in the last few decades. In addition, detailed data on the family background of dynastic politicians as well as on fiscal transfers, election outcomes, and economic growth are available, which enables us to test the predictions of the model. Our analysis using an instrumental variable shows that dynastic politicians deliver a larger amount of distributive benefits to their districts, compared to non-dynastic

[3] Our model differs from existing related models in a notable way. In a similar effort to explain the role of candidate types, Chattopadhyay and Duflo (2004) and Gehlbach, Sonin, and Zhuravskaya (2010) use the framework of the citizen candidate model, but their models do not contain legislative bargaining. McKelvey and Riezman (1992) also study candidates with bargaining advantages using the legislative bargaining model, but they do not consider endogenous candidates. Morelli (2004) combines the citizen candidate model with the legislative bargaining model, but all candidates belong to the same type in his model, while our model considers two different types of candidates.

politicians. We also find that the presence of dynastic legislators suppresses the level of electoral competition and that dynastic legislators with abundant electoral resources lower the rate of economic growth in their districts.

2 The Model

This section presents a simple model of how dynastic legislators with inherited resources affect electoral competitiveness and policy choices. To simplify our discussion, we analyze the behavior of candidates and voters in a single electoral district, holding electoral outcomes in the other districts fixed.[4] In addition, we assume that there are two potential candidates in a district who decide whether to run for office.[5] One of the candidates is a dynastic candidate, while the other potential candidate is non-dynastic.

We consider a subgame perfect equilibrium. The timing of the game is described as follows:

1. The two potential candidates decide whether to run.
2. Candidates who decide to run announce a campaign platform.
3. There is a size one continuum of voters in the district. These voters choose one of the candidates.
4. Elected legislators bargain over the distribution of benefits.
5. The legislator spends the distribution on policies.

The next subsection illustrates the details of our settings on policies and elections. The remaining subsections derive an equilibrium and draw empirical implications. See Appendix 1 for the list of variables in our model.

[4] Analyzing election outcomes in all districts that are asymmetric may be important. However, this complicates our model considerably. The main implications do not change except that n is derived endogenously.

[5] This assumption is strong, but the model of political competition with three or more candidates often has a serious multiple-equilibrium problem (Cox 1987). A similar assumption to ours is found in related studies such as Chattopadhyay and Duflo (2004) and Gehlbach, Sonin, and Zhuravskaya (2010).

2.1 Setting

2.1.1 Policy

Our model considers a policy on the distribution of benefits. This policy is a product of bargaining in the legislature, which has an odd number of members, $L \geq 3$, who are elected from the L districts. At the beginning of the legislative process, one of the L legislators is chosen as an agenda setter with probability p_l, where $\sum_{l=1}^{L} p_l = 1$.

Denote p_j as the probability that a type-*j* legislator becomes an agenda setter, where *j* is either dynastic (D) or non-dynastic (N), and assume that $p_D = \alpha p_N$. The value of α captures the bargaining power of dynastic legislators in the legislature when the power of non-dynastic legislators is normalized to one. We assume $\alpha > 1$, which means $p_D > p_N$. This assumption is justifiable because dynastic legislators are in a position to inherit from their family members two resources such as (1) personal ties with major political figures in the legislative process (e.g., party leaders, bureaucrats, and special interest groups) and (2) skills and knowledge on the policy-making process. These distinctive features of dynastic legislators allow them to ascend the party hierarchy more quickly and enjoy larger bargaining power. We call this assumption the *bargaining advantage*.[6]

The probability of being an agenda setter depends on the number of dynastic legislators in the legislature. Denote $n \in [0, L-1]$ as the number of dynastic legislators elected from all other districts. If the district elects a dynastic candidate, the total number of dynastic legislators in the legislature is $n+1$. Otherwise, the number of dynastic candidates is n. Accordingly, the probability that a non-dynastic legislator becomes an agenda setter is $p_N = 1/[L + (\alpha - 1)n]$. The probability of a dynastic legislator is $p_D = \alpha/[L + (\alpha - 1)(n+1)]$.

After the agenda setter proposes distribution, $\boldsymbol{d} = (d_1, \ldots, d_L)$, of the pool of non-negative

[6] A typical example of the bargaining advantage is found in the case of Yuko Obuchi. She took over the Lower House seat of her father Keizo Obuchi, the former prime minister, after his sudden death in 2000. After serving several important positions in the government and the LDP, including Parliamentary Secretary for Education, Culture, Sports, Science, and Technology, she became the Minister of State for Social Affairs and Gender Equality in 2008 as the youngest cabinet member in the post-World War II era. At her appointment, she had served only for the third term, which was unusual because it typically requires five or six terms for other LDP legislators to become cabinet members.

distributive benefits, where $\sum_{l=1}^{L} d_l = 1,\ d_l \geq 0$, legislators vote to approve or reject $\boldsymbol{d}$. If the proposal of $\boldsymbol{d}$ is approved by at least $(L-1)/2$ legislators, legislators and their districts receive the benefits specified in the proposal. If it is defeated, a default distribution with distribution $\bar{\boldsymbol{d}} = (\bar{d}_1, \ldots, \bar{d}_L)$ is implemented, and we assume that $\bar{d}_l = \bar{d} \geq 0$ for all $l = 1, \ldots, L$ and $\sum_{l=1}^{L} \bar{d}_l < 1$. That is, the total amount of default distributions is less than the total amount of distributions proposed by the agenda setter, so it is less efficient. This is an ultimatum game with a closed rule, as in Baron and Ferejohn (1989).

The legislator spends the benefits from the approved policy in her district. Suppose that the legislator allocates the distribution to policies g and r, where $g + r = d_l$ in her district. Policy g will benefit a size one continuum of all voters in the district, which means that the payoff for each voter is g and that the sum of the payoffs for all voters is also g. In contrast, policy r benefits only a fraction of the voters belonging to the support group of the legislator (or only the legislator enjoys this benefit). We refer to policy r as rent. We assume that $g = (1-\lambda)d_l$ and $r = \lambda d_l$. The value of $\lambda \in [0,1]$ is the ratio of rents chosen by the legislator. Denote d_j as the expected amount of distribution delivered by a type-*j* legislator to the district, and λ_j as the ratio of rents chosen by a type-*j* legislator.[7]

Following Besley, Persson, and Sturn (2010), we interpret g to be a growth policy aimed at improving the socioeconomic infrastructure and expanding job opportunities in the entire district, thus leading to higher economic performance. On the other hand, r is interpreted as a rent policy that cares about the economic benefits for the limited segment of the electorate in the district, making no contribution to the economic performance of the district.[8] Thus, if a legislator sets a lower λ, the

[7] These are based on the assumption that all districts are symmetric, except for the type of legislators.

[8] Besley, Persson, and Sturn (2010) suppose that policy r also contributes to economic performance, but its marginal benefit on economic performance is lower than that of policy g. To simplify, our model supposes that policy r's marginal benefit is zero. If r and g have similar positive effects on economic performance, a dynastic legislator achieves higher economic performance than does a non-dynastic legislator, regardless of the type of district. However, if a rent policy is sufficiently inefficient (i.e., its marginal effect on economic performance is sufficiently lower than the effect of a growth policy), the results do not change. Thus, to simplify, we suppose that a rent policy makes no contribution to economic performance.

distributive benefits she delivers to the district have a larger (and supposedly positive) effect on the economic performance of the district. Conversely, a higher value of λ means the distributive benefits contribute less to the economic performance of the entire district.

2.1.2 Election

We consider an election in which a winner is decided by a plurality rule, with ties being settled using an equal-probability rule. If only one candidate runs for the election, this candidate wins with certainty. In this election, voters vote sincerely. Thus, they play only weakly undominated strategies. We analyze voters' behavior by extending the probabilistic voting model of Persson and Tabellini (2000).

The voters' payoff from a candidate depends on two items: the size of policy g and the type of candidates. Voter *i*'s payoff is defined as $(1-\lambda_D)d_D + \omega_i$ when a dynastic candidate wins, and $(1-\lambda_N)d_N$ when a non-dynastic candidate wins. The variable ω_i represents voter *i*'s preference for a type of candidate (i.e., dynastic or non-dynastic) and the valence of candidates (e.g., personality and party affiliation). If $(1-\lambda_D)d_D = (1-\lambda_N)d_N$, voter i prefers a dynastic candidate when $\omega_i > 0$, and prefers a non-dynastic candidate when $\omega_i < 0$. We assume that ω_i is uniformly distributed on $[\gamma - 1/(2\varphi), \gamma + 1/(2\varphi)]$ where φ represents the degree of preference homogeneity within the district. The random variable γ represents an aggregate popularity shock and is uniformly distributed on $[-1/(2\xi), 1/(2\xi)]$. It is realized after the candidates announce their policy platforms. That is, candidates are uncertain about the change of voters' preference between platform choice and the election. Voter i votes for a dynastic candidate whenever $\omega_i + (1-\lambda_D)d_D - (1-\lambda_N)d_N > 0$. Then, we define the (random) share of voters who support a dynastic candidate as $\varphi[(1-\lambda_D)d_D - (1-\lambda_N)d_N + \gamma + 1/(2\varphi)]$.

Given the uniform distribution of γ, the probability that a dynastic candidate wins, denoted as $\pi(\lambda_D, \lambda_N)$, is

$$\pi(\lambda_D, \lambda_N) = \begin{cases} 1 & \text{if } \xi[(1-\lambda_D)d_D - (1-\lambda_N)d_N] > \frac{1}{2} \\ 0 & \text{if } \xi[(1-\lambda_D)d_D - (1-\lambda_N)d_N] < -\frac{1}{2} \\ \frac{1}{2} + \xi[(1-\lambda_D)d_D - (1-\lambda_N)d_N] & \text{Otherwise} \end{cases} \quad (1)$$

because the condition for the victory of a dynastic candidate, assuming an interior solution, is $\varphi[(1-\lambda_D)d_D - (1-\lambda_N)d_N + \gamma + 1/(2\varphi)] > 1/2$. This is rewritten as $\gamma > -[(1-\lambda_D)d_D - (1-\lambda_N)d_N]$. If only one candidate runs, voters vote on this candidate, and this candidate wins with certainty.

We now consider the decision candidates make on whether to run. Candidates are office motivated and rent-seeking. The benefit from holding office is $v > 0$, which is not related to a policy. Candidates also benefit from a rent policy, $r = \lambda_j d_j$. We assume that candidates can obtain r if they win. Note that even if candidates obtain a positive benefit that is not the same as r, the result does not change as long as they obtain a part of r. Candidates announce and commit to the amount of distributions that will be allocated to the growth policy, $1-\lambda$, before voting. Denote V_j as the expected benefit of a type-*j* candidate. Then, the respective expected benefits of dynastic and non-dynastic candidates are

$$V_D \equiv \pi(\lambda_D, \lambda_N)(\lambda_D d_D + v) \quad (2)$$

$$V_N \equiv [1 - \pi(\lambda_D, \lambda_N)](\lambda_N d_N + v) \quad (3)$$

If dynastic and non-dynastic candidates decide to run, they have to pay the cost of running, c_D and c_N, respectively. We assume that the cost is higher for non-dynastic candidates than for dynastic candidates (i.e., $c_D < c_N$). This assumption is drawn from some observable features of dynastic candidates. First, dynastic candidates can inherit a well-organized support group from their parent. The support group helps candidates mobilize voters in elections. Second, dynastic candidates can inherit financial resources from their parent. Third, constituents easily recognize the name of dynastic candidates (Feinstein, 2010).[9] These advantages decrease the cost of running for dynastic

[9] Scholars who study Japanese politics argue that dynastic legislators possess three types of advantages in elections: *jiban* (base constituency), *kaban* (financial resources), and *kanban* (name recognition).

candidates, but increase the cost of running for competing non-dynastic candidates. We call this assumption the *electoral advantage*.[10]

In addition, we assume the following:

Assumption 1 $c_D < 1/(4\xi^2)$.

This assumption means that a dynastic candidate decides to run even if this candidate has no bargaining advantage ($\alpha = 1$).[11] If this assumption is dropped, there may exist an unrealistic equilibrium in which no one runs.

2.2 Equilibrium

2.2.1 Legislative Bargaining

We begin by analyzing legislative bargaining. As mentioned previously, we consider an ultimatum game: if a proposal is not approved, the game ends, and each member receives $\bar{d}$. This means that the agenda setter proposes $\bar{d}$ to each member of the majority coalition, and keeping all the remaining resources ($1 - (\mathrm{L} - 1)\bar{d}/2 > \bar{d}$), which the other members approve (see Proposition 1 of Baron and Ferejohn (1989)). Thus, legislators who are not in the majority coalition cannot get anything ($d_l = 0$) if a proposal is approved. Accordingly, the expected values of the distribution for the district are

[10] The following story is a typical example of the electoral advantage dynastic candidates enjoy. Shinzo Abe ran for the Lower House election in 1993 within the Yamaguchi 1st district that his father, Shintaro Abe, represented until his death in 1991. In the four-seat SNTV (single non-transferable vote) district, he had to compete against three incumbents and two challengers, who were a member of his father's faction. Abe won a seat with almost the same number of votes his father received in his last election by using the abundant electoral resources Abe inherited from his father. Those resources included (1) political funds transferred to Abe without tax through registered political funding organizations; (2) the list of local support group members with which a large-scale canvassing campaign was conducted by a team of his father's former secretaries; (3) personal connections with major political and economic figures who came over to his district to help his campaign; and (4) his mother who helped Abe mobilize potential supporters as a widow of the late husband by appealing to the emotion of the electorate.

[11] When $\alpha = 1$, $d_D = d_N$, and $V_D = V_N = 1/(4\xi^2)$ from (8) and (9). Thus, from this assumption, the expected benefits of a dynastic candidate are higher than the cost of running.

$$d_N \equiv \left(\frac{1}{L+(\alpha-1)n}\right)\left(1-\frac{L-1}{2}\bar{d}\right)+\left(1-\frac{1}{L+(\alpha-1)n}\right)\frac{\bar{d}}{2},$$

$$d_D \equiv \left(\frac{\alpha}{L+(\alpha-1)(n+1)}\right)\left(1-\frac{L-1}{2}\bar{d}\right)+\left(1-\frac{\alpha}{L+(\alpha-1)(n+1)}\right)\frac{\bar{d}}{2}.$$

The first term is the expected payoff to be an agenda setter, and the second term is the expected payoff to be a member of the majority coalition. The district with a dynastic legislator is expected to obtain more benefits than the one with a non-dynastic legislator. That is, $d_D > d_N$. As α increases, d_D increases and d_N decreases. In other words, the larger bargaining power of dynastic legislators results in a larger allocation of benefits to their districts.

2.2.2 Campaign Platform and Election Returns

Given the predicted outcomes of legislative bargaining, we next consider the size of λ in the campaign platform and the expected vote share. To ensure interior solutions for $\lambda_j \in (0,1)$ for $j = D, N$, we assume that

Assumption 2 $(d_D - d_N)/3 < 1/(2\xi) - v < (d_D + 2d_N)/3.$

In other words, the value of ξ is not too high or too low. Without this assumption, $\lambda_j = 0$ or 1 in equilibrium.[12]

By differentiating V_j in (2) and (3) with respect to λ_j, we can derive the following values of λ_j^* announced by the candidates as a campaign platform in equilibrium:

$$\lambda_D^* \equiv \frac{1}{3} - \frac{1}{d_D}\left(v - \frac{1}{2\xi} + \frac{1}{3}d_N\right), \qquad (4)$$

$$\lambda_N^* \equiv \frac{1}{3} - \frac{1}{d_N}\left(v - \frac{1}{2\xi} + \frac{1}{3}d_D\right). \qquad (5)$$

[12] To be precise, if $(d_D - d_N)/3 \geq 1/(2\xi) - v$, a non-dynastic candidate announces $\lambda_N = 0$. If $-(d_D - d_N)/3 \geq 1/(2\xi) - v$, $\lambda_D = 0$. When the value of ξ is too high, the probability of winning increases significantly with a slight decrease of λ, thus, candidates set $\lambda = 0$. If $(d_D + 2d_N)/3 < 1/(2\xi) - v < (2d_D + d_N)/3$, $\lambda_N = 1$ and $\lambda_D < 1$. If $(2d_D + d_N)/3 < 1/(2\xi) - v$, $\lambda_N = \lambda_D = 1$. When ξ is too low, even though a candidate decreases the value of λ, the probability of winning does not increase as much. In this case, candidates do not want to decrease λ.

After substituting $\pi(\lambda_D, \lambda_N)$ for λ_D^* and λ_N^* in the third line of (1), the probability that a dynastic candidate wins in equilibrium becomes

$$\pi^* \equiv \frac{1}{2} + \frac{\xi}{3}(d_D - d_N). \qquad (6)$$

Given Assumption 2, $\pi^* \in (0,1)$. The expected vote share of a dynastic candidate is

$$\frac{1}{2} + \frac{\varphi}{3}(d_D - d_N) \qquad (7)$$

since the mean of γ is zero.

Next, substitute (4), (5), and (6) into V_j in (2) and (3). Then, the expected benefits of dynastic and non-dynastic candidates in equilibrium are:

$$V_D^* \equiv \left[\frac{1}{2\xi} + \frac{1}{3}(d_D - d_N)\right]^2, \qquad (8)$$

$$V_N^* \equiv \left[\frac{1}{2\xi} - \frac{1}{3}(d_D - d_N)\right]^2. \qquad (9)$$

Thus, the ratio of rent, the probability of winning, the expected vote share, and the expected benefit are higher for a dynastic candidate than for a non-dynastic candidate because $d_D > d_N$.

2.2.3 Endogenous Candidates

Building on the analyses discussed above, we now derive conditions for potential candidates to run in equilibria. First, suppose that no candidates run in the district. Then, the expected payoff for potential candidates is zero. If a dynastic candidate decides to run, this candidate will spend all of the distribution as own rent ($\lambda_D = 1$) and win with certainty, so the expected payoff is $d_D + v - c_D$. Since $d_D + v$ is the highest possible expected benefit, $d_D + v - c_D > 1/(4\xi^2) - c_D$. From Assumption 1, $1/(4\xi^2) - c_D > 0$, and thus, $d_D + v - c_D > 0$. As a result, an equilibrium in which no candidate runs in the district does not exist.

Second, suppose that only a dynastic candidate runs. This dynastic candidate has no incentive to deviate (i.e., not run) for the same reason discussed above. If a non-dynastic candidate deviates and runs, the expected payoff for this candidate changes from zero to $V_N^* - c_N$. Therefore, if $V_N^* \leq c_N$,

this non-dynastic candidate does not run. We call such a district a *dynastic district*. Here, only the dynastic candidate runs and wins.[13]

Third, suppose that both dynastic and non-dynastic candidates run. If the non-dynastic candidate deviates (i.e., does not run), her expected payoff becomes zero. Thus, if $V_N^* \geq c_N$, neither candidate deviates because $V_D^* > V_N^* \geq c_N > c_D$. Such a district is called a *competitive district*.

In short, we find the following proposition:

Proposition 1 *Suppose Assumptions 1 and 2. (i) Dynastic district: If* $V_N^* \leq c_N$*, only the dynastic candidate runs, announces* $\lambda_D = 1$*, and wins with certainty; (ii) Competitive district: If* $V_N^* \geq c_N$*, both the dynastic and non-dynastic candidates run, and announce* λ_D^* *and* λ_N^* *defined by (4) and (5), respectively. The dynastic candidate's probability of winning is* π^**, defined by (6).*

2.3 Theoretical Implications

We can draw three empirical predictions from our model. First, our model of legislative bargaining predicts the following hypothesis:

H1 *Dynastic legislators bring more distributions to their districts than do non-dynastic legislators.*

Second, the model leads to predicting an election outcome. The probability that a dynastic candidate wins in a competitive district is given by (6), which is always higher than 1/2. The expected vote share is given by (7), which is also higher than 1/2. In contrast, a non-dynastic candidate's probability of winning in a competitive district is lower than 1/2. In the dynastic district, a dynastic candidate will win with certainty. Drawing on these results, we expect that:

[13] Suppose that only a non-dynastic candidate runs. This candidate will set $\lambda_N = 1$, winning with certainty and obtaining an expected payoff of $d_N + v$. If a dynastic candidate deviates and runs, the dynastic candidate's payoff changes from zero to $V_D^* - c_D$. From Assumption 1, $c_D < 1/(4\xi^2) < V_D^*$. Thus, the dynastic candidate always has an incentive to deviate and run. Therefore, such an equilibrium does not exist.

H2 *Dynastic candidates enjoy a higher probability of winning and a higher vote share than non-dynastic candidates do.*

Third, we examine the economic consequences of electing dynastic and non-dynastic candidates. As mentioned previously, we interpret g $(= (1 - \lambda_j)d_j)$ as a growth policy aimed at improving the socioeconomic infrastructure and expanding job opportunities within the district, leading to higher economic performance. Electing dynastic legislators should result in higher economic performance than electing non-dynastic legislators because dynastic legislators bring more allocations (i.e., the larger amount of d_j) to their districts. Importantly, this relationship holds only in a competitive district, where dynastic legislators generate a higher expected amount of spending on policy g than non-dynastic legislators do (i.e., $(1 - \lambda_D^*)d_D > (1 - \lambda_N^*)d_N$).[14] On the other hand, electing dynastic legislators in the dynastic district results in lower economic performance than when electing non-dynastic legislators in the competitive district. This is because those dynastic legislators set $\lambda_D = 1$ and win with certainty. In other words, dynastic legislators from the dynastic district only spend the distributive benefits on the limited segment of the electorate, including themselves, in the district, which makes no contribution to the economic performance of the entire district. Taken together, we obtain the following corollary:

Corollary 1 *In the competitive district, economic performance is higher when a dynastic legislator is elected than when a non-dynastic legislator is elected. (ii) Economic performance is higher in the competitive district with a non-dynastic legislator than in the dynastic district (with a dynastic*

[14] Even if a dynastic candidate may be desirable for *a particular district*, a dynastic candidate is not desirable *for the nation*. The total amount of resources to be distributed for the districts is limited. Even in the competitive district, dynastic candidates spend more on policy r than non-dynastic candidates do. Therefore, at the national level, if the legislature includes more dynastic legislators, more resources will be spent on policy r. Thus, the overall economic performance of the nation decreases. This result is important when we consider the normative implication of the presence of dynastic politicians.

legislator).

For our empirical analysis, we have to specify whether dynastic legislators, if elected, are from the dynastic or competitive district. According to Proposition 1, the type of district is determined by V_N^* and c_N. We focus on the role of c_N, arguing that the dynastic district appears more likely when c_N is sufficiently high, while the competitive district appears more likely when c_N is low.[15] The value of c_N is strongly influenced by the amount of electoral resources dynastic candidates possess. This is because a non-dynastic candidate has to spend more on mobilization to challenge the dynastic opponent, who has the larger amount of inherited resources. More resource-rich dynastic candidates increase the campaign costs for non-dynastic candidates, discouraging non-dynastic candidates from running. Note that dynastic candidates are, on average, more resource-rich than non-dynastic candidates, because dynastic candidates can inherit a well-organized support group, financial resources, and name recognition among the constituents from their parent. Thus, a larger gap in electoral resources makes it particularly challenging for non-dynastic candidates to fight against dynastic candidates. In contrast, less-resourceful dynastic candidates lower the campaign cost for non-dynastic candidates.

In short, we predict that the dynastic district appears when dynastic candidates are more resourceful, while the competitive district appears when dynastic candidates are less resourceful. Accordingly, we develop the following hypothesis:

H3 *Compared to the districts electing non-dynastic legislators, the districts electing dynastic legislators with abundant resources display lower economic performance, whereas the districts electing dynastic legislators without abundant resources display higher economic performance.*

[15] From (9), V_N^* depends on ξ and $d_D - d_N$, all of which are difficult to observe. In contrast, c_N is observable using data.

3 Empirical Analysis

For empirical tests, we use the data on the members of the Lower House elected between 1996 and 2005 in Japan.[16] We choose the members of the Lower House because it has more legislative power. After 1996, the Japanese Lower House employs a mixed-member system with 200 members elected under Proportional Representation (PR), and 300 members elected from single-member districts. The number of seats for the PR tier was reduced to 180 for the elections since 2002. Our analysis excludes members elected from the PR tier. In addition, we exclude the period before 1996 from the analysis in order to keep the effect of the electoral system constant.

3.1 Fiscal Transfers

We test the first hypothesis by examining the flow of intergovernmental transfers to municipalities. We use panel data that include biographical and electoral information of the representatives elected for the Lower House in 1996, 2000, 2003, and 2005, and annual fiscal and socioeconomic information of municipalities between 1997 and 2007.[17] We also present an instrument variable estimation in order to address concerns regarding endogeneity.

We estimate the following model:

$$[Transfer]_{ml,t} = \beta[Dynasty]_{ml,t-1} + \gamma_1[LDP]_{ml,t-1} + \gamma_2[Term]_{ml,t-1} + \gamma_3[Margin]_{ml,t-1} + \lambda \mathbf{w}_{ml,t} + \phi_t + \rho_{ml} + \epsilon_{ml,t}, \quad (10)$$

[16] The data sources are presented in Appendix 2.

[17] In Japan, the national government transfers financial resources to either municipal governments that are located within their districts or prefectural governments. We focus on municipalities, but our supplementary analysis using the prefecture-level data presents similar results to those reported below. The prefectural-level data allow us to define the amount of fiscal transfer in a variety of ways, and we confirm that our results are robust to the different measures of fiscal transfer. The results of the supplementary analysis are available upon request.

where $[Transfer]_{ml,t}$ denotes the log of the amount of fiscal transfers from the national government to municipality m in district l in year t. The amount of government transfer is the sum of two broad categories of governmental transfers, namely the local allocation tax grant and the national treasury disbursement.[18] $[Transfer]_{ml,t}$ is a per capita amount and is measured in 1,000 yen. The average equals 5.270 with the standard error 0.918 for our study period.

$[Dynasty]_{ml,t-1}$ in (10) is our key explanatory variable and equals one if municipality *m* of district l in year $t-1$ is represented by a dynastic legislator and zero otherwise. We define "dynastic" legislators as those whose parents were members of the Lower House in the past. The percentages of dynastic legislators elected in each election are 28% in 1996, 25% in 2000, 27% in 2003, and 26% in 2006.[19] Similarly, $[LDP]_{ml,t-1}$ equals one if the municipality is represented by a legislator who belongs to the Liberal Democratic Party (LDP) and zero otherwise. The LDP was in power during the period of our study. $[Term]_{ml,t-1}$ denotes the number of previous terms of the legislator representing the municipality, while $[Margin]_{ml,t-1}$ denotes the margin of victory.

The vector $\mathbf{w}_{ml,t}$ includes the characteristics of municipalities such as per capita income, the fiscal strength index, the total size of population, the proportion of population under 15 years old and over 65 years old, the proportion of population in the agricultural sector and service sector, the degree of urbanization, and population density.[20] The financial strength index measures the ratio of municipal financial revenue to financial demand. When the revenue is exactly equal to the anticipated expenditure, the index becomes one. The scores below one indicate that the demand surpasses the revenue, while the scores above one indicate that the revenue surpasses the demand. The degree of urbanization is measured by the ratio of population living in Density Inhabited

[18] The same measure of fiscal transfer is used by Horiuchi and Saito (2003).

[19] See Iida, Ueda, and Matsubayashi (2010) for the historical trend of the presence of dynastic legislators in the Lower House. In this paper, we focus on the inheritance of legislative and electoral advantages within a family, yet other types of inheritance may occur in Japan. For example, the secretaries of politicians often inherit some of these advantages from their bosses.

[20] The per capita income, population size, and population density are logged in the following analysis. The population-related variables (except for total population) are only available every five years and we linearly interpolated the values for non-census years.

Districts (DID). ρ_{ml} and ϕ_t are municipality and year fixed effects, respectively. $\varepsilon_{ml,t}$ is a municipality-year specific error term.[21] The number of municipalities in Japan was slightly more than 3,300 until about 2003, but since then, the number has dropped to around 1,800 due to large-scale mergers that happened throughout Japan. In total, our municipality-level data include about 30,000 observations for 11 years. The summary statistics of the variables for our regression analysis are reported in Table 1.

[Table 1 Here]

Table 2 reports the estimation results. The standard errors are clustered by municipalities. Column (1) in Table 2 shows that municipalities receive more transfers when they are represented by dynastic legislators as compared to when non-dynastic legislators represent them. The difference is estimated to be statistically significant. The coefficient associated with the dynastic legislator dummy in column (1) indicates that municipalities expect a 1.5% increase in the transfer when they are represented by a dynastic legislator. This result offers support for the first hypothesis.

[Table 2 Here]

This suggests that municipalities receive more transfers from the national government when they are represented by dynastic legislators. However, one may argue that the relationship is spurious. For example, suppose that an area with a deteriorating economic situation elects a dynastic legislator

[21] The financial and socioeconomic data of municipalities are merged with the legislator data. When we merge the datasets, we take into account the timing of an election and a budget formation. In Japan, electoral districts do not typically cross municipality lines (with minor exceptions in urban areas), but after the large-scale municipality mergers in the early 2000s, about 30 municipalities are now split into more than two electoral districts. They are dropped from the analysis. In addition, when large municipalities in metropolitan areas are divided into multiple districts, we count the total number of dynastic and LDP legislators elected in the area and divide by the total number of legislators representing municipalities. For the number of terms and the margin of victory, we simply take the average of the data for all members representing the area.

because it expects him to secure more grants to improve its economic condition. Further, this area may receive more transfers from the government simply because it has greater financial needs. If this is the case, the effect of dynastic legislators is overestimated. Alternatively, one may argue that there is a reverse causality (i.e., our dependent variable determines the presence of dynastic legislators) because an increase in subsidies enhances the chance of reelecting dynastic legislators who have brought back the money to the district. Finally, suppose that there is an unobservable ability that helps politicians secure more funds to their constituencies. If dynastic politicians tend to have such a trait, our results are likely to be biased because we are unable to include it in the estimation.

We address these potential concerns for endogeneity by using the gender of the previous incumbent's children as an instrumental variable.[22] Specifically, we use the fraction of boys among the predecessor's children. Given that more than 90 percent of Japanese politicians between 1996 and 2007 were males, if a politician has only daughters, he is unlikely to give his seat to one of his children. In fact, among the 124 politicians coded as dynastic in our dataset, only 3 are female.[23] Thus, the fraction of male children of a politician should be highly and positively correlated with the chance of dynastic inheritance of the politician's seat. However, the gender of offsprings (of the previous incumbent) is unlikely to be related to the amount of transfers in the current period. These two properties make it an ideal instrument.

Let $[Boy]_{ml,prev}$ be the fraction of male children among all children of the previous incumbent in district l. We calculate $[Boy]_{ml,prev}$ as follows. First, for each politician in our dataset, we checked if the member who served before him or her belonged to the same party. If not, $[Boy]_{ml,prev}$ is automatically coded as 0, because the dynastic inheritance of seats cannot happen.[24] Second, if the previous incumbent was from the same party, then we consulted a book called "*Jinji Koshin Roku*" that lists the family information of notable people in Japan.[25]

[22] A similar instrument is used in Bennedsen et al. (2007) who study the impact of family CEO successions on corporate performance.
[23] Only members elected in single-member districts are included in the calculation.
[24] We assume that dynastic politicians belong to the same party as their parent.
[25] All members of the Diet are listed in the book, but some members refused to give family information to the

Then, we run our first-stage regression as follows:

$$[Dynasty]_{ml,t-1} = \beta[Boy]_{ml,prev} + \lambda \boldsymbol{X}_{ml,t} + \phi_t + \rho_{ml} + \epsilon_{ml,t}, \quad (11)$$

where $\boldsymbol{X}_{ml,t}$ contains all other independent (i.e., exogenous) variables included in (10). The first-stage regression produces a statistically significant coefficient on $[Boy]_{ml,prev}$ ($\hat{\beta}$ = 0.268, SE = 0.046), suggesting that it is a valid strong instrument.[26]

We then run our second-stage regression using a fitted value of $[Dynasty]_{ml,t-1}$ in (11). The result is reported in column (2) in Table 2. The coefficient associated with $[Dynasty]_{ml,t-1}$ is positive and statistically significant. The results do not change substantially even if we use the number of male children as an alternative instrument. The estimation results from IV regressions suggest that the presence of dynastic legislators has a strong causal impact on the allocation of distributive benefits to municipalities. In short, our instrumental variable estimation also lends support to the hypothesis that dynastic legislators bring more distributive benefits to the district than non-dynastic legislators.

3.2 Election Returns

The second hypothesis predicts that dynastic candidates have a higher probability of winning and a higher vote share as compared to non-dynastic candidates. We test this hypothesis by estimating the following model:

$$\begin{aligned}[Return]_{h,l} = {} & \beta[Dynasty]_{h,l} + \gamma_1[Female]_{h,l} + \gamma_2[Age]_{h,l} + \gamma_3[Local]_{h,l} \\ & + \gamma_4[LDP]_{h,l} + \gamma_5[DPJ]_{h,l} + \gamma_6[Komei]_{h,l} \\ & + \gamma_7[Incumbent]_{h,l} + \gamma_8[Term]_{h,l} + \rho_l + \epsilon_{h,l} \quad (12)\end{aligned}$$

publisher. If no family information is available in the book, we then consulted other sources including the members of the Diet themselves by mail. When everything failed, we coded $[Boy]_{ml,prev}$ as 0.

[26] The entire estimated result is presented in Appendix 3.

where $[Return]_{h,l}$ is either a dichotomous variable that equals one if candidate h wins an election in district l or a continuous variable that equals the vote shares of candidate h in district l. For the dichotomous variable, candidates are assigned 0 even if they gained a seat in the PR tier after being defeated in a single-member district. The vote share is equal to the number of candidate's votes divided by the total number of eligible votes cast, multiplied by 100. ρ_l denotes a district-fixed effect, while $\varepsilon_{h,l}$ denotes a candidate-specific error term. With ρ_l, the model exploits the variation across candidates within a district.

$[Dynasty]_{h,l}$ in (12) equals 1 if candidate h in district l is dynastic. Because it is extremely challenging to find the dynastic status of those who lost elections, we limit our search to candidates who ran in the 2005 General Election (N = 989). Thus, in this part of the analysis, the sample represents candidates who ran in 2005. The percentage of dynastic candidates is 11% in the 2005 election. In addition to $[Dynasty]_{h,l}$, equation (12) includes several variables that control the effects of the demographic and political attributes of the candidates on election returns. $[Female]_{h,l}$ equals one if a candidate is female. $[Age]_{h,l}$ denotes the age of the candidates in 2005. $[Local]_{h,l}$ equals one if a candidate served as a governor, mayor, or representative at the prefecture- or municipality-level before running for the Lower House election. $[LDP]_{h,l}$, $[DPJ]_{h,l}$, and $[Komei]_{h,l}$ denote the party affiliation of the candidates. $[LDP]_{h,l}$ equals one if a candidate is from LDP. $[DPJ]_{h,l}$ equals one if a candidate belongs to the Democratic Party of Japan. $[Komei]_{h,l}$ equals one if a candidate belongs to the Komei party.[27] $[Incumbent]_{h,l}$ is a dummy variable for the incumbency status of candidates. $[Term]_{h,l}$ is the number of times that the candidate has been elected to the Lower House. The summary statistics are reported in Table 3.

[Table 3 Here]

[27] These three parties are the major parties that occupied most of the seats in the Lower House before the 2005 election. LDP was in power before the election and predominantly won the election of 2005.

Table 4 presents the estimation results. We estimate a logit model when the dependent variable is the dichotomous variable of winning. The standard errors are clustered by districts. According to column (1), the positive and statistically significant coefficient associated with $[Dynasty]_{h,l}$ suggests that dynastic candidates are more likely to win the 2005 election as compared to non-dynastic counterparts. The estimated coefficient in column (1) suggests that their probability of winning is 22 percent higher than that of non-dynastic candidates.[28] When the vote share is the dependent variable, we estimate the standard fixed effect model. Column (2) of Table 4 suggests that the coefficient associated with the dynastic status is positive and statistically significant. That is, dynastic candidates enjoy higher vote shares as compared to non-dynastic candidates. The estimated coefficient in column (2) implies that the average vote share of dynastic candidates is 5.273 percentage points higher than that of non-dynastic candidates. These results show evidence in support for the second hypothesis.

[Table 4 Here]

3.3 Economic Performance

To test the hypothesis on economic performance (H3), we determine whether dynastic legislators are resource-rich or not by using the data on the reported amount of financial resources. Specifically, we rely on the total amount of family assets of dynastic legislators. We assume that more family assets allow dynastic candidates to spend more on campaign activities, which results in a higher cost of campaign for non-dynastic candidates. The data on the assets are available for 1996, 2000, 2003, and 2005. We code dynastic legislators as rich if their family assets exceed the mean of the reported

[28] We computed a difference in the predicted probabilities of winning between a dynastic and a non-dynastic candidate, holding other variables constant.

assets among all legislators, and poor otherwise.[29] Our regression analysis reports that dynastic candidates own more family assets than non-dynastic candidates. Column (1) in Table 5 reports that the difference in the family assets is about 5 million yen, after controlling for several political and demographic attributes. Column (2) in Table 5 shows a similar result wherein dynastic legislators are more resource-rich than non-dynastic legislators when the total amount of campaign revenue is used as a measure of resources.[30]

[Table 5 Here]

As a measure of local economic performance, we use the rate of GDP growth in prefectures. We expect that the prefectures represented by dynastic legislators achieve the lower levels of income and GDP growth than the prefectures represented by non-dynastic legislators. In this subsection, we use the prefecture-level data because the data on economic growth are unavailable at the municipality-level.[31]

We estimate the following model:

$$
\begin{aligned}
[Growth]_{k,t} = {} & \alpha[Growth]_{k,t-1} + \beta_1[P.RichDynasty]_{k,t-2} + \beta_2[P.RichDynasty]_{k,t-3} \\
& + \beta_3[P.PoorDynasty]_{k,t-2} + \beta_4[P.PoorDynasty]_{k,t-3} \\
& + \gamma_1[P.LDP]_{k,t-2} + \gamma_2[P.LDP]_{k,t-3} + \gamma_3[Transfer]_{k,t-1} + \gamma_4[Transfer]_{k,t-2} \\
& + \lambda \mathbf{w}_{k,t} + \phi_t + \rho_k + \epsilon_{k,t}, \qquad (13)
\end{aligned}
$$

where $[Growth]_{k,t}$ denotes the annual rate of GDP growth in prefecture k in year t. The

[29] The mean is about 11,000,000 yen.
[30] The data on campaign revenues are also available for those elected in 1996. The number of observations is 297.
[31] As noted above, our analysis using the prefecture-level data reports that prefectures receive more transfers when they are represented by a larger number of dynastic legislators.

right-hand side of (13) includes the lagged rate of growth, the lagged proportions of dynastic and LDP legislators, socioeconomic variables, and fixed effects for prefectures and years. Following prior research on economic growth (Caselli, Esquivel, and Lefort, 1996), we include the lagged dependent variable in the right-hand side. Further, we take the log of the growth rate.

$[P.RichDynasty]_{k,t-2}$ measures the proportion of dynastic legislators who were elected in prefecture k in year $t-2$ and whose family assets are above the mean of the sample, while $[P.PoorDynasty]_{k,t-2}$ measures the proportion of dynastic legislators who were elected in prefecture k in year $t-2$ whose family assets are below the mean. $[P.RichDynasty]_{k,t-3}$ and $[P.PoorDynasty]_{k,t-3}$ are similarly defined. We use lags at $t-2$ and $t-3$ because there should be a time lag before projects and government investment can affect local economic performance. Legislators at t determine the amount of transfers at $t+1$, which then affects the rate of income and GDP growth at $t+2$ or later. Further, these lags also minimize the possibility of the reverse causality between the presence of dynastic legislators and economic performance. In order to calculate the proportions of resource-rich and resource-poor dynastic legislators, we first code each member of the Diet for their dynastic status. Once a legislator's family background is coded, we simply sum the number of resource-rich and resource-poor dynastic legislators using their assets in prefecture *k* in year $t-2$ (or $t-3$) and divide it by the total number of lawmakers in prefecture k. We expect β_1 and β_2 to be negative and β_3 and β_4 to be positive. We also include $[P.LDP]_{k,t-2}$ and $[P.LDP]_{k,t-3}$ to capture the effect of belonging to the party in power. These variables are equal to the proportion of representatives from LDP and are defined in the same way as $[P.RichDynasty]$ and $[P.PoorDynasty]$.

Equation (13) includes a measure of fiscal transfers from the national government to prefectures. We use a log of the total amount of government transfers per capita at $t-1$ and $t-2$. We assume that fiscal transfers are expected to improve the GDP growth rate. Thus, the coefficients associated with $[Transfer]$ should be estimated to be positive. We use the lags of $[Transfer]$ at $t-1$ and

$t-2$ because fiscal transfers are not likely to have an immediate impact on local economic performance.

Additionally, we include $\mathbf{w}_{k,t}$ and ρ_k in order to control the effects of underlying socioeconomic characteristics of prefecture k on $[Growth]_{k,t}$. These characteristics are likely to affect the economic performance of prefectures and the election of dynastic legislators. The vector $\mathbf{w}_{k,t}$ includes the rate of unemployment, fiscal strength index, total size of population, proportion of population under 15 years old and over 65 years old, proportion of population in the agricultural sector and service sector, degree of urbanization, and population density.[32] ρ_k controls the effects of unobservable time-invariant characteristics of prefecture k. The summary statistics are reported in Table 6.

[Table 6 Here]

Table 7 reports the estimated results. We first check that the amount of fiscal transfers is positively correlated with the GDP growth rate. We include all non-political variables in the equation and estimate the impact of fiscal transfers. Column (1) of Table 7 indicates that the amount of transfers at $t-2$ has a positive relationship with the GDP growth rate, while the amount at $t-1$ has no statistically significant impact on the growth rate. This result offers evidence in support for our assumption that fiscal transfers have a lagged positive impact on local economic performance.

[Table 7 Here]

Next, we turn to our analysis of how the presence of dynastic legislators affects the GDP growth rate. Column (2) reports the estimated result for the third hypothesis. The proportion of rich

[32] As in the previous analysis, GDP, population size, and population density are logged in the following analysis. The population-related variables (except for total population) are only available every five years and we linearly interpolated values for the non-census years.

dynastic legislators with more family assets at $t-3$ has a negative and statistically significant impact on the rate of GDP growth. On the other hand, the proportion of poor dynastic legislators with less family assets at $t-3$ has a negative but not statistically significant impact. The proportions of rich and poor dynastic legislators at $t-2$ have no statistically significant impacts on economic growth.[33] Column (3) indicates that the result for rich dynastic legislators holds even after the impact of fiscal transfers is controlled.[34]

The negative coefficient associated with $[P.RichDynasty]_{k,t-3}$ suggests that dynastic legislators elected from the dynastic district suppress the rate of economic growth by spending the distributive benefits in an inefficient manner. In short, dynastic legislators suppress local economic performance despite the fact they deliver a larger amount of distributive benefits to their districts. More distributive benefits improve local economic performance, yet dynastic legislators spend the distributive benefits inefficiently, which in turn suppresses the growth rate in their districts.

4 Conclusion

This paper offer several notable findings. First, dynastic legislators bring more distributions to the district than non-dynastic legislators. Second, dynastic candidates enjoy higher electoral success. Third, most importantly, as compared to the districts electing non-dynastic legislators, the districts electing dynastic legislators with abundant resources display lower economic performance.

This study makes two contributions. First, our analysis shows that the types of politicians play an important role in the democratic policy-making process. Politicians are characterized by different abilities, resources, and preferences. Their personal characteristics constrain how they act in the policy-making process, resulting in different policy choices. The findings in this study suggest that exclusive attention to institutional structures does not always advance our understanding of

[33] The proportion of dynastic legislators at $t-1$ has no significant impact on economic performance. The results hold even when the average margin of victory and number of previous wins are included in the models.
[34] The results hold even if we take into account the amount of resources of non-dynastic legislators.

democratic policy making. In addition, along with other previous works, this study shows that the citizen candidate model offers a useful framework for analyzing the role of politician types.

Second, our research implies that political dynasties have a negative consequence for democratic policy making. Dynastic politicians may be socially inefficient because their electoral advantage deters non-dynastic candidates from running for office, even if constituents prefer non-dynastic candidates to dynastic ones. Further, the large presence of dynastic legislators may result in less optimal policies for the majority of Japanese citizens. A similar discussion can be applied to other countries with a considerable presence of political dynasties.

Agendas for future research include extending our model to predict the behavior of other politicians with electoral and bargaining advantages. In Japan, former local politicians and politicians' secretaries are likely to have characteristics similar to dynastic candidates.[35] It is also important to study other countries with the large presence of dynastic politicians to generalize our findings that are entirely drawn from Japan.

[35] Former local politicians are likely to have an electoral advantage in the district, but unlikely to have a bargaining advantage in the legislature. According to our model, a lack of one of these advantages will reduce cases with the dynastic equilibrium. Politicians' secretaries may have both the advantages and often inherit a district from their boss.

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Table1: Summary Statistics for Municipality-level Data

	Mean	SD	Min	Max
Logged Total Transfer (per capita)	5.270	0.918	0.755	8.908
Dynastic Legislator	0.274	0.445	0.000	1.000
LDP Legislator	0.695	0.459	0.000	1.000
Number of Previous Terms	4.667	3.186	1.000	16.000
Margin of Victory	0.196	0.163	0.000	0.791
Fiscal Strength Index	0.438	0.288	0.040	3.010
Logged Per Capita Income	8.027	0.134	7.576	10.590
Logged Population Size	9.555	1.337	5.310	15.108
Population Under Age 15	0.142	0.023	0.033	0.261
Population Over Age 65	0.245	0.073	0.065	0.575
Population in Agriculture	0.073	0.060	0.000	0.497
Population in Service	0.271	0.050	0.124	0.630
Urbanization	0.192	0.304	0.000	1.000
Logged Population Density	0.639	1.629	-4.175	5.296
N of Observations		29849		

Table 2: The Effect of Dynastic Legislators on Fiscal Transfers to Municipalities

	(1)	(2)
Dynastic legislator $_{t\text{-}1}$	0.015**	0.115**
	(0.007)	(0.053)
LDP legislator $_{t\text{-}1}$	0.003	-0.000
	(0.005)	(0.005)
Number of previous terms $_{t\text{-}1}$	-0.000	0.000
	(0.001)	(0.001)
Margin of victory $_{t\text{-}1}$	0.016	0.006
	(0.012)	(0.013)
Fiscal strength index	-1.420**	-1.410**
	(0.199)	(0.187)
Logged per capita income	-0.036	-0.021
	(0.072)	(0.068)
Logged population size	-0.040	-0.045
	(0.049)	(0.047)
Population under age 15	-0.218	-0.147
	(0.428)	(0.410)
Population over age 65	0.338	0.372
	(0.284)	(0.271)
Population in agriculture	0.173	0.240
	(0.239)	(0.232)
Population in service	-1.118**	-1.210**
	(0.368)	(0.358)
Urbanization	-0.083	-0.100
	(0.130)	(0.117)
Logged population density	-0.277**	-0.279**
	(0.023)	(0.022)
Observations	29849	29827
Adjusted R^2	0.980	

Note: Table entries are regression coefficients with robust standard errors in parentheses. Standard errors are clustered by municipalities. The estimates are based on the municipality-level data from 1997 to 2007. The dependent variable is the total amount of fiscal transfer per capita from the national government to municipalities. The dependent variable is logged for estimation. The municipality and year fixed effects are included in the models. ** $p < .05$ and * $p < .10$.

Table 3: Summary Statistics for Candidate-level Data

	Mean	SD	Min	Max
Win	0.303	0.460	0.000	1.000
Vote share	30.330	19.236	0.364	73.618
Dynastic candidate	0.113	0.317	0.000	1.000
Female candidate	0.127	0.334	0.000	1.000
Age of candidate	50.329	10.864	25.000	81.000
Former local politician	0.224	0.417	0.000	1.000
LDP candidate	0.292	0.455	0.000	1.000
DPJ candidate	0.294	0.456	0.000	1.000
Komei candidate	0.009	0.095	0.000	1.000
Incumbent	0.422	0.494	0.000	1.000
Number of previous terms	1.556	2.436	0.000	15.000
N of Observations		989		

Table 4: The Effect of Dynastic Candidates on the Election Returns in 2005

	(1)	(2)
	Win	Vote share
Dynastic candidate	1.703**	5.273**
	(0.678)	(1.370)
Female candidate	1.358**	0.563
	(0.627)	(0.881)
Age of candidate	-0.102**	-0.170**
	(0.027)	(0.041)
Former local politician	0.462	2.746**
	(0.658)	(0.974)
LDP candidate	3.899**	27.270**
	(0.482)	(1.209)
DPJ candidate	-0.739	17.497**
	(0.536)	(1.133)
Komei candidate	2.345	21.188**
	(1.992)	(1.818)
Incumbent	4.045**	12.431**
	(0.621)	(1.315)
Number of previous terms	0.581**	1.228**
	(0.167)	(0.279)
Observations	989	989
Adjusted R^2	0.637	0.884

Note: Table entries are logit regression coefficients in Column (1) and linear regression coefficients in Column (2) with robust standard errors in parentheses. Standard errors are clustered by districts. The estimates are based on candidates running for the 2005 Lower House election. The dependent variables are a binary variable that equals one if a candidate won the election in column (1), and the percent of vote share in column (2). The district fixed effects are included in the models. ** $p < .05$ and * $p < .10$.

Table 5: Dynastic Legislators and Financial Resources

	(1)	(2)
	Family Assets	Campaign Revenue
Dynastic legislator	5.283**	1.717*
	(2.328)	(0.911)
Female legislator	1.136	-4.743**
	(3.804)	(1.610)
Age of legislator	0.166	-0.026
	(0.103)	(0.041)
Former local politician	-1.471	-0.608
	(1.534)	(0.679)
LDP legislator	1.463	2.867**
	(1.691)	(0.776)
DPJ legislator	2.288	-0.806
	(2.398)	(1.178)
Number of previous terms	0.647	0.231
	(0.500)	(0.144)
1996	2.601**	
	(1.113)	
2000	1.293	
	(1.144)	
2003	-0.839	
	(0.615)	
Constant	-11.058**	15.335**
	(4.026)	(2.038)
N of observations	1198	297
Adjusted R^2	0.083	0.213

Note: Table entries are linear regression coefficients with robust standard errors in parentheses. Standard errors are clustered by prefectures. The estimates are based on winners elected for the 1996, 2000, 2003, and 2005 Lower House elections in Column (1), and in the 1996 election in Column (2). The dependent variable in column (1) is the total asset in 1,000,000 yen, while the dependent variable in column (2) is the total campaign revenue in 1,000,000 yen. The prefecture fixed effects are included in the models. ** $p < .05$ and * $p < .10$.

Table 6: Summary Statistics for Prefecture-level Data

	Mean	SD	Min	Max
GDP growth rate	-0.001	0.019	-0.067	0.088
Proportion dynastic legislator $_{t-1}$	0.255	0.201	0.000	0.750
Proportion poor dynastic legislator $_{t-1}$	0.095	0.129	0.000	0.667
Proportion rich dynastic legislator $_{t-1}$	0.159	0.180	0.000	0.750
Proportion LDP legislator $_{t-1}$	0.658	0.270	0.000	1.000
Average number of previous winnings $_{t-1}$	4.445	1.373	1.833	9.667
Average Margin of Victory $_{t-1}$	0.180	0.086	0.016	0.470
Logged GDP	15.781	0.821	14.508	18.341
Unemployment rate	0.089	0.025	0.046	0.221
Fiscal strength index	0.443	0.193	0.197	1.319
Logged per capita income	7.919	0.141	7.593	8.472
Logged population size	14.502	0.736	13.305	16.362
Population under age 15	0.146	0.012	0.113	0.210
Population over age 65	0.202	0.033	0.110	0.282
Population in agriculture	0.073	0.038	0.004	0.158
Population in service	0.631	0.053	0.518	0.787
Urbanization	0.506	0.186	0.240	0.994
Logged population density	1.207	0.967	-0.342	4.066
N of observations	517			

Table 7: The Effect of Dynastic Legislators on Economic Growth at the Prefecture-Level

	(1)	(2)	(3)
Logged GDP $_{t-1}$	-0.428**	-0.424**	-0.437**
	(0.063)	(0.068)	(0.062)
Logged total transfer $_{t-1}$	-0.014		-0.013
	(0.016)		(0.017)
Logged total transfer $_{t-2}$	0.048*		0.045*
	(0.025)		(0.026)
Proportion rich dynastic legislator $_{t-2}$		0.011	0.010
		(0.011)	(0.011)
Proportion rich dynastic legislator $_{t-3}$		-0.020**	-0.019**
		(0.009)	(0.009)
Proportion poor dynastic legislator $_{t-2}$		-0.000	0.000
		(0.012)	(0.012)
Proportion poor dynastic legislator $_{t-3}$		-0.005	-0.004
		(0.010)	(0.010)
Proportion LDP legislator $_{t-2}$		0.003	0.003
		(0.005)	(0.005)
Proportion LDP legislator $_{t-3}$		-0.001	-0.001
		(0.006)	(0.006)
Unemployment rate	-0.834**	-0.914**	-0.854**
	(0.312)	(0.304)	(0.300)
Fiscal strength index	0.065	0.026	0.064
	(0.063)	(0.042)	(0.066)
Logged population size	3.243**	3.847**	3.278**
	(1.287)	(1.364)	(1.327)
Population under age 15	-0.544	-0.276	-0.556
	(0.541)	(0.533)	(0.528)
Population over age 65	-0.088	0.025	-0.115
	(0.307)	(0.308)	(0.312)
Population in agriculture	-0.478	-0.560	-0.491
	(0.476)	(0.495)	(0.496)
Population in service	-0.307	-0.317	-0.330
	(0.365)	(0.370)	(0.369)
Urbanization	0.105	0.138	0.107
	(0.164)	(0.147)	(0.155)
Logged population density	-3.059**	-3.676**	-3.095**
	(1.310)	(1.397)	(1.355)
Adjusted R^2	0.455	0.448	0.452

Note: Table entries are linear regression coefficients with robust standard errors in parentheses. Standard errors are clustered by prefectures. Estimates are based on the prefecture-level data from 1997 to 2007. The dependent variable is the log rate of total GDP growth. The prefecture and year fixed effects are included in the models. The number of observations is 517. ** $p < .05$ and * $p < .10$.

Appendix 1: Variables used in the Model

Variables	Definitions
d_D, d_N	Expected amount of distribution
λ_D, λ_N	Ratio of rents
v	Benefits from holding office
c_D,c_N	Costs of running
α	Bargaining power of a dynastic candidate
ω_i	Idiosyncratic shock of voter i's preference($\omega_i \sim \text{Unif}[\gamma - \frac{1}{2\varphi}, \gamma + \frac{1}{2\varphi}]$)
γ	Aggregate shock of voters' preference($\gamma \sim \text{Unif}[-\frac{1}{2\xi}, \frac{1}{2\xi},]$)
L	Number of legislators in the legislature
V_D,V_N	Expected payoff in a competitive district

Appendix 2: The Sources of Data

Fiscal transfer: *Shichosonbetsu Kessan Jokyo Shirabe* (Report on the Condition of Municipalities' Balance Sheet) published by the Ministry of Internal Affairs and Communications.

Biographical information of legislators: For those elected in 1996, we used the data compiled by Kabashima (2000). Because Kabashima's data covers only up to1996, we updated his dataset for more recent lawmakers in two ways. As for the conservative members of the Diet, we supplemented the information with the data collected by Asano (2006). Masahiko Asano generously shared his data with us. Most conservative legislators belong to LDP. For the rest of the representatives, we consulted booklets called *"Kokkai Binran"* (Diet Manual) to fill in the dynastic information.

For those who *lost* the 2005 election, we consulted the archives of various newspapers for candidate profiles. Because dynastic legislators are of great interest to the Japanese general public, newspaper articles mentioned their dynastic status in most cases. When newspapers did not carry candidate profiles, we consulted other sources, such as their web sites and biographical accounts by others.

Election returns: Japan Election Data compiled by Setsufumi Mizusaki and Yuki Mori (various years).

Social and economic data of prefectures and municipalities: *Shakai Jinko Toukei Taikei* (System of Social and Demographic Statistics) published by the Ministry of Internal Affairs and Communications.

Assets: Newspaper reports.

Campaign revenue: Kabashima (2000).

Appendix 3: The First-Stage Regression Result for the Instrumental Variable

	(1)
Fraction of boys	0.268**
	(0.046)
LDP legislator $_{t\text{-}1}$	0.019
	(0.013)
Number of previous terms $_{t\text{-}1}$	-0.003
	(0.002)
Margin of victory $_{t\text{-}1}$	0.104**
	(0.019)
Fiscal Strength index	-0.118*
	(0.063)
Logged per capita income	-0.152**
	(0.053)
Logged population size	0.068
	(0.054)
Population under age 15	-0.613
	(0.667)
Population over age 65	-0.194
	(0.388)
Population in agriculture	-0.751*
	(0.396)
Population in service	0.877*
	(0.503)
Urbanization	0.143
	(0.160)
Logged population density	0.012
	(0.019)
N of Observations	29849
Adjusted R^2	0.796

Note: Robust standard errors are in parentheses. Standard errors are clustered by municipalities. The estimates are based on the municipality-level data from 1997 to 2007. The dependent variable is an indicator variable that equals one if a municipality is represented by a dynastic legislator and zero otherwise. The municipality and year fixed effects are included in the models. ** $p < .05$ and * $p < .10$.