Appointed Officials and Consolidation of New Democracies: Evidence from Indonesia*

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Abstract

The workings of new democracies are heavily influenced by the legacies of the previous autocratic regimes. This paper examines the effect of one of these legacies on the process of democratic consolidation: the body of appointed officials at the lowest level of the administration. My theoretical analysis highlights that appointed officials have a vested interest in the persistence of the autocratic status quo in order to protect their jobs. At the onset of the first democratic election, they use local patronage networks to promote the electoral chances of the dictator's party. However, if there is imperfect information about the political leanings of local officials and if the reformist party is expected to win by a large majority, this effect can be reversed: opportunistic local officials will, in that case, pretend to be strong supporters of the reformist party, in an attempt to keep their jobs.

I test the empirical predictions of the model with a unique data set containing information on the electoral results for the first and second post-Suharto elections for over 30,000 villages in Indonesia. Within districts, Suharto's party was 5 percentage points more likely to win in villages with an appointed village head than in those with an elected village head. The results are robust to the inclusion of a wide set of controls and similar across econometric methods (OLS, propensity score matching). Consistent with the model, this effect is only reversed for districts in which the reformist party won by a large margin. Overall, this paper provides substantial evidence that, unless reformist parties are expected to be the clear winners of the first democratic elections, appointed officials will promote the electoral chances of the dictator's party, which could become an impediment for the process of democratic consolidation.

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1 Introduction

The first years of a democratic regime are when democracy is most vulnerable. Many scholars have recognized that several practices or institutions developed during the previous autocratic regime leave a legacy that will condition the workings of the new democracy, both in terms of their economic and political outcomes.[1] A crucial juncture when these legacies might play a critical role is at the time of the first democratic election. If the presence of these legacies prevents reformist parties from taking office, democratic deepening reforms might not be implemented, what could lead to a captured or unconsolidated democracy.

This paper examines, theoretically and empirically, how one of these legacies can affect the outcome of the first democratic election: the body of local officials. There is extensive evidence that documents the importance of local leaders for many nondemocratic regimes.[2] By means of local patronage networks and other intimidation mechanisms, they are able to obtain support for the regime, or simply compliance, from the population. At the onset of the first democratic election, most of them will still be in their positions and still have the means and the ability to influence voters.

However, we lack a good understanding of what incentives local officials face to continue to use these local patronage networks in the first democratic election. First, the loyalty ties that local officials had with the previous autocratic regime can suddenly change, given the new political scenario. Second, new democracies are characterized by a great amount of uncertainty regarding real political leanings. The repressive nature of nondemocratic regimes prevents the disclosure of political views different from those of the dictator's ideology. Consequently, the high degree of asymmetric information with which new democracies are endowed enables local officials to behave opportunistically during the early stages of the democratic period.

This unique political environment raises a number of questions: What incentives does local officials face to continue to influence voters in the first democratic election? Will they use the patronage network to obtain support for the previous dictator's party? Will they ever give their support to reformist parties? This paper examines these questions and also explores how the answers depend on the method of selection of local officials, in particular, on whether local officials are appointed by some upper level government, or elected in local elections.

In order to provide answers for these questions, I develop a model in which two parties (the dictator's party and a reformist party) contest the first democratic election for some upper-level office. At the lower level, there are local officials that control the patronage networks and decide how much effort to exert during the electoral campaign to influence voters in their region. Since the

[1] See, for instance, Acemoglu, Ticchi and Vindigni (2008, 2009), for how the legacy of an inefficient bureaucratic structure or a large military might affect politics in transitional democracies.

[2] Some examples are Baum and Shvchenko (1999) discussing the case of China, Magaloni (2006) on Mexico, Pepinsky (2007) on Malaysia, and Blaydes (2008) on Egypt.

regime has just transitioned from a nondemocratic period, there is imperfect information about their political leanings. Hence, effort has a twofold motivation in this model: it can signal a particular political leaning to upper levels of government and it can also influence the outcome of the election.

The model highlights that local officials who are appointed by upper levels of government have a much stronger incentive to influence voters in their region. They do so because they will be able to keep their jobs only if the party they support wins the election *and* the winner of the election is confident enough that the local official is truly one of her supporters. In contrast, elected local officials lack this incentive, because the continuity in their positions does not depend on the outcome of upper-level elections: they were elected into office through local elections and they will remain in office until local elections are held again.

The decision problem of appointed local officials constitutes a signaling game that has two broad types of equilibria: pooling and separating.[3] The model predicts that, if the election is expected to be lopsided, a pooling equilibrium emerges in which all appointed officials exert the same level of effort, regardless of their real political leanings. This is indeed a very intuitive result: when, ex-ante, one of the candidates is very likely to win, all the appointed officials exert effort to support that candidate and pretend to be her strongest supporters. If the election is expected to be contested, a separating equilibrium emerges: in the absence of a clear winner, each appointed official finds it optimal to support his most preferred candidate.

In separating equilibria, since appointed officials are exerting effort in opposite directions, the net effect depends on the proportion of them that are supporters of each party. However, the likely higher proportion of dictator's supporters would tilt the balance towards the dictator's party. Therefore, we would expect that in most scenarios, appointed officials operate the patronage networks to support the dictator's party. This effect is only reversed if the opposition party is expected to win by a large margin. In that case, a pooling equilibrium emerges and appointed local officials unambiguously support the reformist party.

I test the empirical predictions of the model with a unique data set from Indonesia, which contains information on the electoral results for the first and second post-Suharto elections for over 30,000 villages. Indonesia is the ideal setting to explore the features highlighted by the model. The country is divided into two types of villages: *desa* and *kelurahan*. In *desa* the village head is elected by villagers,[4] while in *kelurahan* the village head is appointed by the district mayor.[5]

[3] The solution concept I use is Perfect Bayesian Equilibrium and then I focus on those equilibria that satisfy the Intuitive Criterion.

[4] During the Suharto regime, elections for the village head in desa villages took place in a highly restricted set-up. Candidates were pre-screened and elections were nonpartisan.

[5] *Desa* villages tend to be more rural while *kelurahan* tend to be more urban. Therefore, controlling for the differences in the level of urbaness will be important for the econometric specification. Still, there is a good amount of overlap, since for historical reasons, some *kelurahan* were formed in quite rural areas. Also, the conversion of *desa* into *kelurahan* (as they became more urban) was stopped in 1992. Hence, I observe in some desa villages that are

By comparing the electoral behaviors of *desa* and *kelurahan*, within districts and when the main determinants of voting are controlled for, I aim to identify the differences in the electoral outcome that can be attributed to the different selection method of their village heads.

In the first democratic election of Indonesia post-Suharto, the electorate voted, simultaneously, for the national and district legislatures.[6] Since the designation rights of appointed village heads rested at the district level, they should have been particularly concerned about the electoral outcome at the district. This makes of the Indonesian case the ideal setting to explore whether the differences in the electoral behavior of *desa* and *kelurahan* is related to the expected electoral outcome of the district in the way the theory predicts.

The empirical results highlight that Suharto's party was, on average, 5 percentage points more likely to win in villages that had an appointed village head, relative to those that had an elected village head. This result is significant at the 1% level, robust to the inclusion of a broad set of controls and district fixed effects, and similar across different econometric methods (ordinary least squares and propensity score matching).

Consistent with the model, this result is reversed for districts in which the main reformist party won by a large margin. In those districts, the reformist party is 4 percentage points more likely to win in villages with an appointed village head relative to those with an elected village head. This result is noteworthy since alternative hypotheses that rely on the existence of unobserved heterogeneity between these two types of villages, do not provide a satisfactory rationale for this empirical pattern.

Finally, I examine the dynamic implications of the model with data from the second democratic election. The model predicts that in regions where a separating equilibrium emerged, village head turnover was high: since political leanings are truthfully revealed along the equilibrium path, when the winner of the first democratic election takes office, she is able to detect her non-supporters and fire them. In contrast, in places where the equilibrium is pooling, all appointed village heads exert the same level of effort and consequently the composition of village heads remains unchanged. Notice that this leads to somewhat counterintuitive predictions for the second election. Support of appointed village heads for a given party should be higher in districts where that party won by a tight margin in the first election, and lower if they won by a large margin (in the former case, the equilibrium was separating and non-supporters were fired, while in the latter case, the equilibrium was pooling and non supporters are still in office). I provide some suggestive evidence that these mechanisms seem to be playing a role at the time of the second election.

This paper is related to a number of different literatures. First, it relates to the literature that examines the specific workings of new democracies in terms of their economic and political

quite urban based on their observable characteristics, at the time of the first democratic election in 1999. I provide further details in the empirical section.

[6] The national and district legislature designated the head of the executive of the corresponding level of government.

outcomes. Some examples are Wantchekon (1999), Brender and Drazen (2005, 2008, 2009), and Keefer (2007). My paper contributes to this literature by providing microeconomic evidence of the workings of the first and second democratic elections in Indonesia and by highlighting the importance of asymmetric information about political leanings in nascent democracies.

Second, it relates to the political science and economics literature on democratic capture by the elite or other interest groups by means of vote buying, voter co-optation, patronage networks, and the use of force or its threat. Some examples are Gershenson and Grossman (2001), Bertocchi and Spagat (2001), Robinson and Verdier (2002), Acemoglu, Ticchi and Vindigni (2009), and Acemoglu, Robinson and Santos-Villagran (2009). My paper contributes to this literature by focusing on the role of local officials and by providing evidence that, in the context of a regime change, unless the reformist parties are expected to be the clear winners of the first democratic election, appointed local officials will contribute to the persistence of the autocratic status quo.

Third, it links to the literature that investigates the different incentives that elected versus appointed officials face. See, for instance, Besley and Coate (2003), Maskin and Tirole (2004), and Alesina and Tabellini (2007, 2008). However, to my knowledge, this is the first paper to point out that even non-elected officials will have important electoral incentives in the elections for the politician or official that has decision rights over their appointment. Furthermore, I highlight that these incentives will be intensified when there is an additional motivation to signal certain political leanings.

The rest of the paper proceeds as follows. Section 2 presents the model and derives its empirical predictions. Section 3 provides an overview of the Indonesian political structure and of the organization of the state. Section 4 describes the data. Section 5 explains the empirical strategy and discusses the main results. Section 6 presents the robustness checks that rule out competing explanations. In Section 7, I explore the dynamic implications of my model for the second democratic election. Finally, Section 8 presents the conclusions.

2 Model

In this section, I develop a model to understand what incentives local officials face at the onset of the first democratic election and how they vary depending on their method of selection. For an easier comparison to the empirical part, I use the Indonesian terminology in the model. In particular, I refer to local officials as village heads, some of which are appointed by the district mayor and others are elected in village level elections. However the model is, to a great extent, generalizable to other situations of two tiers of government in which designation rights of appointed local officials rest on the upper tier, and local officials have control over local patronage networks.

2.1 Setup

Consider a district where two candidates are contesting the seat of district mayor. Each candidate belongs to either party A or B, with subscript $m \in \{A, B\}$ denoting their party affiliation, which is publicly known. Without loss of generality, let party A be the dictator's party and party B be the reformist party.

This district is divided into N villages. In n of them the village head (he) is appointed by the mayor (she), while in the other $N - n$ villages the village head is elected by plurality rule elections held at the village level. The superscript $v \in \{app, elec\}$ stands for the selection method of the village head in village v, with *app* and *elec* corresponding to appointment and election methods, respectively. Village heads have sympathies for one of the parties. The subscript $t \in \{a, b\}$ corresponds to a political sympathy towards party A or B, with population proportions of γ and $1-\gamma$, respectively. These political leanings are assumed to be private information, which is the most natural specification for the first years of a democratic regime due to mainly two reasons. First, the previous non democratic regime probably repressed those that had views different from the dictators ideology. Thus, political leanings discrepant from the ideology of the regime might have been to a great extent hidden. Second, the events that lead to the fall of a nondemocratic regime and the beginning of a transitional period might considerably shape political attitudes, overall leading to a great deal of uncertainty about who supports whom, especially within the government administration.[7]

District mayors have a preference for village heads that share their same political views, deriving additional utility G for each village head that is ideologically aligned to them.[8] Upon taking office, the district mayor has an opportunity to decide over the continuity in their positions of each appointed village heads.

Let $\phi_v \in \{0, 1\}$ be the decision of the district mayor to dismiss or retain, respectively, the incumbent appointed village head of village v. If the mayor decides to dismiss him, she will have to incur in costs c, that capture the disutility of searching for a suitable candidate for the open position. From the point of view of the mayor, the benefit of taking that action is that she will

[7] Notice that I do not need to assume imperfect information about the political leanings of elected village heads. Since they were selected into office by winning village level elections, we could expect that some information about their political views might have been disclosed at the time of those elections. The results of the model are the same regardless of the informational assumption of political leanings of village heads that are elected. What is important for the model is that the political leanings of appointed village heads are private information, which is a more plausible assumption for the reasons described above.

[8] The parameter G might have a variety of interpretations. It can capture, in a reduced form way, the utility that the mayor derives from his preferred policies being implemented in the village. It can also account for the mayor's expectation of obtaining higher electoral support in subsequent elections from a village in which the village head is a sympathizer of her same party.

be able to appoint one of her cronies as village head that she knows for sure is aligned to her.[9] Overall, the utility that a district mayor of party A and B, respectively, derives from a village with an appointed village head is:

$$V_A^{app}(\phi, t) = \phi G \mathbf{1}_{\{t=a\}} + (1-\phi)[G-c] \quad (1)$$

$$V_B^{app}(\phi, t) = \phi G \mathbf{1}_{\{t=b\}} + (1-\phi)[G-c] \quad (2)$$

where $\mathbf{1}_{\{t=j\}}$ is a dummy that takes value 1 if the village head is a party j supporter ($j \in \{a, b\}$), and 0 otherwise, G is the additional utility that the district mayor obtains when the village head is aligned to her, c are the costs incurred if the incumbent village head is dismissed (which satisfy $G > c$), and ϕ takes value 1 if the mayor decides to retain the village head and 0 otherwise.

Similarly, the utility that a district mayor of party A and B, respectively, derives from a village with an elected village head is:

$$V_A^{elec}(t) = G \mathbf{1}_{\{t=a\}} \quad (3)$$

$$V_B^{elec}(t) = G \mathbf{1}_{\{t=b\}} \quad (4)$$

Notice that the only difference between the utility mayors derive from villages with an appointed village head versus those with an elected village head, is that in the latter case the mayor can not dismiss the village head.

I now define the preferences of village heads. If a village head is able to keep his position, he obtains rents R from being in office, whereas if he is fired, he obtains his reservation utility $\underline{U}$. Throughout the paper, I will focus on cases in which village heads are interested in keeping their positions, i.e. $R > \underline{U}$.

During the mayoral electoral campaign, village heads can exert effort to persuade voters in their village to vote for party A or B. The possibility of influencing voter behavior is particularly plausible in the context of the first democratic election. Local patronage networks and other co-option mechanism, which are the cornerstone of many nondemocratic regimes, are likely to still be present at the onset of the first democratic election. To better understand the patterns of political support in new democracies, in this model each village head will decide which candidate to favor when operating the patronage networks under his control. Let $e \in \mathbb{R}$ be the level of effort that a particular village head decides to exert in order to persuade voters to vote for party A:

[9] Notice that I am assuming that during the democratic period, each party has a group of strong supporters that are committed to the party and there is no uncertainty about their political leanings. However, this group might be small and the costs c captures the opportunity cost of appointing them as village heads and not to alternative jobs. In contrast, during the nondemocratic regime, anyone that wanted to be a village head had to pretend to share the same ideology as the dictator. Hence, giving candidates for village heads strong incentives to hide their real political leanings. The results of the model will still hold if the technology to identify supporters is only slightly better during the democratic period than in the nondemocratic regime, which seems a plausible assumption.

thus, positive (negative) values of e will improve the electoral prospects of party A (B). Exerting effort will be costly for village heads, captured by a twice continuously differentiable cost function $C(.) : \mathbb{R}_+ \rightarrow \mathbb{R}_+$, defined over the absolute value of effort satisfying $C(0) = 0$, $C'(|.|) > 0$, $C''(|.|) > 0$.[10] Exerting effort will be more costly for a village head when it favors his least preferred candidate. To capture this, a parameter $\overline{\alpha}$ or $\underline{\alpha}$ (satisfying $\overline{\alpha} > \underline{\alpha}$) will multiply the cost function above, depending on the direction of the effort exerted.[11]

Therefore, the utility of an appointed village head that is a party A or party B supporter, respectively, is:

$$U_a^{app}(e, \phi) = \phi R + (1 - \phi)\underline{U} - (\overline{\alpha}\mathbf{1}_{\{e<0\}} + \underline{\alpha}\mathbf{1}_{\{e>0\}})C(|e|) \tag{5}$$

$$U_b^{app}(e, \phi) = \phi R + (1 - \phi)\underline{U} - (\underline{\alpha}\mathbf{1}_{\{e<0\}} + \overline{\alpha}\mathbf{1}_{\{e>0\}})C(|e|) \tag{6}$$

where ϕ takes value 1 if the village head keeps his position and 0 otherwise, $\mathbf{1}_{\{e<0\}}$ and $\mathbf{1}_{\{e>0\}}$ are indicator functions that take value 1 if effort, e, is negative or positive, respectively, and $C(.)$ is the cost of effort.

Similarly, the utility of an elected village head that is a party A or party B supporter, respectively, is:

$$U_a^{elec}(e) = R - (\overline{\alpha}\mathbf{1}_{\{e<0\}} + \underline{\alpha}\mathbf{1}_{\{e>0\}})C(|e|) \tag{7}$$

$$U_b^{elec}(e) = R - (\underline{\alpha}\mathbf{1}_{\{e<0\}} + \overline{\alpha}\mathbf{1}_{\{e>0\}})C(|e|) \tag{8}$$

Notice that the only difference in the preferences of appointed and elected village heads is that the latter ones cannot be fired. Hence, the utility of elected village heads does not depend on which mayor wins the election. This will lead to important differences between the effort exerted by elected and appointed village heads.

Finally, I specify how the effort of village heads affects the electoral outcome. I assume there is common knowledge about the share of the population that has a preference towards party A and denote that proportion by π. There are two other factors that can affect the electoral outcome. First, a valence shock δ uniformly distributed in the interval $[\frac{-1}{2\psi}, \frac{1}{2\psi}]$, which captures the unexpected component of the relative popularity of candidate A with respect to candidate B. ψ is a parameter that measures the density of the valence shock distribution, hence, it is inversely related to the variance of the shock. Second, the sum of efforts of village heads can also have an impact on the electoral outcome. Therefore, the realized vote share of candidate A can be specified in the

[10] Throughout the paper, in order to minimize notation, I will omit the notation for absolute value from the cost function, whenever it is obvious from the context that we are considering positive levels of effort.

[11] The introduction of partisan preferences through the cost of effort leads to similar results as introducing an additional payoff for village heads if their preferred party wins the election. However, the current specification permits a cleaner interpretation of the differences in the effort exerted by elected and appointed officials. As it will be discussed later, e is interpreted as the part of effort that comes motivated by the different selection mechanism.

following way:

$$\widetilde{\pi} = \pi + \delta + g(E) \tag{9}$$

where E is the sum of the effort levels of all village heads in the district (i.e., $E = \sum_{i=1}^{N} e_i$), $g(.)$ is a twice continuously differentiable function satisfying $g(0) = 0$, $\frac{\partial g(E)}{\partial E} > 0$, which captures how total effort affects the realized vote shares.

Effort of village heads is assumed to be observable to both candidates for mayor.[12] One possible interpretation of this specification is that there is perfect information about the preferences of the median voter in each village and any deviation from that is attributed to the effort exerted by its village head. Also, village heads themselves might have an incentive to make their effort level observable and therefore, might be vocal about it.

The following expression shows the probability that candidate A wins the mayoral election as a function of total effort level:

$$p(E) = \underset{\delta}{\text{Prob}} \left[\widetilde{\pi} \geq \frac{1}{2}\right] = \psi[\pi + g(E) - \frac{1}{2}] + \frac{1}{2} \tag{10}$$

I now proceed to summarize the timing of events.

1. Taking into account π, every village head chooses a level of effort $e_i \in \mathbb{R}$.
2. The electoral outcome is realized and the level of effort that village heads exerted is observed. The candidate for mayor that obtains the largest vote share takes office.
3. The new mayor decides whether to retain or dismiss each appointed village head $\phi_i \in \{0, 1\}$.
4. Payoffs are distributed and the game ends.

2.2 Characterization of Equilibria

In this section, I define the solution concept and characterize the set of equilibria. An equilibrium consists on a pair of strategies for the two candidates for mayor, a set of strategies regarding effort decisions for appointed and elected village heads, and a set of beliefs about village head types.

I first describe the optimal effort level that elected village heads exert in any equilibrium. Since the continuity of elected village heads in their positions neither depends on which mayor wins the election, nor on the strategies mayors play, it is straightforward to see that elected village heads do not find optimal to exert effort. The following proposition summarizes this result.

[12] An extension of the model in which effort levels are observed with noise, will be available in the next version of this paper. The main intuitions provided by this model still hold. However, the nature of the pooling equilibrium changes slightly, since one of the type of players will play a pure strategy whereas the other will play a mixed strategy.

Proposition 1. *In any equilibrium, elected village heads exert zero effort regardless of their political leanings*

$$e_a^{elec} = e_b^{elec} = 0$$

Elected village heads keep their position either if mayor A or mayor B wins the election and at the end of the game they receive payoff R with certainty.

Proof. The level of effort that maximizes the utility of an elected village head of type a, given by (7), is $e_a^{elec} = 0$. Similarly, the optimal effort of type b elected village head, given his preferences defined by (8), is $e_b^{elec} = 0$. Since even exerting no effort they can keep their positions as village heads, they can not increase their payoffs by choosing any other level of effort.■

This result should not be interpreted as predicting that elected village heads will never exert effort to support one party or another. They might derive some intrinsic utility from the victory of a particular candidate. Also, district mayors might distribute additional funds to village heads that are aligned to them. In these scenarios, the elected village head might find optimal to exert some amount of effort during the mayoral electoral campaign. However, there is no reason why these additional incentives should not be also present for appointed village heads. One of the objectives of this model is to isolate the level of effort that comes motivated by the different selection mechanism, and that is how we should interpret e.

Let us now turn to the game defined by appointed village heads and the two potential candidates for mayor. Notice that effort exerted by appointed village heads has a twofold motivation: first, it can potentially affect the outcome of the election and second, it can signal a particular political affiliation. When analyzing the optimal behavior of an appointed village head, the setting constitutes a dynamic game of incomplete information, more specifically a *signaling game* between the village head and the two potential candidates for mayor. The solution concept I use to solve this game is Perfect Bayesian Equilibrium and I refine the set of equilibria using the Intuitive Criterion.

2.2.1 Solution Concept

Definition 1. A *Perfect Bayesian Equilibrium* (PBE) of this game consists on a set of optimal strategies for both candidates for mayor $\phi_m^*(e_i) \in \{0,1\}$ $m \in \{A,B\}$, a set of optimal strategies for each appointed village head $e_i^*(t) \in \mathbb{R}$ $t \in \{a,b\}$, and a set of posterior beliefs $\mu(t|e_i)$ such that

$$\phi_m^*(e_i) \in \arg\max_{\phi} \left\{ \sum_t \mu(t|e_i) V_m^{app}(\phi, t) \right\} \tag{11}$$

$$e_i^*(t) \in \arg\max_{e_i} \{ p(E_{-i}+e_i) U_t^{app}(e_i, \phi_A^*(e_i)) + (1\text{-}p(E_{-i}+e_i))\, U_t^{app}(e_i, \phi_B^*(e_i)) \} \tag{12}$$

where $\mu(t|e_i)$ is derived from the prior (population shares), e_i, and $e_i^*(t)$ using Bayes' rule (when applicable), $V_m^{app}(\phi, t)$ $m \in \{A,B\}$ are defined by (1) and (2) respectively, $U_t^{app}(e, \phi)$ $t \in \{a,b\}$ are

defined by (5) and (6) respectively, $p(.)$ is defined by (10), and E_{-i} is the aggregate effort level of all village heads other than i, i.e., $E_{-i} = \sum_{j \neq i} e_j$.

In the rest of this section, I characterize the set of equilibria of this game, focusing on the interaction of appointed village heads and the two candidates for mayors.[13] Therefore, in order to minimize the use of notation I will drop the superscript *app*, which stands for appointed village head.

2.2.2 Mayor Optimization Problem

Upon taking office the new mayor decides, based on the observed levels of effort, whether to keep or dismiss each appointed village head in her jurisdiction. She will decide to keep a particular village head as long as the expected utility from doing so is higher than the expected utility of dismissing him. By noting that the utility function of mayor A is given by (1), it is straightforward to see that she will find optimal to keep a village head that exerts effort e as long as the following holds:

$$\mu(t = a|e)G > G - c \tag{13}$$

where $\mu(t = a|e)$ is the posterior probability that a village head is type a given that he exerted effort level e. Mayors derive this posterior probability using Bayes' rule when applicable.[14] Similarly, if the candidate for mayor of party B takes office, she will keep the village head as long as $[1 - \mu(t = a|e)]\, G > G - c$. Therefore, notice that their decisions depend on their assessment of how likely is the village head to be politically aligned to them, and on the relative benefits of an aligned village head relative to the costs of firing.[15]

2.2.3 Pooling Equilibria

Next, I analyze the set of pooling PBE of this game, in which both types of village heads exert the same level of effort $e^*(t) = \widehat{e}$ for $t \in \{a, b\}$. Notice that, mayors will not be able to update their prior along the equilibrium path. Consequently, mayors will equate the posterior probability of a village head being of a particular type to the corresponding population share of that type i.e., $\mu(t = a|\widehat{e}) = \gamma$. By plugging this probability in the optimal decision rule of the mayor A given

[13] Since elected village heads always exert zero effort they do not play any role in this game.

[14] In this setup, the Bayes' rule is $\mu(t = a|e) = \frac{P(e|t=a)\gamma}{P(e|t=a)\gamma + P(e|t=b)(1-\gamma)}$, where $P(e|t)$ is the probability that an appointed village head of type t exerts level of effort e. If e is an action taken along the equilibrium path, this probability is determined by the strategies played in equilibrium. However, if e is not played along the equilibrium path, the Bayes' rule does not pin down the posterior probability.

[15] Given the timing of events, mayors cannot commit to implement any strategy different than their optimal one upon being elected. Otherwise, they might find optimal to offer a more sophisticated contract to village heads during the electoral campaign. This is why the preferences of mayors that are relevant are those at an interim stage, i.e., after being elected.

by (13), it is straightforward to see that mayor A will find profitable to keep a village head that exerted effort $\widehat{e}$ as long as $\gamma > \frac{G-c}{G}$. Similarly, mayor B will keep a village head that exerted effort $\widehat{e}$ if $1-\gamma > \frac{G-c}{G}$. Hence, depending on how the proportion of each type of village head relates to the ratio $\frac{G-c}{G}$ different strategies of mayors can be sustained in equilibrium. In this subsection I examine the following set of parameters.

CASE 1.

$$\gamma > \frac{G-c}{G} > 1-\gamma \tag{14}$$

In this case, the proportion of type a village heads is particularly high. As I describe below, pooling equilibria will be sustained in this set of parameters if the underlying support for party A is high enough. In the Appendix I discuss the opposite case, in which the proportion of type b village heads is high and pooling equilibria emerge provided that the underlying support of party B is high enough. Since the underlying support of a party in the population is likely to be positively correlated with the proportion of appointed village heads that are sympathizers of that party, these are the most relevant parameter sets in which pooling PBE might emerge. Therefore, in the rest of the paper I will focus on pooling equilibria for emerges for these two cases.[16]

Consider the following strategies and beliefs as a candidate for PBE of this game for Case 1:[17,18]

$$\begin{aligned}
\phi_A^*(e) &= \begin{cases} 1 \text{ if } e = \widehat{e} \\ 0 \text{ if } e \neq \widehat{e} \end{cases} \\
\phi_B^*(e) &= \begin{cases} 0 \text{ if } e = \widehat{e} \\ 1 \text{ if } e \neq \widehat{e} \end{cases} \\
e_i^*(t) &= \widehat{e} \geq 0 \text{ for } t \in \{a, b\} \\
\mu(t = a | e = \widehat{e}) &= \gamma \\
\mu(t = a | e \neq \widehat{e}) &= 0
\end{aligned} \tag{15}$$

Therefore, along the equilibrium path, if mayor A wins the election, she keeps all the appointed village heads, whereas if mayor B is elected, she fires all of them. Notice that these strategies are sustained because the proportion of type a village heads is high, relative to the proportion of type b village heads. Since type b village heads have higher costs of exerting positive effort, they are the

[16] For completion, the set of pooling equilibria that might emerge for other sets of parameters is also analyzed in the Appendix.

[17] Notice that in equilibrium all village heads of a particular type will exert the same level of effort. This result is derived from the symmetry of their optimization problems and will be common to all equilibria described in this paper. In order to minimize notation, oftentimes I will omit the i subscript. However, when checking for deviations from the equilibrium path I consider the deviation of a single individual of a particular type, holding constant the actions of any other village head of either type.

[18] I focus on the set of equilibria in which village heads' effort is aimed at supporting candidate A, i.e. $\widehat{e} \geq 0$. There can be pooling PBE with associated $\widehat{e} < 0$, but these peculiar equilibria in which village heads support party B but only party A hires them, do not satisfy the Intuitive Criterion and I do not discuss them further.

most likely ones to deviate from their equilibrium strategy. Let e'_b be the most profitable deviation of a particular type b village head, given that every other village head is exerting effort $\widehat{e}$.[19]

$$e'_b = \arg\max_{e \leq 0} \{[1 - p([n\text{-}1]\,\widehat{e}+e)]\,(R - \underline{U}) - \underline{\alpha}C(|e|)\} \tag{16}$$

Village head type b will not find profitable to deviate as long as:

$$p(E^*)(R - \underline{U}) - \overline{\alpha}C(\widehat{e}) \geq \left(1 - p(E')\right)(R - \underline{U}) - \underline{\alpha}C(|e'_b|) \tag{17}$$

$$\pi \geq \frac{1}{2\psi\,[R\text{-}\underline{U}]}\left[\psi\,[R\text{-}\underline{U}]\left(1 - g(E^*) - g(E')\right) + \overline{\alpha}C(\widehat{e}) - \underline{\alpha}C(|e'_b|)\right] \tag{18}$$

where $E^* = n\widehat{e}$ is total effort in equilibrium, $E' = [n\text{-}1]\,\widehat{e}+e'_b$ is total effort if a village head type b deviates, and the last inequality follows by plugging in the expression for the probability that party A wins the election, given by (10).

A number of features from the above expressions are worth noticing. First, the stronger is the underlying support for party A in a district (higher π) the more likely is this equilibrium to exist. This result is actually very intuitive: when the election is expected to be very lopsided, all the appointed village heads have a strong incentive to pretend to be supporters of the likely winner. Second, the lower the level of effort required to exert in equilibrium, $\widehat{e}$, the more likely is this equilibrium to exist. A low required effort minimizes the incentives that type b has to deviate. Third, the smaller are the differences in costs of effort $\overline{\alpha} - \underline{\alpha}$, the more likely is this equilibrium to exist. Hence, there can not be strong partisan preferences among village heads, otherwise it would be very costly for village heads to support their least preferred candidate, giving them strong incentives to deviate.

Notice that the set of PBE is very large, since there can be infinitely many levels of effort that satisfy inequality (18). However, some of these pooling equilibria are sustained by out of equilibrium beliefs that are not always reasonable. A standard practice in this type of games is to apply some refinement to the equilibrium concept. In particular, I consider the Intuitive Criterion first formalized by Cho and Kreps (1987). The application of this refinement eliminates many pooling PBE.[20] However, the following level of effort is associated to a PBE that satisfies the Intuitive Criterion.[21]

$$\frac{\partial g(ne^*_a)}{\partial E}\psi\,[R - \underline{U}] = \underline{\alpha}C'(e^*_a) \tag{19}$$

This effort level maximizes the expected payoffs of type a and there is no deviation that could

[19] The optimal deviation necessarily satisfies $e'_b \leq 0$, since deviating to $e' > 0$ is always dominated by deviating to $e' = 0$: both lead to the same actions of mayors, but in the latter case the village head saves the cost of effort.

[20] See the proof of Proposition 2 in the Appendix for the definition of the Intuitive Criterion and its application to the current setup.

[21] This is under the assumption that there is an interior solution, i.e. $\frac{\partial g((n-1)e^*_a)}{\partial E}\psi\,[R - \underline{U}] > \underline{\alpha}C'(0)$.

make type a better off, for any possible out of equilibrium beliefs.[22] Therefore, if there was some deviation, mayors should deduce the village head is type b. Hence, type b could potentially reveal his type by undertaking certain deviations. However, it would never be in his best interest to do so. Upon revealing his type, the best response of mayor A would be to dismiss him and only mayor B would be willing to keep him. Since inequality (17) holds, this is not profitable for type b. In other words, type a is getting his maximum payoff and could not reveal his type by deviating to an alternative level of effort. On the contrary, type b could reveal his type by undertaking certain deviations but he would never want to do so. Consequently, the pooling equilibrium described above satisfies the Intuitive Criterion. Notice that there might be other PBE that also satisfy the Intuitive Criterion.[23] However, the equilibrium above is the only one that also satisfies stronger equilibrium refinements, such as Universal Divinity (Banks and Sobel (1987)).[24] The following proposition summarizes these results.

Proposition 2. *If condition* $\gamma > \frac{G-c}{G} > 1-\gamma$ *is satisfied, for each* $\widehat{e} \geq 0$ *such that inequality (17) holds, the set of strategies and beliefs specified in (15) constitutes a pooling Perfect Bayesian Equilibrium of this game. In this equilibrium, all appointed village heads exert effort* $\widehat{e}$ *and along the equilibrium path both keep their positions if candidate for mayor A wins the election and are dismissed otherwise. The PBE associated to level effort* e_a^* *defined by (19) satisfies the Intuitive Criterion.*

Proof. In the Appendix.

2.2.4 Separating Equilibria

Let us now turn to describe the set of separating equilibria in which each type of village head takes an action perfectly distinguishable from the action of the other type. Hence, along the equilibrium path, types will be truthfully revealed and mayors are able to identify and only retain those village heads that are aligned to them. Let n_a (n_b) be the number of appointed village heads that are type a (type b).[25] Consider the following set of strategies and beliefs as a candidate for separating PBE

[22] Effort level e_a^* is defined such that, conditional on all other appointed village heads exerting effort level e_a^*, the optimal deviation of type a is exactly to effort level e_a^*. In particular, $e_a^* = argmax\,\{p((n\text{-}1)e_a^*+e)(R\text{-}\underline{U}) - \underline{\alpha}C(e)\}$. This ensures type a does not have a profitable deviation for any out of equilibrium beliefs. Also notice that this optimal level of effort is maximizing the expected utility of the village head. Hence, village heads will take into account the impact of their effort on the electoral outcome. In other words, they not only have the signaling motivation of effort, but also some electoral motivation. For further discussion see the proof of Proposition 2 in the Appendix.

[23] For instance, consider a PBE associated to a very large level of effort. Both types would be better off by deviating (conditional on mayors revising their out of equilibrium beliefs). But since both types would benefit from doing so, they can not reveal their type undertaking such deviations.

[24] A formal proof will be provided in the next version of the paper. The main intuition of why the divinity criterion eliminates PBE other than the one associated to e_a^*, is that in those other equilibria, type a will always be more likely to deviate be to deviate to e_a^* than type b.

[25] Therefore, the proportion of appointed village heads that are type a is $\gamma = \frac{n_a}{n}$ and type b is $1-\gamma = \frac{n_b}{n}$.

of this game.

$$\begin{aligned}
\phi_A^*(e) &= \begin{cases} 1 \text{ if } e \geq 0 \\ 0 \text{ if } e < 0 \end{cases} \\
\phi_B^*(e) &= \begin{cases} 0 \text{ if } e \geq 0 \\ 1 \text{ if } e < 0 \end{cases} \\
e_i^*(t=a) &= e^{*s} \\
e_i^*(t=b) &= -e^{*s} \\
\mu(t=a|e) &= \begin{cases} 1 \text{ if } e \geq 0 \\ 0 \text{ if } e < 0 \end{cases}
\end{aligned} \tag{20}$$

where e^{*s} is implicitly defined by

$$\frac{\partial g([n_a\text{-}n_b]\, e^{*s})}{\partial E}\psi\left[R - \underline{U}\right] = \underline{\alpha}C'(e^{*s}) \tag{21}$$

Notice that given the specified out of equilibrium beliefs, mayor A will retain any village head that exerts a positive level of effort. Therefore, the action that type a takes in equilibrium needs to maximize his expected payoffs when the effort of the rest of village heads is taken as given. Similarly for type b. This is the case when they exert the level of effort defined by condition (21). The following additional conditions ensure that type a does not want to pretend to be type b by deviating to a negative level of effort, and vice versa.

$$p(E^{*s})(R - \underline{U}) - \underline{\alpha}C(e^{*s}) \geq \left(1 - p\left(E_a'\right)\right)(R - \underline{U}) - \overline{\alpha}C(|\widetilde{e}_a|) \tag{22}$$

$$\pi \geq \frac{1}{2\psi(R\text{-}\underline{U})}\left[\psi(R\text{-}\underline{U})\left(1 - g(E^{*s}) - g(E_a')\right) - \overline{\alpha}C(|\widetilde{e}_a|) + \underline{\alpha}C(e^{*s})\right] \tag{23}$$

where $E^{*s} = [n_a\text{-}n_b]\, e^{*s}$ is total effort in equilibrium and $E_a' = [n_a\text{-}n_b\text{-}1]\, e^{*s}\text{+}\widetilde{e}_a$ is the total effort if a type a village head deviates, and $\widetilde{e}_a$ is type a's optimal deviation defined by

$$\widetilde{e}_a = \arg\max_{e<0}\left\{[1 - p([n_a\text{-}n_b\text{-}1]\, e^{*s}\text{+}e)]\,(R - \underline{U}) - \overline{\alpha}C(|e|)\right\} \tag{24}$$

Similarly, type b will not have incentives to deviate to positive levels of effort if the following holds:

$$\pi \leq \frac{1}{2\psi(R\text{-}\underline{U})}\left[\psi(R\text{-}\underline{U})\left(1 - g(E^{*s}) - g(E_b')\right) + \overline{\alpha}C(\widetilde{e}_b) - \underline{\alpha}C(e^{*s})\right] \tag{25}$$

where $E_b' = [n_a\text{-}n_b\text{+}1]\, e^{*s}\text{+}\widetilde{e}_b$ is the total effort that emerges if type b village head deviates, and $\widetilde{e}_b$ is type's b optimal deviation defined by

$$\widetilde{e}_b = \arg\max_{e\geq 0}\left\{p\left([n_a\text{-}n_b\text{+}1]\, e^{*s}\text{+}e\right)(R - \underline{U}) - \overline{\alpha}C(e)\right\} \tag{26}$$

The following proposition summarizes these results.

Proposition 3. *If conditions (23) and (25) hold, the set of strategies and beliefs specified in (20) constitutes a separating Perfect Bayesian Equilibrium of this game. In this equilibrium type a appointed village heads exert effort e^{*s} as defined by (21), type b appointed village heads of exert effort $-e^{*s}$, mayor A only retains appointed village heads that exerted effort e^{*s}, and mayor B only retains appointed village heads that exerted effort $-e^{*s}$. This equilibrium satisfies the Intuitive Criterion.*

Proof. In the Appendix.

A number of features are worth noticing from this proposition. First, π, the underlying strength of party A in the district, needs to take intermediate values for this equilibrium to exist. In other words, separating equilibria will emerge when the election is expected to be contested. Intuitively, both candidates for mayor need to have some chance of winning the election. Otherwise, village heads would have strong incentives to support their least preferred candidate if she is very likely to win. Second, notice that for separating equilibria to exist, the difference in costs of supporting the most preferred candidate versus the least preferred one, i.e. $\overline{\alpha} - \underline{\alpha}$, needs to be high enough. Thus, there needs to be strong enough partisan differences among village head to sustain a separating equilibrium. Otherwise, village heads will have incentives to deviate to support their least preferred candidate even if she is only slightly more likely to win.

2.3 Aggregate Effects

With the objective of obtaining empirically testable predictions, in this section I investigate how the aggregate level of effort of appointed village heads depends on the characteristics of each district. The following proposition summarizes the previous results and describes what will be the level of aggregate effort exerted in each district, when focusing on equilibria which satisfy the Intuitive Criterion:

Proposition 4.

1. *If condition $1-\gamma > \frac{G-c}{G} > \gamma$ holds and π is low enough (inequality (31) is satisfied), a pooling PBE emerges in which all appointed village heads exert effort to support party B. Total effort in the district will be $-ne_a^* < 0$ where e_a^* is defined by (19).*[26]

2. *If π takes intermediate values (inequalities (23) and (25) hold), a separating PBE emerges. Total effort in the district will be $n_a e^{*s} - n_b e^{*s}$* where e^{*s} is defined by *(21).*

3. If condition $\gamma > \frac{G-c}{G} > 1-\gamma$ holds and π *is high enough (inequality (17) is satisfied), a pooling PBE emerges in which all appointed village heads exert effort to support party A. Total effort in the district will be $ne_a^* > 0$ where e_a^* is defined by (19).*

[26] See the Appendix for the discussion of pooling PBE for this set of parameters.

Proof. Statement 1 follows from Proposition 5 in the Appendix. Statements 2 and 3 follow from Propositions 3 and 2, respectively.■

As the proposition above highlights, π, the relative strength of party A in a district, plays a crucial role in determining whether a pooling or a separating equilibrium emerges. However, π can also affect the aggregate level of effort by other channels. First, the productivity of effort is likely to be higher when the election is expected to be contested, since it should be easier to persuade citizens to vote for a particular candidate when there is a higher probability that their vote is going to be pivotal. To account for this let us consider that the function $g(.)$, which captures the how effort affects the vote shares, also depends on π, i.e. $g(E, \pi)$. In particular let us assume that it takes the following form $g(E, \pi) = E \cdot h(\pi)$, where $h(\pi)$ is maximized when $\pi = \frac{1}{2}$. Under this assumption, the individual level of effort exerted in equilibrium, as defined by (19) and (21) will be a function of π which has an inverse U-shape form maximized at $\pi = \frac{1}{2}$.

A second feature that might change across districts is the ideological composition of village heads. We would expect π and γ to be positively correlated since districts in which one of the parties has strong popular support, might also have a substantial proportion of village heads that are sympathizers of that party. After all, village heads are a subgroup of the population. Still appointed village heads are probably not a random sample, since they were appointed by the dictator's party (party A) during the nondemocratic regime. Therefore, it is likely that at any district the proportion of village heads that are party A sympathizers outnumbers their population counterpart.

Figure 1 summarizes these two additional assumptions. On the left panel, the optimal individual effort is plotted as a function of the underlying strength of party A, i.e. π. Similarly, the panel on the right shows how the proportion of village heads that are party A sympathizers might depend on π.

The introduction of these two assumptions permits us to obtain specific predictions about how aggregate effort differs across regions. As I will discuss in the empirical section, the data exhibits a heterogenous pattern substantially similar to the one predicted when these two additional assumptions are established, which is reassuring of the assumptions introduced. The following result summarizes these assumptions and describes their implications.

Result 1. Under the following additional assumptions

1. $g(e, \pi) = E \cdot h(\pi)$ where $h'(.) > 0$ if $\pi < \frac{1}{2}$, $h'(.) < 0$ if $\pi > \frac{1}{2}$ and $h''(.) < 0$.
2. $\gamma(\pi)$ satisfies $\gamma'(.) > 0$ and $\gamma(\pi) > \pi \ \forall \pi$

the aggregate effort described in Proposition 4 has a pattern as described in Figure 2.[27]

[27] See section 9.4. in the Appendix for a more detailed discussion on this Result. When these additional assumptions

Figure 2 plots how aggregate effort depends on π, as described by Proposition 4, when these two assumptions are taken into account. A number of features are worth emphasizing. First, notice that, even when the equilibrium is separating, the high proportion of appointed village heads that are supporters of the dictator's party (party A) can lead to aggregate levels of effort that are positive. Only if the reformist party is expected to win by a large margin we would expect to obtain an unambiguous negative aggregate effect (i.e., appointed village heads giving their support to party B). Second, the difference in aggregate effort between pooling and separating equilibria might not be too high. Even though in pooling equilibria all village heads exert effort in the same direction, they might be coordinating in low levels of effort. Therefore, I do not expect to find a discontinuity in the data that would enable me to test for the type of equilibria.

2.4 Summary of Empirical Predictions

In this subsection I summarize the empirical predictions of the theory described.

1. In most regions, the aggregate level of effort of appointed village heads favors the dictator's party, especially in regions where it has a strong underlying support in the population.

2. The effect is reversed in regions where the reformist party is expected to win by a large margin. In those regions appointed village heads support the reformist party.

3. If assumptions 1 and 2 of Result 1 are satisfied, the aggregate level of effort, as a function of the underlying strength of the dictator's party, has an heterogenous pattern as displayed in Figure 2.

In Section 5 of this paper, I test these empirical predictions with data from the Indonesian first democratic election post-Suharto. I compare the electoral outcome between villages with an elected village head and those with an appointed village head, within districts and when the main determinants of voting behavior are controlled for. By focusing on this comparison, I attempt to capture the differences in their voting patterns that can be attributed to the behavior of their village heads. The empirical results corroborate, to a great extent, the predictions of the model. In particular, the data reflects an heterogenous pattern similar to the one described in Figure 2. This finding is particularly noteworthy, because alternative explanations that rely on the existence of unobserved heterogeneity between these two types of villages can not account for this pattern.

Finally, I will examine the consequences of the pooling and separating equilibria in the second election and provide some suggestive evidence in Section 7.

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are introduced, there are no longer closed form solutions for the thresholds of separating and pooling equilibria. As long as n is large enough and function $h(.)$ is not too sensitive to changes in π, the thresholds are well behaved.

3 Overview of the Indonesian Political Structure

3.1 Political Situation

The regime of General Suharto, also known as New Order, lasted more than thirty years from 1966 to 1998. During this period elections were held every 5 years for the legislatures at the national, provincial, and district level starting in 1971. However, these elections were far from being expressions of popular sovereignty. Only moderate and highly controlled by the government opposition parties were allowed to participate in these elections and Golkar (Functional Groups), Suharto's electoral machinery, was always the overwhelming winner, achieving vote shares between 63% and 75%. In contrast, opposition parties PDI (Indonesia Democracy party) and PPP (Development Unity Party) obtained vote shares ranging from 3% to 15% and 16% to 29%, respectively.[28]

Several scholars have pointed out that one of the most important reasons behind these electoral results were the extensive use of local patronage networks, voter intimidation and vote buying practices, usually rooted at the village level (see for instance Evers (2000), King (2003), Haris (2004), Antlöv (2004)). These practices took a variety of forms: from rewarding villages with two heads of cattle if Golkar obtained a large victory in the village (Evers (2000)), to threatening voters with sanctions or with being accused of subversion if they did not vote for Golkar (Haris (2004)). The key actors of these mechanisms of voter cooptation were village heads, who had the mandate of mobilizing voters to support Golkar and were rewarded or punished by upper levels of governments based on the village electoral results (Antlöv (2004)). Golkar took advantage of the whole structure of this patronage state, while PPP and PDI had very limited means and were not even able to campaign below the subdistrict level.

On March 1998, the imminent re-appointment of Suharto as President for a 7th consecutive term by his rubber-stamp Parliament sparked protests and riots throughout the country. Discontent with the regime had mounted due to the rampant corruption levels, which in many cases involved Suharto's own family, together with the economic erosion produced by the Asian Economic Crisis of 1997. This general lack of confidence made Suharto lose crucial supports and he was finally forced to step down on May 1998.

After the fall of Suharto, a transitional government was established and several reforms were implemented. One of the most important ones was the initiation of a process of political and fiscal decentralization that transferred significant decision rights and spending capabilities to the districts (Hofman and Kaiser (2006)).

The first democratic election of the post-Suharto era took place in June of 1999. On the

[28] The first election of the New Order in 1971 was slightly different. Ten parties were allowed to participate but still Golkar obtained 62.8% of the votes. In the next elections the nine opposition parties were forced to merge in just two. PNI, Murba, IPKI, Partai Katolik, and Parkindo were forced to form PDI, while NU, Parmussi, PSS, and Peri were merged into PPP.

same day, elections were held for the national, provincial and district legislatures, although there were very few split votes.[29] The two parties that were considered more likely to win the election were PDI-P[30] and Golkar. PDI-P campaigned on the necessity of deepening the democratic reforms whereas Golkar represented the continuity of Suharto's policies and the persistence of the autocratic status quo. PDI-P was able to obtain the largest vote share, with 33.7% of the votes. Still Golkar obtained the second position with 22.4% of the votes.[31]

Although the elections seemed fair on the surface, many analysts pointed out that more subtle co-option mechanisms were still in place. In particular, patronage networks rooted at the village level were active and there were multiple reports of electoral violations related to vote buying and money politics (King (2003), Antlöv (2004), Hadiz (2004)).

PDI-P failed to form the necessary Parliamentary majority in order to obtain the presidency for their leader, Megawati Sukarnoputri. Instead, Abdurramah Wahid, the leader of PKB was elected President with the support of Golkar and other non-elected members of parliament, mostly from the military and the security forces. However, two years later in June 2001, several student protests forced Wahid to resign and Megawati Sukarnoputri finally assumed the presidency. During that period, Indonesia experienced significant reforms including a new set of electoral rules that eliminated non-elected members of Parliament and introduced direct elections for the President and for the heads of the executive government at the provincial and the district level.

Still the government of Megawati Sukarnoputri disappointed many of their supporters and PDI-P significantly lost ground with respect to the other political forces, as reflected by the electoral outcome of the second parliamentary election held in April 2004. PDI-P lost their first position to Golkar, which obtained 21.6% of the votes. PDI-P's vote share dropped to 18.5%.[32] However, none of the mayor parties were able to obtain the presidency: Susilo Bambang Yudhoyono, the leader of a new party called PD (Democratic Party), which only obtained 7.5% of the votes in the Parliamentary election, won the presidency from Megawati Sukarnoputri in the second round of the presidential election on September 2004.

3.2 Organization of the State

At the time of the first democratic election, Indonesia was divided into 27 provinces and each province was divided in districts, of which there were 306.[33] Even though there have been changes

[29] These legislatures elected, in turn, the head of the executive of the corresponding level of government.

[30] PDI-P contested the elections during the New Order under the acronyms PDI.

[31] The following most voted parties were PKB (National Awakening Party), PPP and PAN (National Mandate Party) with respective vote shares of 12.7%, 10.7% and 7.1%, and the rest of parties obtained fewer than 2% of the votes.

[32] PKB obtained 10.6% of the votes and the rest of parties obtained fewer than 10% of the votes each.

[33] The number of districts substantially increased during the decentralization period, going from 306 in 1999 to 434 in 2003.

in the number of regions, the structure of the state and the typology of the divisions has remained the same throughout the decentralization and democratization period. There are two types of districts: *kota* or urban districts (63 in 1999) and *kabupaten* or rural districts (243 in 1999). Each district is divided into *kecamatans* or subdistricts and each subdistrict is in turn divided into villages, which are the lowest subdivision of the administration. There are two types of villages: *desa* which tend to be more rural and *kelurahan* which are more urban.[34] Most of the villages in *kota* districts and other cities are *kelurahan* while *kabupaten* districts are formed mostly by *desa.*

The classification of villages into *desa* and *kelurahan* started after the approval of the Village Law No. 5 of 1979. This law aimed to achieve governmental uniformity at the village level throughout Indonesia. Before 1979, village government varied across regions and its organization was based largely on local customs (Kato (1989)). By default villages were classified as *desa* and the process of *kelurahan* formation was conducted in a centralized way by the Ministry of Home Affairs. *Kelurahans* could be formed in *kota* districts, in the capital of *kabupaten* districts and in the capital of each *kecamatan* or subdistrict. Although ministerial decrees specified some requirements that villages had to satisfy in order to be classified as *kelurahan*, none of them was quantitative. Still, there is no evidence that the classification was driven by political considerations and in Section 6 I will show some results that support this claim.[35]

There are also some differences between *desa* and *kelurahan* villages regarding their village government structure. The village head of *desa* was elected by villagers every 8 years for a maximum of 2 terms,[36] whereas the village head of *kelurahan* is appointed by the head of the district. De *jure*, *desa* government institutions have some authority over local affairs and over the village budget. However, some scholars have suggested that during Suharto's regime, most of the decisions were de *facto* taken by higher levels of government (Evers (2000)). *Kelurahan* village government is managed in a more top-down fashion and the *kelurahan* head is a government official. The head of the district has the appointment rights of the *kelurahan* heads in their district. During Suharto's regime, the decisions relative to the appointment and dismissal of *kelurahan* heads (and other civil servants) were centrally controlled by the Ministry of Home Affairs. However, during the decentralization

[34] *Kelurahan* are oftentimes refered as "urban wards", since most of them are located in cities.

[35] In order to obtain more details on how was this classification conducted, I interviewed several high ranking officials of the Ministry of Home Affairs at Jakarta that were involved in the classification. They pointed out that they did not follow any more specific criteria other than the guidelines stated in the law and ministerial decrees. Although I did not directly ask whether there were political considerations in the classification, I asked whether *kelurahan* formation was encouraged or discouraged in certain areas (support for Golkar varied considerably across regions). According to them, all areas were treated equally and that they only considered the level of urbaness for *kelurahan* formation (this is corroborated by my data analysis). They did also mention that the main constrain for *kelurahan* formation was the additional financial burden for the central government, since the *kelurahan* head has the status of civil servant and hence had to be on the government payroll.

[36] With the implementation of Law no. 22 of year 1999, the term limit of *desa* heads was changed to a maximum of ten years or two terms of service (Article 96).

period, extensive rights were transferred to the districts. In particular, the approval of Law no. 22 of 1999 (one month before the first democratic election was held) gave to the head of the districts rights to conduct appointment, transfer, dismissal, stipulation of pension, salary, among other benefits of civil servants in their jurisdiction.[37] Therefore, *kelurahan* heads should have had substantial interests in the electoral outcome of the first democratic election at the district level.

3.3 Local Politics and Persistence of Patronage Networks Post-Suharto

Many authors have highlighted that practices of voter cooptation and the presence of patronage networks have persisted after the fall of Suharto (see Antlöv (2004), King (2003), Robinson and Hadiz (2004), Schiller (2009), Sulistiyanto (2009)). For instance, Hadiz (2004) quite explicitly summarizes this view:

> "The most notable aspect of this constellation is that predatory interests nurtured under Suharto regime's formerly vast, centralized system of patronage - which extended from the Presidential Palace in Jakarta down to the provinces, towns and villages - have largely survived and remained intact."

Furthermore, some scholars argue that vote buying has become an even more extended practice post Suharto: since government officials and politicians can no longer use the threat of repression for voter cooptation, they now rely on vote buying to obtain support. Village heads remain the key actors in the patron-client network structure. In the last Special Report on Indonesia published by The Economist (2009), they argue that these mechanisms have persisted.

> "Money does play a big part, and at the village level many voters are subject to blandishments or intimidation from the local headman, who may in turn have been promised rewards or threatened with sanctions by politicians in higher tiers of government."

Overall, there is substantial evidence that the mechanism of voter cooptation that village heads had during the Suharto's regime have largely persisted, and therefore must have been present at the onset of the first and second democratic elections.

4 The Data

4.1 Data Sources

The most important data source used in this paper is the Census of Villages data sets (*Potensi Desa*, PODES), which are conducted every 3-4 years by the Statistics Agency of Indonesia (*Badan Pusat Statistik*). Interviews are conducted to the whole universe of 66,000 villages of Indonesia and

[37] Article 76 of Law no. 22 of 1999.

contain information on a wide variety of village characteristics. For the purpose of this paper, I use the 1996, 2000, 2003 and 2005 waves. My measure of electoral outcome at the village level for the 1999 and 2004 Parliamentary elections comes from two questions in the 2003 and 2005 waves, respectively, that asked which were the three most voted parties in the previous legislative election. Therefore, although I do not have the vote shares obtained by the different parties at the village level, the ranking of the three most voted parties serves as an approximation. In the regressions for the 1999 electoral outcome I use as controls several variables from the 1996 wave of the PODES survey, since this is the wave prior to the election that is the closest in time. Likewise, in the regressions on the 2004 election I use as controls the variables from the 2003 PODES.

The data on the electoral results at the district level was provided by the Electoral Commission of Indonesia (KPU).[38] Other additional data sources used for some of the robustness checks are described in the Data Appendix.

The model described in Section 2 leads to different empirical predictions regarding the effort exerted by appointed village heads relative to the effort of elected village heads to support the dictator's party. My measure of the relative effort level is the difference in electoral support for Golkar between *kelurahan* and *desa* in a given district, when the main determinants of vote behavior are controlled for.

4.2 Descriptive Statistics

Table 1 shows the descriptive statistics. The first column reports the number of observations in the sample and columns 2 and 3 show the mean and the standard deviation of each variable for the whole sample. Although the number of villages in Indonesia is approximately 66,000, I am able to use around 37,000 in my analysis due to several reasons. First, the matching across the different waves of the PODES surveys is based on the name of the village and the name of the district. There are approximately 18,000 villages which do not provide an exact match across the different waves of the PODES survey. Second, in order to ensure that my results are not driven by few observations I restrict the sample to districts in which there are more than 5 *kelurahan* or more than 5 *desa*. This further reduces the sample by 11,000 additional observations.[39] The reason why so many observations are dropped is because in some urban districts or *kota* all the villages are *kelurahan*, that is the case for instance of the capital city of Jakarta. In some other rural districts or *kabupaten*, all the villages I am able to match across the different PODES waves are *desa*. Since my empirical strategy will be comparing *desa* and *kelurahan* within districts, the lack of common support in those districts will prevent estimating the effect.

[38] This second source of electoral data contains information on the vote shares that parties obtained in each district, which allows me to check my measure of electoral result at the village level. Both sources lead to broadly consistent results.

[39] See the Data Appendix for further details.

Still, for historical reasons there is some overlap in the sample, which permits undertaking a relevant econometric comparison. As mentioned above, the Village Law No. 5 of 1979 allowed the creation of *kelurahan* in the surroundings of the capital of the subdistrict even in quite rural districts.[40] Therefore we observe some kelurahan that have rural characteristics. Also, in 1992 the Ministry of Home Affairs stopped the conversions of *desa* into *kelurahan* as they became more urban (Niessen (1999)).[41] This also explains why some villages in our sample are classified as *desa* despite being quite urban based on their observable characteristics.

Columns 4 and 5 correspond to the descriptive statistics for *kelurahan* villages and columns 6 and 7 for *desa* villages. *Kelurahan* and *desa* differ on several dimensions, therefore controlling for a wide set of characteristics will be important for the validity of the empirical analysis. The first ten rows correspond to the electoral results at the village level for the 1999 and 2004 Parliamentary elections. Golkar won more often in *kelurahan* than in *desa* villages, especially in the 2004 election. In contrast, PDI-P and the other smaller parties are more likely to win in *desa* villages. The following rows correspond to the variables used as controls in the main specifications of the regressions. The descriptive statistics of the geographic characteristics corroborate that *kelurahan* villages tend to be more urban than *desa*. 57% of *kelurahans* are classified as urban according to the Statistics Agency of Indonesia, whereas only 7% of *desa* fall on that category. *Kelurahan* villages tend to have fewer households whose main occupation is in agriculture, fewer percentage of the village land dedicated to agricultural uses, higher population and population density, and they tend to be closer to the capital of the subdistrict. However, the average *kelurahan* in our sample is still quite rural, with 55% of their land devoted to agricultural activities. Regarding the religious controls, we observe that *desa* villages tend to have higher number of religious facilities per capita, although this is in part driven by the fact that they are more sparsely populated. Finally, *kelurahan* tend to have better communications, in terms of roads and number of TVs, and higher number of health and educational facilities per capita. Since all of these characteristics can be important determinants for vote behavior, I will control for all of them in the preferred econometric specification.

Some additional statistics are provided regarding the number of administrative subdivisions in the sample and the electoral results by district.

[40] Further details were specified in the following regulation: Peraturan Menteri Dalam Negeri Nomor 5 Tahun 1982.

[41] The reason provided by the Ministry of Home Affairs for this change in policy was the financial burden of the formation of *kelurahan* on the central government: the members of the *kelurahan* government have the status of civil and had to be on the government payroll.

5 Empirical Strategy and Results

5.1 Econometric Specifications and Baseline Results

In this section, I discuss the econometric analysis of the differences in electoral results between comparable *desa* and *kelurahan*. First, I examine the result for the whole sample and in the next subsection I study the heterogenous effect across districts. In my analysis, I will employ two different econometric methods: ordinary least squares (OLS) and propensity score matching.

The OLS specification takes the following form:

$$y_v = \beta k_v + \delta_m + \mathbf{X}_v'\boldsymbol{\theta} + \varepsilon_v \tag{27}$$

where y_v is a dummy that takes value 1 if a particular party obtained the highest number of votes in village v in a given election, k_v is a dummy that takes value 1 if the village is a *kelurahan* (has an appointed village head) and 0 if it is a *desa*, δ_m are district fixed effects, and $\mathbf{X}_v'$ is a vector of control variables. The main coefficient of interest is β, since it corresponds to additional probability that a party has to win in a *kelurahan* relative to a *desa* within a district.

Table 2 shows the results of this regression when different sets of covariates are controlled for. The point estimate of the coefficient on the *kelurahan* dummy is approximately 0.05 and significant at the 1% confidence level. Moreover, it is robust to the inclusion of a broad set of controls, and once the geographic differences between *desa* and *kelurahan* are accounted for, the coefficient of interest does not change much when adding additional controls. This coefficient reflects that Golkar is 5 percentage points more likely to win in *kelurahan* than in *desa* and this effect is not driven by underlying differences on geographic, religious or facilities characteristics. The coefficients on some of the controls are also noteworthy. The number of mosques per thousand people is strongly correlated with vote for Golkar. Although Golkar is not an Islamic party, a number of policies implemented during the last years of the New Order to obtain higher support among Muslims might have had their returns in the 1999 election. In contrast, PDI-P has some sympathies among Christian groups, what could be behind the negative sign of the coefficient on the number of churches. The positive coefficients on the number of hospitals, polyclinics and *puskesmas* (primary care centers) are consistent with the possibility that voters rewarded the incumbent party (Golkar) for the provision of these public goods during the Suharto period. The last column of Table 2 displays the results for the whole sample, that includes districts with fewer than 5 *desa* or 5 *kelurahan*. Since the results are broadly similar, in the rest of the paper I report the results on the restricted sample to ensure that my results are not driven by districts in which there is an insufficient amount of overlap.

Overall, Table 2 shows that support for Golkar was considerably higher in *kelurahan* villages than in *desa* villages. This is consistent with the implications of the model developed in Section 2, which predicts that in most regions patronage networks will be at work to support the dictator's

party. In the next subsection I will describe how this result differs by subsample, depending on the expected electoral outcome at the district level.

The second method I use is propensity score matching, first introduced by Rosenbaum and Rubin (1983), which compares the differences in outcomes of treatment and control units with a similar probability of being treated. This method estimates the average treatment effect as long as the following two conditions hold

$$\text{(Unconfoundendness given the propensity score)} \quad (y_v = 0, y_v = 1) \perp k_v \mid p(X_v)$$

$$\text{(Overlap)} \quad 0 < \Pr(k_v = 1 | X_v) < 1$$

where $p(X_v)$ is the propensity score or the probability of receiving treatment (being a *kelurahan*) conditional on the covariates.[42]

The particular matching algorithm that I use is block propensity score matching. I employ this method in order to ensure that *desa* and *kelurahan* are matched within districts.[43] This method is implemented in three steps. First, the propensity score is estimated using a probit model in which the dependent variable is the *kelurahan* dummy. Second, I restrict the sample to those observations for which there is sufficient overlap of the estimated propensity score between the two comparison groups (*desa* and *kelurahan*). Third, I divide the observations into five subgroups depending on the percentile of the propensity score distribution in their district.[44] Then, I interact the dummies for each of those groups with the full set of district fixed effects and regress my dependent variable on the *kelurahan* dummy and the full set of propensity score interval - district fixed effects interactions. Therefore, this method is estimating the differences in the conditional expectation of the dependent variable between *desa* and *kelurahan,* which are in the same district and in the same interval of the propensity score estimate.

The outcome of the first step is reported in Table 3A. As expected, all the covariates that measure the level of urbaness are positively correlated with the probability of being a kelurahan. The urban dummy and population density have positive and significant coefficients, whereas the percentage of households whose main occupation is in agriculture, the percentage of land in agriculture, and the distance to the sub-district office are negatively related to the probability of being a *kelurahan.*

Second, I restrict the sample to those observations for which there is enough overlap. The distribution of the estimated propensity score for *kelurahan* and *desa* can be seen in Figures 3A

[42] Unconfoundedness given the propensity score is implied by the Conditional Independence Assumption $(y_v = 0, y_v = 1) \perp k_v \mid X_v$, as shown by Rosenbaum and Rubin (1983).

[43] Therefore, this method produces analogue results to the OLS regression, which includes district fixed effects.

[44] For instance, one of the dummies takes value 1 if the estimate of the propensity score for a village is lower than the 20th percentile of the propensity score distribution in its district. Another dummy takes value 1 if the village is between the 20th and the 40th percentiles of the propensity score distribution in its district. Etcetera.

and 3B respectively.[45,46]

The results of the third stage are displayed in Table 3B. I report the estimates for two different sample restrictions and for the inclusion of three different sets of covariates in the first stage. This different approach leads to substantially similar results as the OLS results, reported in Table 2.[47]

Finally, notice that the high number of observations that are dropped in this analysis due to lack of common support highlights that the effect I am estimating is a local average treatment effect. Since the classification of villages into *desa* and *kelurahan* is related to the level of urbaness of the area, the main results come from the comparison of *kelurahan* to *desa* that are relatively similar in terms of their level of urbaness; either because some *desa* might be in the proximity of an urban area, and are therefore quite urban, or because some *kelurahan* were formed in a quite rural region.

5.2 Heterogenous Effects

The model developed in Section 2 leads to a number of different predictions regarding how the total effort exerted by appointed village heads differs depending on the expected electoral result. Given that the appointment rights of the *kelurahan* heads rested on the district level, Indonesia provides an ideal setting to explore whether the empirical results shown in Tables 2 and 3B depend on the district electoral outcome in the way the theory predicts, which was summarized by Figure 2.

In order to asses these predictions, I run the same regression on different subsamples. Although I do not have a direct measure of the expected result, I take the actual electoral result of the 1999 election as a proxy for its expectation. According to Thompson (1999) there were a number of polls prior to the election, that were quite accurate, what suggest that this approximation is a valid one. I divide the set of districts in four groups depending on whether Golkar or PDI-P won and whether the margin of victory was large or small. Notice that in the regressions displayed in Table 2, the district fixed effects already controlled for differences in the level of support for each party at the district level. By running the regressions in different subsamples, I explore whether the within district differences in the voting pattern of *kelurahan* and *desa*, changes across districts depending on what was the electoral result at the district level.

[45] Figure 3A displays the estimated propensity score for *kelurahan* villages and Figure 3B for *desa* villages. The propensity score estimate corresponds to the model of column (3) in Table 3A. Most of the *desa* villages have an estimate of the propenstity score close to 0, reflecting that they are quite rural. However, we observe that the probability of being classified as *kelurahan* substantially varies for the *kelurahan* group. Therefore, there are some *kelurahan* in the sample that are quite rural, which provides enough overlap to employ this empirical strategy.

[46] The graph of the estimated propensity score for *desa*, Figure 3B, is limited to those observations with propensity score higher to 0.01. This is done in order to see the Figure at a smaller scale. There are 22,953 *desa* with estimated propensity score lower than 0.01.

[47] The standard errors are bootstrapped to account for the additional sampling error introduced by having a regressor estimated from a first stage.

Table 4 shows the results by subsample which are broadly consistent with the empirical predictions of the model. As we can see from columns (2) to (5), the main effect of *kelurahans* voting more for Golkar than *desa* comes mostly from districts in which Golkar won. In columns (6) to (10) we conduct the same exercise but having as dependent variable a dummy for whether PDI-P won. Notice that this result is consistent with the "reversal effect" predicted by the theory: in regions in which PDI-P was expected to win by a large margin, appointed village heads exerted more effort to promote the electoral chances of PDI-P. The fact that this heterogenous effect, predicted by the theory, is also observed in the data is particularly noteworthy.

In order to further explore this heterogenous effect, I run a different regression per district and plot the coefficient on the *kelurahan* dummy against the district electoral outcome.[48] The result of this exercise is shown in Figure 4. Then, the displayed coefficients are connected by a non-parametric cubic spline regression. This figure highlights that there is a heterogenous pattern of the result across districts, which is consistent with the predictions of the theory (summarized by Figure 2).[49,50]

As discussed in the theory part of the paper, the interpretation of this pattern is given by the combination of changes in the proportion of village heads that are sympathizers of each party and changes in the optimal amount of individual effort. In districts in which Golkar lost by a large margin, the proportion of non-Golkar supporters was probably high. As we move to regions in which the election was expected to be more contested, non-Golkar supporters started increasing their level of effort towards PDI-P and Golkar supporters effort towards Golkar. However, the former effect dominated because of the higher proportion of non-Golkar supporters. Consequently, we observe a decrease in effort towards Golkar. When the proportion became more balanced, aggregate effort towards Golkar began to increase. Once we focus on districts where Golkar was expected to win by a large margin, Golkar supporters decreased their level of effort because the productivity of effort became lower. Given the higher proportion of Golkar supporters in those districts this effect dominated and we observe a decrease in effort towards Golkar.

6 Robustness Checks

In this section I examine a number of competing hypotheses that could also explain why on average Golkar obtained higher support in *kelurahan* than in *desa*. Although none of these competing

[48] Each regression is estimated by nearest neighbor propensity score matching with replacement.

[49] The x axis of Figure 4 corresponds to the difference between the vote share of Golkar and the vote share of the 2nd most voted party, when Golkar won, and the vote share of the most voted party minus the vote share of Golkar, when Golkar was 2nd.

[50] Notice that the variable represented in the x axis of Figure 4 is a measure of how contested was the realized electoral result. Ideally, would plot the results as a function of the underlying relative support for Golkar in the population. However, in the absence of such measure I used the realized vote shares as a proxy.

hypotheses is able to provide a rationale of the heterogenous effects found in the previous section, it is still important to consider what other explanations could confound my results.

6.1 Endogenous Selection of *Kelurahan*

The results presented could be invalid if there was reverse causation, i.e., if villages where Golkar had a higher underlying support within a district, were classified as *kelurahan*. This possibility is not particularly appealing since it would imply that villages with stronger opposition to Golkar were classified as *desa*, hence, had village head elections. In general, we might expect that dictators are reluctant to allow elections in areas where they have low support, in order to avoid the selection of leaders into office that might have views contrary to those of the dictator.

If the formation of *kelurahans* was encouraged within districts in areas of relative higher support for Golkar, we might expect that *kelurahan* formation was also encouraged in certain regions of the country. The urbaness requirement for being classified as *kelurahan* might have been lower in districts where Golkar had high underlying support. In that case, the estimated propensity score of *kelurahan*, conditional on the observable urbaness characteristics, should be lower in districts where Golkar obtained larger vote shares.[51] In order to test this hypothesis, I regress the average propensity score estimate of *kelurahans* at each district on the vote share that Golkar obtained in the 1971 and 1999 elections. The results are plotted in Figures 5a and 5b and the regression results are in Appendix Table 1. There is no statistically significant relation between these two variables for the 1971 election. There is a weak relation for the 1999 elections, but it is positive, contrary to what the endogenous selection hypothesis predicts.

Still, this approach does not rule out the possibility that *kelurahans* were formed in the areas with higher relative support for Golkar within a district. Unfortunately, I do not have a direct measure of support for Golkar at the village level previous to the first democratic election. However, I was able to control for some variables that might be correlated with political preferences or other unobservable variables that the Suharto's regime could have taken into account when conducting the village classification. Table 5 reports the results when adding controls for conflict,[52] military and police presence, and natural resources. Neither the significance nor the point estimates of the *kelurahan* coefficient change when controlling for this additional set of controls. Hence, these results suggest that the classification of villages was not driven by political considerations.

[51] The propensity score is estimated using a probit model in which the dependent variable is a dummy that takes value 1 if the village is a *kelurahan* and has the main urbaness characteristics as controls. For this robustness check I use the estimate of the propensity score that corresponds to column 3 of Table 3A.

[52] The conflict variables were reported the 2003 wave of the PODES dataset and refer to the year 2002. However, there was a high degree of persistance of certain underlying conflicts, such as separatist movements. Therefore, those conflict measures are probably a good proxy for conflict in the previous years.

6.2 Changes in Village Resources and Occupational Composition

My results would be confounded if there were other determinants of voting behavior, that are different between *desa* and *kelurahan*, but that are not related to the method of selection of the village head. For instance, we have seen that *kelurahan* had higher levels of health and educational facilities. If there was a process of expansion of public goods during the Suharto regime, particularly targeted at *kelurahan* villages, this could potentially explain the higher support of Suharto's party in those villages. In Table 6, I repeat my analysis adding controls for changes in the number of facilities, changes in transfers from upper levels of government and the allocation of poverty alleviation programs. The inclusion of these additional covariates does not affect the results.[53,54]

Another possibility is that *kelurahan* and *desa* had a different occupational composition. Voting behavior in Indonesia is sometimes driven by sectorial considerations. Traditionally, Golkar was considered the party of the civil servants and the army. If there is a higher proportion of civil servants in *kelurahan* than in *desa*, this could affect my result. In Table 7, I show the results when controlling for the occupational composition of *desa* and *kelurahan*. The occupational composition data comes from the National Socioeconomic Household Survey (SUSENAS). Since I only have this information for a subset of villages, the sample size is considerably reduced. Still the baseline result in this subsample, for the *kelurahan* dummy, is positive and significant with a 0.039 coefficient. When controlling for the occupational composition in the village the coefficient changes slightly in magnitude, but it is still positive and significant.

6.3 Democratic Capital Hypothesis

The flip side of the main result in Table 2, is that villages with an elected village head are less likely to vote for Suharto's party. An alternative rationale might be the following: because these villages were able to hold village elections to select their leaders, their citizens could have developed a stronger democratic culture. Then, at the time of the 1999 election they were less inclined to vote for Golkar, which represented the autocratic status quo, and tended to vote more for reformist parties. However, village head elections took place every 8 years, a relative long period of time. These elections were highly controlled by the Suharto's regime: candidates were pre-screened by government officials and the election was non-partisan. Moreover, elections for the national, provincial and district legislatures took place every 5 years both in *desa* and *kelurahan*. Therefore, the differences in levels of democratic capital of *desa* and *kelurahan* might had been small.

In order to test this hypothesis I examine data from a household survey conducted in 2008 for

[53] The changes in transfers by upper levels of government correspond to the percentage change in funding between 1996 and 2003. No data on village funding was reported in 1999.

[54] IDT (Presidential Instruction on Left-Behind Village Development) program was a poverty alleviation program implemented between 1994 and 1996. Each village selected received 20 million Rupiahs (US$ 8700) to be used as a small-scale rotating credit fund for groups of poor people in the village, to be invested in self-employment activities.

the project "How to Target the Poor: Evidence from a Field Experiment in Indonesia" by Vivi Alatas, Abhijit Banerjee, Rema Hanna, Benjamin A. Olken, and Julia Tobias (2009). In this survey several questions were asked about trust, participation in elections, participation in different types of organizations, motivation of voting behavior, and perception of corruption. In Table 8, I explore what were the differences in the responses to these questions in *desa* and *kelurahan* villages. Notice that most of the differences become insignificant once I include the covariates of my preferred specification. Still, there are some significant differences: villagers in *kelurahan* are more likely to agree with the statement that most people can be trusted, which is not consistent with the democratic capital hypothesis. On the other hand, they are also less likely to vote based on the program of the candidate, but there are no differences in whether their vote was motivated by performance, religious or ethnic considerations. Interestingly, villagers of *kelurahan* are less likely to think there is low corruption in the village government, which is consistent with the mechanism highlighted in this paper.

Overall, this data does not provide support for the democratic capital hypothesis, since there are no significant differences in the most important measures of democratic attitudes: trust, participation in elections and in community organizations.

7 Dynamic Implications

The type of equilibrium that emerges in the first democratic election has very different implications regarding the composition of appointed village heads that will be in office at the onset of the second democratic election. If a separating equilibrium emerged during the first election, village head turnover was high: since political leanings were truthfully revealed along the equilibrium path, when the new mayor took office, she was able to detect her non-supporters and fire them. In contrast, in districts where the equilibrium was pooling, all appointed village heads exerted the same level of effort and consequently the composition of village heads remained unchanged. Therefore, the proportion of village heads that are supporters of a given party should be higher in districts where that party won by a tight margin in the first election, and lower if they won by a large margin (in the former case the equilibrium was separating, while in the latter case the equilibrium was pooling).

These predictions are summarized in Figure 6, in which we can see the proportion of village heads that are supporters of the dictator's party at the time of the first and second election (γ_1 and γ_2, respectively), when drawn as a function of the vote share of the dictator's party in the first election π_1. If the vote share was below the threshold $\underline{\pi}$ or above the threshold $\overline{\pi}$, a pooling equilibria emerged and consequently, the composition of village heads remained unchanged.[55] If

[55] For simplicity these thresholds are drawn in the axis of the realized vote share. The model predicts that this thresholds are defined in terms of the underlying support of each party.

the vote share was between those two thresholds, a separating equilibria emerged and each mayor dismissed all their non supporters.

Unfortunately, I do not have data on village heads turnover that would allow me to directly test for these theoretical predictions. However, I can use data on the electoral result of the second election to investigate whether the data is consistent with these implications of the model. Notice that elected village heads will still exert zero level of effort, since the continuity in their positions does not depend on the outcome of the second election either. In contrast, appointed village heads will still have incentives to continue to exert effort.

In districts where there was a separating equilibrium during the first election, the political leanings of appointed village heads were truthfully revealed along the equilibrium path. Even though they will no longer have the signaling motivation to exert effort, they will still have electoral incentives to exert effort in order to get the incumbent reelected. The reason being that they will be fired if the incumbent party loses the second election. Hence, each appointed village head will choose effort level e_i^* that maximizes their expected utility:

$$e_i^* = \arg\max_e \{p_2(E_{-i} + e)R - (1 - p_2(E_{-i} + e))\underline{U} - \underline{\alpha}C(|e|)\}$$

where $E_{-i} = \sum_{j \neq i} e_j^*$ is the aggregate effort that the rest of appointed village head exerts.

In districts in which there was pooling a equilibrium in the first election, the implications are less straightforward. Since their political leanings were not revealed during the first election, there might still be imperfect information about their political preferences. Strictly speaking, both pooling and separating equilibrium could emerge at the time of the second democratic election. If a separating equilibrium emerges in the second election, effort to support the incumbent party, should be much lower than in districts that had separating equilibrium in the first and second election: in the former case appointed officials that are non-supporters of the incumbent party are still in office, while in the latter case they were all dismissed. If instead a pooling equilibrium emerges in the second election, the empirical prediction is ambiguous. However, it is possible that during the length of the first democratic term, some village heads had their types revealed and will therefore, exert effort to support their most preferred candidate in the second election. If this is the case, we would also expect effort to support the incumbent being lower when compared to districts that had separating equilibrium in the first and second election.

Notice that this leads to somewhat counterintuitive predictions for the second election: we expect effort of appointed village heads to support the incumbent party to be higher in districts in which the incumbent won by a tight margin in the previous election, than in districts where they won by a large margin. I use data from the second democratic election of 2004 to provide some suggestive evidence of these mechanisms. Table 9 displays the results. For columns (1) to (5) the dependent variable takes value 1 if Golkar was the most voted party in the village in the 2004 election. The highest support of appointed village heads for Golkar comes from districts in which

Golkar won by a small margin in 1999 (column (4)): Golkar was 12 percentage points more likely to win in *kelurahan* than in *desa* in those districts. This effect is definitely larger than in districts where Golkar won by a large margin (column (5)). In regions where PDI-P won in the first election, appointed village heads support more Golkar if PDI-P won by a large margin (column (2)) than if the margin of victory was small (column (3)).

In Appendix Table 2, I conduct the same analysis but conditioning as well on the result of the 2004 election.[56] Some of these results are noteworthy. Conditional on Golkar winning by a small margin in 2004 (row (C)), among districts in which PDI-P won the first election, appointed village heads only support Golkar if PDI-P won by a large margin. When the margin of victory was small, we observe a negative coefficient (although no statistically significant). These results are consistent with the highlighted mechanism: when the margin of victory was large, a pooling equilibrium emerged in the first election, which prevented the new PDI-P mayor to detect her non-supporters. At the time of the second election, when the election was expected to be more contested, those village heads that were Golkar supporters exerted a considerable effort to try to make Golkar win the district. This effect is absent for the latter district, consistent with the hypothesis that Golkar supporters were identified and dismissed after the first election.

However, some of these results remain unexplained by my theory. First, we observe a significant amount of persistence of the effect that appointed village heads are more likely to support Golkar than elected village heads. This could, in part, be driven by the sectorial considerations highlighted above. Golkar is perceived as the party of the bureaucracy and, by the time of the second election, the party had undertaken substantial internal reforms that diminished the perception that it represented the autocratic tendencies of the Suharto's regime. The combination of these factors might have encouraged appointed village heads to continue to support Golkar. Second, in districts in which PDI-P won by a small margin, the theory would predict a negative coefficient: if all appointed village heads that were Golkar sympathizers would have been dismissed and replaced by others, we should expect higher support for PDI-P in those districts. Still, on average the coefficient is positive, although not as statistically significant, what reflects there was a higher dispersion on support for Golkar. It is possible that there were difficulties to the dismissal or transfer of a significant number of appointed village heads, what could provide a rationale for the persistence of this effect in these regions.

Overall, although the results from the second election are not a conclusive proof of the theory presented, the non-monotonicity of the result, to a great extent consistent with the theory, is highly suggestive.

[56] The results are displayed in a matrix form in which each cell displays the *kelurahan* coefficient of the baseline regression when run in a subsample defined by the corresponding column and row.

8 Conclusions

In the event of a regime change, appointed officials, far from being neutral agents, have a vested interest in the development of the new political situation. Since they are appointed by upper levels of government, the continuity in their positions depends on who wins the election and on whether the winner decides to renew their appointment or to fire them. In contrast, elected officials will lack this additional incentive because their jobs do not depend on changes at upper levels of government: they were elected into office through local level elections and will remain in office until local elections are held again.

How do these career concerns shape the incentives that appointed local officials face at the onset of the first democratic election? Contrary to institutions and policies developed during the nondemocratic regime, which persist and it takes time to reform, the loyalty ties that appointed officials had with the previous regime, can suddenly change in response to the new political scenario. This paper develops a model to better understand the nature of the incentives that local officials face, how they optimally respond to them and what consequences this has for the outcome of the first democratic election. It also incorporates two specific features of regimes in transition. First, political leanings of local officials are assumed to be private information. The repressive nature of nondemocratic regimes, usually endows new democracies with a high degree of uncertainty about who supports whom, especially within the government administration. Second, the existence of mechanisms for voter co-optation. Most nondemocratic regimes rely extensively on the use of patronage networks and other cooptation mechanisms to obtain support, or simply compliance, from the population. These networks, usually rooted at the local level, are likely to still be in place at the onset of the first democratic election. However, with no longer a strong central power to hold local officials accountable, the question then becomes: what political force will local officials support when operating these patronage networks?

The model highlights that in most scenarios appointed local officials will use these networks to promote the electoral chances of the previous dictator's party. If the dictator's party is expected to win by a large margin a pooling equilibrium emerges, in which all appointed officials exert effort to support that party. If the election is expected to be contested, a separating equilibrium emerges, in which each appointed official supports their most preferred candidate. However, even in the latter case, the likely higher proportion of dictator's supporters among government ranks would generate a net effect that favors the dictator's party. Therefore, only if the reformist party is expected to win by a large margin, this effect is reversed: a pooling equilibrium emerges in which appointed local officials exert costly effort to support the reformist party and pretend to be their strongest supporters, in an ultimate attempt to keep their jobs.

I provide empirical evidence from the first democratic election of Indonesia post-Suharto, that corroborates these patterns. On average, Suharto's party was 5 percentage points more likely to

win in villages that had an appointed village head, relative to those that had an elected village head. Consistent with the implications of the model, this result is reversed for districts in which the main reformist party won by a large margin. In those districts, the reformist party is 4 percentage points more likely to win in villages with an appointed village heads relative to those with an elected village head. The results are robust to the inclusion of a broad set of controls, district fixed effects, and similar across econometric methods (ordinary least squares and propensity score matching).

I also provide some suggestive evidence regarding the dynamic implications of the different equilibria that emerges on the first election, on the electoral outcome of the second election. In particular, I find that in the second election, Golkar obtained more votes from villages with an appointed village head, in those districts where Golkar previously won by a tight margin, rather than in districts where they won by a large margin. One possible interpretation of this result is that in districts where Golkar won by a tight margin, a separating equilibrium emerged, and the new mayor was able to identify and dismiss all non-Golkar supporters. This was not possible in districts where Golkar won by a large margin, because a pooling equilibrium emerged and political leanings were not revealed along the equilibrium path. A similar pattern is observed in districts where PDI-P won by a large versus small margin in the first election. The model presented in this paper provides a rationale for this, otherwise counterintuitive, result.

These results might be susceptible to omitted variable bias or reverse causation problems. For robustness, I check for a variety of possible confounding effects. First, I show that there is no evidence that the classification of villages was driven by political considerations. In particular, the urbaness requirements for being classified as *kelurahan* (villages that had an appointed village head) are not lower in districts where Golkar has historically obtained higher support. In order to further explore the possibility of endogenous classification of villages within districts, I add additional covariates that could be correlated with underlying opposition to the regime at the village level, such as, presence of the military and police, or conflict between villagers and the government apparatus. The results are unaffected when incorporating this additional set of controls. Second, my results do not change when including other covariates that could affect voting behavior, such as changes in the level of public goods, changes in government funding, a dummy for whether the village was the recipient of a poverty relieve program, and the occupational composition of the village. Finally, I explore the validity of an alternative hypothesis: villages that were able to elect their village head might have developed a stronger democratic culture. Then, at the time of the first democratic election, they were less likely to vote for Suharto's party. I test this hypothesis with survey data on democratic attitudes. Most villagers' answers are not statistically different between these two types of villages. This holds for measures of trust, participation in elections or community organizations. Interestingly, people living in villages that had an appointed village head are more likely to think that there is corruption in the village government, which is consistent with the mechanisms highlighted in this paper.

Overall, this paper finds substantial evidence that, unless reformist parties are expected to win by a large margin in the first democratic election, appointed officials will promote the electoral chances of the dictator's party. What are the implications of this finding for the process of democratic consolidation? The answer is not clear. On the one hand, a victory of the heirs of the dictator's party could legitimate the previous autocratic regime. The elected government could refuse to implement democratic deepening reforms, what could lead to an unconsolidated or captured democracy. On the other hand, the victory of the dictator's party could prevent some extremist group from winning the election. If the victory of this extremist group would have lead to a military coup d'état, preventing this from happening might be positive for the process of democratic consolidation. Providing an answer for these questions is beyond the scope of this paper and will be a venue for future research. Instead, this paper contributes to the development of a better understanding about how one of the legacies of the previous regime can bias the electoral outcome of the first democratic election; which under certain circumstances might endanger the process of democratic consolidation.

Finally, this paper provides some lessons that could be useful for policy considerations. Mainly, this paper highlights that appointed local officials have stronger incentives to influence voters during upper level elections. This could bias the electoral results and promote the persistence of corruption practices, especially for regimes in transition. These factors should be taken into account when exploring the trade off of either method of selection for local officials.

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9 Appendix

9.1 Proof of Proposition 2

First, notice that from our discussion in subsection 2.2.2 on the mayor optimization problem, it is evident that the mayors' strategies formulated in this equilibrium are best responses given the specified beliefs. Second, provided that condition (18) holds, type b will not have incentives to deviate. Third, it is straightforward to see that if type b does not have a profitable deviation, neither does type a, since the only difference in their optimization problems is the higher costs for type a of deviating to negative levels of effort.

The second part of the proposition states that the pooling PBE in which all village heads exert effort level e_a^* satisfies the Intuitive Criterion. In order to provide a more formal definition of the Intuitive criterion I introduce some additional notation. Let Θ be the set of the types of village heads, i.e. $\Theta = \{a, b\}$, and T a subset of Θ. Let $BR_A(T, e)$ be the set of pure strategy best responses of candidate for mayor A given beliefs $\mu(.|e)$ such that $\mu(T|e) = 1$, i.e. $BR_A(T, e) = \underset{\mu:\mu(T|e)=1}{\cup} BR_A(\mu|e)$ where $BR_A(\mu|e) = \arg\max_{\phi} \sum_t \mu(t|e) V_A^{app}(\phi, t)$. $BR_B(T, e)$ is defined similarly. $E_{-i} = \sum_{j \neq i} e_j$ is the sum of efforts that village heads other than i will exert in equilibrium.

Definition 2. The Intuitive Criterion. Fix a vector of equilibrium payoffs $U^*(.)$ for the village heads. For each strategy e, let $J(e)$ be the set of all types t such that

$$U^*(t) > \max_{\substack{\phi_A \in BR_A(\Theta, e) \\ \phi_B \in BR_B(\Theta, e)}} \{p(E_{-i} + e) U_t^{app}(e, \phi_A) + (1 - p(E_{-i} + e)) U_t^{app}(e, \phi_B)\} \tag{28}$$

If for some e there exists $t' \in \Theta$ such that

$$U^*(t') < \min_{\substack{\phi_A \in BR_A(\Theta \backslash J(e), e) \\ \phi^B \in BR_B(\Theta \backslash J(e), e)}} \left\{p(E_{-i} + e) U_{t'}^{app}(e, \phi_A) + (1 - p(E_{-i} + e)) U_{t'}^{app}(e, \phi_B)\right\} \tag{29}$$

then the equilibrium fails the Intuitive Criterion.[57]

In order to show that the pooling PBE in which effort level is e_a^* satisfies the Intuitive Criterion, let me first proof the following claim.

Claim 1. Consider the equilibrium stated in Proposition 2 with associated effort level e_a^*. If $\frac{G-c}{G} < \frac{1}{2}$, for any deviation $e \neq e_a^*$ inequality (28) is satisfied for type a, i.e., $\{a\} \subseteq J(e)$.

Proof. The equilibrium payoffs of type a are given by the expression below

$$U^*(t = a) = p(ne_a^*)(R - \underline{U}) + \underline{U} - \underline{\alpha} C(e_a^*)$$

[57] $U_t^{app}(e, \phi)$ is defined by (5) if $t = a$ and by (6) if $t = b$.

Consider the possible out of equilibrium beliefs that could be formed and the deviation payoffs that type a would obtain upon deviation:

i. $\mu(t = a|e \neq e_a^*) = 1$. In this case, mayors' best responses to deviations from the equilibrium will be $\phi_A^*(e) = 1$ and $\phi_B^*(e) = 0$ for $e \neq e_a^*$. The deviation payoffs for type a would be $U(e|t = a) = p((n\text{-}1)e_a^* + e)(R\text{-}\underline{U}) + \underline{U} - \underline{\alpha}C(e)$.[58] Hence, the optimal deviation would be implicitly defined by the expression below

$$\psi(R - \underline{U}) \left.\frac{\partial g(E)}{\partial E}\right|_{E=(n-1)e_a^*+e} = \underline{\alpha}C'(e)$$

If we take the limit of e when it tends to e_a^*, we find that the above expression is equal to equation (19), in which e_a^* was implicitly defined. In other words, e_a^* is defined such that the optimal "deviation" of type a, when every other village head is exerting effort e_a^*, would be exactly to the level e_a^*. Consequently, when out of equilibrium beliefs are $\mu(t = a|e \neq e_a^*) = 1$, the deviation payoffs will always be lower than the equilibrium payoffs.

ii. $\mu(t = a|e \neq e_a^*) = 0$. In this case, the best responses of mayors are $\phi_A^*(e) = 0$ and $\phi_B^*(e) = 1$ for $e \neq e_a^*$. The expected payoffs that village head type a obtains upon deviation are $U(e|t = a) = [1 - p((n\text{-}1)e_a^* + e)]\,(R\text{-}\underline{U}) + \underline{U} - \overline{\alpha}C(|e|)$.[59] However, since expression (17) holds, we know that the equilibrium payoffs are higher than deviation for type b, and so will be for type a.

iii. $\mu(t = a|e \neq e_a^*) = \kappa \in (0, 1)$. Depending on how κ relates to $\frac{G-c}{G}$ there are different best responses mayors can take.

iii.a. $\kappa > \frac{G-c}{G} > 1 - \kappa$. In this case best responses to a deviation are $\phi_A^*(e) = 1$ and $\phi_B^*(e) = 0$ if $e \neq e_a^*$. The same discussion as in case i. above applies.

iii.b. $1 - \kappa > \frac{G-c}{G} > \kappa$. Mayor's best responses are $\phi_A^*(e) = 0$ and $\phi_B^*(e) = 1$ if $e \neq e_a^*$. And the same discussion as in case ii. follows.

iii.c. $\frac{G-c}{G} > \kappa$ and $\frac{G-c}{G} > 1 - \kappa$. Mayor's best responses are $\phi_A^*(e) = 0$ and $\phi_B^*(e) = 0$ if $e \neq e_a^*$. Village head type a deviation payoff will be $U(e|t = a) = \underline{U}$, which is lower than equilibrium payoff.

iii.d. $\kappa > \frac{G-c}{G}$ and $1 - \kappa > \frac{G-c}{G}$. This case it is ruled out because in this claim we restrict ourselves to the parameter set in which $\frac{G-c}{G} < \frac{1}{2}$. I discuss the case in which $\frac{G-c}{G} > \frac{1}{2}$ at the end of this proposition.

[58] Deviating to negative values of effort would be dominated by deviations to $e \geq 0$. Therefore, I do not discuss those deviations.

[59] Similarly as in case i, we only consider deviations to $e \leq 0$, because deviations to positive levels of effort are dominated by $e = 0$.

Therefore, as long as $\frac{G-c}{G} < \frac{1}{2}$, for any possible out of equilibrium beliefs a deviation to $e \neq e_a^*$ would not be profitable for type a.■

Next, I check the second part of the Intuitive Criterion. Let us focus on deviations in which type a is the only element of set $J(e)$ $J(e) = \{a\}$ and, hence, $\Theta \backslash J(e) = \{b\}$.[60] The only out of equilibrium beliefs that could be formed, when restricted to the set of types $\Theta \backslash J(e)$ are $\mu(t = a|e \neq e_a^*) = 0$. This leads to best responses of mayors $\phi_A^*(e) = 0$ and $\phi_B^*(e) = 1$ if $e \neq e_a^*$. In this scenario type b deviation payoff will be $U(e|t = b) = [1 - p((n\text{-}1)e_a^* + e)]\,(R\text{-}\underline{U}) + \underline{U} - \underline{\alpha} C(|e|)$. Notice that inequality (17) guarantees that equilibrium payoffs are higher than these deviation payoffs, thus, ruling out that type b has a profitable deviation to e. Therefore, we can conclude that, for $\frac{G-c}{G} < \frac{1}{2}$, the Intuitive Criterion is satisfied.

Finally, let us consider the case in which $\frac{G-c}{G} \geq \frac{1}{2}$. In this case, the following out of equilibrium beliefs could be formed $\mu(t = a|e \neq e_a^*) = \kappa$ where $\kappa > \frac{G-c}{G}$ and $1 - \kappa > \frac{G-c}{G}$. The best response for mayor's upon deviation would be $\phi_A^*(e) = 1$ and $\phi_B^*(e) = 1$ if $e \neq e_a^*$. Therefore both types would like to deviate from the equilibrium, consequently $J(e) = \{\varnothing\}$ $\forall e \neq e_a^*$. Verifying that the second part of the Intuitive Criterion does not hold is straightforward. Since we are examining a PBE, equilibrium payoffs will be higher than any deviation for a particular set of beliefs. Hence, they will be higher than the lowest deviation payoff for an arbitrary set of beliefs that could be formed over the whole set of types Θ. Therefore, we conclude that the equilibrium analyzed does not fail the Intuitive Criterion.■

Figure 7 provides the main intuition for why this pooling PBE satisfies the Intuitive Criterion. As we can see, type a obtains a higher payoff in equilibrium than what he would achieve undertaking any possible deviation, for either out of equilibrium beliefs $\mu(t = a|e \neq e_a^*) = 0$ or $\mu(t = a|e \neq e_a^*) = 1$. On the contrary, type b could conceivably increase his payoffs by deviating to $e_a^* - \varepsilon$, for $\varepsilon > 0$ and small, conditional on out of equilibrium beliefs being $\mu(t = a|e \neq e_a^*) = 1$. However, since type a would never have deviated to $e_a^* - \varepsilon$, mayors would deduce the deviator is type b. Hence, the relevant deviation payoffs would be those on the left hand side of the graph, in which out of equilibrium beliefs are $\mu(t = a|e \neq e_a^*) = 0$ and, consequently, deviation $e_a^* - \varepsilon$ would not be profitable for type b.

Finally, notice that in Proposition 2 we have only discussed PBE in which non negative levels of effort are exerted in equilibrium. There might be other pooling PBE in which village heads coordinate to negative levels of effort. However, this peculiar equilibrium in which both types exert effort to favor mayor B but mayor B always fires them, is sustained by unreasonable out of equilibrium beliefs. Consequently these pooling PBE will fail the Intuitive Criterion and I do not discuss them in the paper.

[60] If $J(e) = \{a, b\}$, then $\Theta \backslash J(e) = \{\varnothing\}$ and therefore the second part of the Intuitive Criterion does not apply.

9.2 Pooling Equilibria for Other Parameter Sets

In Section 2, the set pooling PBE was derived for in which type a village heads are the majority, i.e. $\gamma > \frac{G-c}{G} > 1-\gamma$. In this subsection I discuss other parameter sets. Let us first consider the opposite case to the one described in Section 2, in which type b village heads are the large majority.

CASE 2.

$$1-\gamma > \frac{G-c}{G} > \gamma$$

This case is entirely symmetric to the case described in Section 2, since none of the assumptions made are specific to party A or B. Consider the following set of strategies and beliefs where $\widehat{e} \leq 0$

$$\begin{aligned} \phi_A^*(e) &= \begin{cases} 0 \text{ if } e = \widehat{e} \\ 1 \text{ if } e \neq \widehat{e} \end{cases} \\ \phi_B^*(e) &= \begin{cases} 1 \text{ if } e = \widehat{e} \\ 0 \text{ if } e \neq \widehat{e} \end{cases} \\ e_i^*(t) &= \widehat{e} \text{ for } t \in \{a, b\} \\ \mu(t = a | e = \widehat{e}) &= \gamma \\ \mu(t = a | e \neq \widehat{e}) &= 0 \end{aligned} \tag{30}$$

The strategies and beliefs stated above constitute a pooling PBE of this game as long as the following inequality holds

$$\pi \leq \frac{1}{2\psi(R\text{-}\underline{U})} \left[\psi(R\text{-}\underline{U}) \left(1 - g(n\widehat{e}) - g((n\text{-}1)\widehat{e} + e_a^{*\prime})\right) + \underline{\alpha} C(e_a^{*\prime}) - \overline{\alpha} C(|\widehat{e}|) \right] \tag{31}$$

where $e_a^{*\prime}$ is given by

$$e_a^{*\prime} = \arg\max_{e \geq 0} \left\{ p((n\text{-}1)\widehat{e}) + e)(R - \underline{U}) - \underline{\alpha} C(e) \right\} \tag{32}$$

The following proposition summarizes the results and given that the proof is analogous to that of Proposition 2 I omit it from the text.

Proposition 5. *If condition $1-\gamma > \frac{G-c}{G} > \gamma$ is satisfied, for each $\widehat{e} \leq 0$ such that inequality (31) holds, the set of strategies and beliefs specified in (30) constitutes a Pooling Perfect Bayesian Equilibrium of this game in which all appointed village heads exert effort $\widehat{e}$ and, along the equilibrium path, both keep their positions if candidate for mayor B wins and are dismissed otherwise. The PBE associated to the level effort e_b^* implicitly defined by the negative root of*

$$\frac{\partial g(ne_b^*)}{\partial E} \psi(R - \underline{U}) = \underline{\alpha} C'(|e_b^*|) \tag{33}$$

satisfies *the Intuitive Criterion.*

Proof. Omitted.

Let us now examine a different set of parameters

CASE 3.

$$\gamma > \frac{G-c}{G} \text{ and } 1-\gamma > \frac{G-c}{G} \tag{34}$$

In this case, both mayors A and B find optimal to retain all the appointed village heads along the equilibrium path. This corresponds to situations in which the cost of firing village heads, c, is very high, or when mayors' preference for village heads ideologically aligned to them, G, is very low. Consider the following strategies and beliefs as a candidate for a PBE of this game.

$$\begin{aligned}
\phi_A^*(e) &= \begin{cases} 1 \text{ if } e \geq \widehat{e} \\ 0 \text{ if } e < \widehat{e} \end{cases} \\
\phi_B^*(e) &= \begin{cases} 1 \text{ if } e \leq \widehat{e} \\ 0 \text{ if } e > \widehat{e} \end{cases} \\
e_i^*(t) &= \widehat{e} \text{ for } t \in \{a,b\} \\
\mu(t=a|e) &= \begin{cases} \gamma \text{ if } e = \widehat{e} \\ 1 \text{ if } e > \widehat{e} \\ 0 \text{ if } e < \widehat{e} \end{cases}
\end{aligned} \tag{35}$$

Notice that, in this equilibrium no village head will be dismissed along the equilibrium path, regardless of which mayor wins the election. Therefore, it is straightforward to see that if $\widehat{e} = 0$, the set of strategies and beliefs described above constitutes a PBE that will also satisfy the Intuitive Criterion. Since village heads are obtaining in equilibrium their highest feasible payoff, they will not have incentives to deviate for any out of equilibrium beliefs.

Let us now derive the necessary conditions for a level of effort $\widehat{e} > 0$ to be a PBE of this game. Village head type b will not have incentives to deviate as long as the following holds:

$$\begin{aligned}
R - \overline{\alpha}C'(\widehat{e}) &\geq (1 - p((n\text{-}1)\widehat{e}+e_b'))(R-\underline{U}) + \underline{U} - \underline{\alpha}C(|e_b'|) \\
\pi &\geq \frac{\psi\text{-}1}{2\psi} - g((n\text{-}1)\widehat{e}+e_b') + \frac{1}{\psi(R\text{-}\underline{U})}\left[\overline{\alpha}C(\widehat{e}) - \underline{\alpha}C(|e_b'|)\right]
\end{aligned} \tag{36}$$

where e_b' is type's b most profitable deviation, which is defined by (16). Notice that we also need to find the condition that guarantees type a village head does not want to deviate to an effort levels higher than the equilibrium one. By doing so, mayor B would dismiss him, but mayor A would still hire him. Village head type a will not have incentives to deviate as long as:

$$\pi \leq \frac{\psi+1}{2\psi} - g((n\text{-}1)\widehat{e}+e_a^{*\prime}) + \frac{\underline{\alpha}}{\psi(R\text{-}\underline{U})}\left[C(e_a^{*\prime}) - C(\widehat{e})\right] \tag{37}$$

where $e_a^{*\prime}$ is type's a most profitable deviation, defined by (32).

Similarly, if $\widehat{e} < 0$, the no deviation constraint for type a is:

$$\pi \leq \frac{\psi+1}{2\psi} - g((n\text{-}1)\widehat{e}+e_a^{*\prime}) + \frac{1}{\psi(R\text{-}\underline{U})}\left[\underline{\alpha}C(e_a^{*\prime}) - \overline{\alpha}C(|\widehat{e}|)\right] \tag{38}$$

where $e_a^{*\prime}$ is type's a most profitable deviation that is defined by (32). Finally, type b will not have incentives to deviate to an effort level lower than $\widehat{e}$ if:

$$\pi \geq \frac{\psi\text{-}1}{2\psi} - g((n\text{-}1)\widehat{e}+e_b') + \frac{\underline{\alpha}}{\psi(R\text{-}\underline{U})}\left[\underline{\alpha}C(|\widehat{e}|) - C(|e_b'|)\right] \tag{39}$$

The following proposition summarizes these results.

Proposition 6. *If conditions* $\gamma > \frac{G-c}{G}$ and $1-\gamma > \frac{G-c}{G}$ *are satisfied, for each* $\widehat{e} > 0$ *such that inequalities (36) and (37) hold and for each* $\widehat{e} < 0$ *such that inequalities (38) and (39) hold, the set of strategies and beliefs specified in (35) constitute a Perfect Bayesian Equilibrium of this game, in which all appointed village heads exert effort* $\widehat{e}$ *and, along the equilibrium path, both keep their positions if either candidate for mayor A or B wins the election. Finally, if* $\widehat{e} = 0$ *the set of strategies and beliefs specified in (35) are also a PBE. The PBE in which the associated levels of effort are either* $\widehat{e} = 0$, $\widehat{e} = e_a^*$ *or* $\widehat{e} = e_b^*$, *where* e_a^* *is implicitly defined by equation (19) and* e_b^* *is implicitly defined by the negative root of equation (33), do satisfy the Intuitive Criterion.*

Proof. Given the beliefs specified in *(35)*, it is straightforward to see that mayors' strategies are best responses to the different possible effort levels. For equilibrium effort levels $\widehat{e} > 0$, condition (*36*) ensures that type b does not want to deviate. If type b does not have a profitable deviation, type a will not have incentives to deviate to effort levels lower than the equilibrium level of effort: type a has strictly lower deviation payoffs than type b for that range of potential deviations. Still type a might want to deviate to $e' > \widehat{e}$. Condition (37) guarantees that this is not the case. A similar reasoning applies for equilibrium effort levels $\widehat{e} < 0$. Regarding the PBE associated to a zero level of effort, $\widehat{e} = 0$, it is obvious that no village head will want to deviate, and mayor's strategies are best responses given the beliefs specified. Finally, it remains to proof that PBE with associated levels of effort $\widehat{e} = 0$, $\widehat{e} = e_a^*$ *or* $\widehat{e} = e_b^*$ do satisfy the Intuitive Criterion. The proof is very similar to the one described in Proposition 2 and it is left to the reader.■

To sum up, when the costs of dismissing an appointed village head are high or when the additional utility that mayors obtain from ideologically aligned village heads are low, several pooling PBE that satisfy the Intuitive Criterion. The crucial parameter that help selecting among these multiple equilibria would be π, i.e., the proportion of citizens with leanings towards party A. However, we could not rule out that village heads coordinate to effort level $\widehat{e} = 0$, since this would maximize their payoff.

The remaining set of parameters that we need to examine is the following.

CASE 4.

$$\frac{G-c}{G} > \gamma \text{ and } \frac{G-c}{G} > 1-\gamma \tag{40}$$

For this set of parameters, in any pooling PBE the best responses of mayors will entail dismissing all appointed village heads. Therefore, levels of effort different than zero will not be sustained as pooling PBE since there will always be a profitable deviation to zero effort. At $\widehat{e} = 0$ there can be a pooling PBE, but it will not satisfy the Intuitive Criterion, since it will always be feasible for one to the types to deviate to some level of effort that the other type would have not deviated, consequently breaking the pooling equilibrium. Overall, for this particular set of parameters, the most likely equilibrium will be a separating equilibrium. In the sake of brevity I do not discuss this case further.

9.3 Proof of Proposition 3

First, notice that given the beliefs specified in (*20*), it is straightforward to see that mayor's strategies are best responses to village heads actions. Second, if condition (23) holds, type a village head does not have a profitable deviation to negative levels of effort. Similarly, if condition (25) is satisfied, village head type b does not have a profitable deviation to positive levels of effort. Third, by construction, village head type a (b) does not have a profitable deviation to positive (negative) levels of effort. To see this, let us denote by e_a^* (e_b^*) the level of effort that village heads type a (type b) exert in equilibrium. The deviation payoffs for type a to an alternative positive level of effort are $U(e \neq e_a^* | t = a, e \geq 0) = p((n_a\text{-}1)e_a^* + n_b e_b^* + e)(R - \underline{U}) + \underline{U} - \underline{\alpha} C(e)$. At an interior solution, the optimal deviation denoted by e_a' would be implicitly defined by

$$\psi(R - \underline{U}) \left. \frac{\partial g(E)}{\partial E} \right|_{E=(n_a-1)e_a^* + n_b e_b^* + e_a'} = \underline{\alpha} C'(e_a') \tag{41}$$

Similarly, the optimal deviation of village head type b to a negative level of effort, e_b', is defined by the negative root of

$$\psi(R - \underline{U}) \left. \frac{\partial g(E)}{\partial E} \right|_{E=n_a e_a^* + (n_b\text{-}1)e_b^* + e_b'} = \underline{\alpha} C'(|e_b'|) \tag{42}$$

In order for village heads not to have a profitable deviation the following has to hold $e_a' = e_a^*$ and $e_b' = e_b^*$. Combining these two expressions with equations (41) and (42), we obtain $e_a^* = e^{*s}$ and $e_b^* = -e^{*s}$, where e^{*s} is implicitly defined by equation (*21*).

Finally, it remains to be proven that this equilibrium satisfies the Intuitive Criterion. The proof is very similar than the one of Proposition 2, so I only provide the main intuition here. If $\frac{G-c}{G} < \frac{1}{2}$, for any out of equilibrium beliefs that lead to mayors taking actions $\phi_A^*(e') = 0$ and $\phi_B^*(e') = 1$ or $\phi_A^*(e') = 1$ and $\phi_B^*(e') = 0$, neither village head find the deviation profitable. To see why notice that for type a, deviating to negative levels of effort would prompt actions $\phi_A^*(e') = 0$ and $\phi_B^*(e') = 1$ and deviating to positive levels of effort would lead to $\phi_A^*(e') = 1$ and $\phi_B^*(e') = 0$. The conditions that ensure this is a PBE also guarantee that any of the resulting deviation payoffs is lower than the equilibrium payoff. For out of equilibrium beliefs that lead to mayors' actions $\phi_A^*(e') = 0$ and

$\phi_B^*(e') = 0$, the deviation payoff would be lower than the equilibrium payoff. Since $\frac{G-c}{G} < \frac{1}{2}$, out of equilibrium beliefs that lead to both mayors retaining a deviator are not feasible. The same reasoning applies for village head type b. Hence, for any deviation e the set $J(e)$ as defined by the first part of the Intuitive Criterion,[61] contains both types a and b. Consequently, the second part of the Intuitive Criterion does not apply.

If $\frac{G-c}{G} < \frac{1}{2}$, the following out of equilibrium beliefs could be sustained $\mu(t = a||e'| \neq e^{*s}) = \kappa$ where $\kappa > \frac{G-c}{G}$ and $1 - \kappa > \frac{G-c}{G}$. In this case, a deviation would lead to actions $\phi_A^*(e') = 1$ and $\phi_B^*(e') = 1$ that will certainly lead to payoffs higher than the equilibrium ones. Then, the set $J(e)$ will be the whole set of types $J(e) = \{\Theta\}$ and, in the same way as Proposition 2, the second part of the Intuitive Criterion would not hold for any type. Consequently, we can conclude that the separating equilibrium described by Proposition 3, satisfies the Intuitive Criterion.■

9.4 Discussion of Result 1

Result 1 introduces two additional assumptions. The first assumption states that function $g(.)$ also depends on π and it can be expressed as the product of total effort and a function of π, i.e., $g(E, \pi) = E \cdot h(\pi)$ where $h(.)$ satisfies $h'(.) > 0$ if $\pi < \frac{1}{2}$ and $h'(.) < 0$ if $\pi > \frac{1}{2}$. The second assumption states that the proportion of types is positively correlated to π, i.e., $\gamma(\pi)$ satisfies $\gamma'(.) > 0$ and $\gamma(\pi) > \pi \ \forall\pi$. I now proceed revise my analysis on the thresholds of pooling and separating equilibria when these new conditions are introduced.

Threshold Pooling Equilibria.

Proposition 2 states that as long as inequality (17) is satisfied, the set of strategies and believes specified in (15) constitute a PBE. Notice that under the above additional assumption on function $g(.,.)$ the optimal deviation level of effort can be expressed as the negative of the equilibrium effort, i.e. $e_b(\pi) = -e^*(\pi)$. Then, inequality (17) can be rewritten in the following way

$$2\pi \geq 1 - 2(n-1)e^*(\pi)h(\pi) + \left(\frac{\overline{\alpha}\text{-}\underline{\alpha}}{\rho}\right) C(e^*(\pi)) \tag{43}$$

Notice that we no longer obtain closed form solutions for the threshold of π defined when inequality (43) holds with equality. However as long as function $h(\pi)$ is not too sensitive to changes in π the threshold of π will be well defined. Let us assume the standard quadratic cost function $C(e) = e^2$ that will allow us to obtain simple conditions on the function $h(\pi)$. Given this cost function, the equilibrium level of effort takes the following form $e^*(\pi) = \frac{\psi[R\text{-}\underline{U}]}{2\underline{\alpha}} h(\pi)$. Then, inequality (43) becomes

$$H_p(\pi) \equiv 2\pi - 1 + kh(\pi)^2 \geq 0 \tag{44}$$

where $k = \frac{\psi[R\text{-}\underline{U}]}{4\underline{\alpha}} \left(4n - 3 - \frac{\overline{\alpha}}{\underline{\alpha}}\right)$. Since $H_p(0) = -1 < 0$, a sufficient condition for the threshold to be uniquely defined is that the first derivative of expression $H_p(.)$ to be positive. This will be the

[61] See the proof of Proposition 2 in this Appendix.

case as long as the following conditions hold:

$$n > \frac{1}{4}\left(3+\frac{\overline{\alpha}}{\underline{\alpha}}\right) \quad (45)$$

$$\frac{1}{kh(\pi)} > -h'(\pi) \quad (46)$$

Condition (45) requires the number of villages to be large enough so that one village head deviation does not have a too large impact on the electoral result. The second condition is always satisfied for $\pi \in [0, \frac{1}{2}]$ because $h'(\pi)$ is positive for those values of π. For values of π higher than $\frac{1}{2}$, the second condition requires the values of function $h(.)$ and its first derivative are not too large in absolute values.

Thresholds Separating Equilibria

By a similar analysis, the upper threshold of a separating equilibria is defined by (25) becomes

$$H_{sep}(\pi) \equiv 2\pi - 1 + k^{sep}(\pi)h(\pi)^2 \leq 0$$

where $k^{sep}(\pi) = \frac{\psi[R\text{-}U]}{4\underline{\alpha}\overline{\alpha}}\left[4n\overline{\alpha}(2\gamma(\pi)-1)+3\overline{\alpha}-\underline{\alpha}\right]$. Let us express $\gamma(\pi) = c+\xi(\pi)$ where $0 < c < 1$, $\xi(0) = 0$ and $\xi'() > 0$. Since $H_{sep}(0) = -1 < 0$, a sufficient condition for the threshold to be uniquely defined is $H'_{sep}(.) > 0$. This will be the case if the following conditions hold:

$$c > \frac{1}{2} - \frac{1}{8n}(3-\frac{\underline{\alpha}}{\overline{\alpha}})$$

$$\frac{1+\frac{n\psi[R\text{-}U]}{\underline{\alpha}}h(\pi)^2}{k^{sep}(\pi)h(\pi)} > -h'(\pi)$$

Therefore, similarly as before, as long as n is high enough and function $h(.)$ is not too sensitive to π, the threshold implicitly defined by $H_{sep}(\pi) = 0$ will be well defined.

The analysis on the lower threshold of the separating equilibria and the threshold for pooling for party B are symmetric to these analyzed here and are, therefore, ommited from the paper.

Data Appendix

The main data set used in this paper is constructed by merging different waves of the Indonesian Village Census PODES. For Tables 1 to 7, I use data from the 1996, 2000 and 2003 waves of the PODES data set. To match observations across the different waves I request the village to have the same name and to be in the same district. Out of the 66,000 villages of Indonesia, 10,000 do not have an exact match across these three waves. Then, I conduct a series of merge checks to ensure that I am identifying the exact same village. Those merge checks are based on the number of the population of the village, the number of religious, educational and health facilities. I drop observations for which on more than two categories are inconsistent across waves. This process eliminates 8,000 additional observations. Finally, I restrict the sample to those districts in which there is enough overlap between desa and kelurahan. Hence, I do not use on my analysis those municipalities for which there are less than 5 *kelurahan* or less than 5 *desa*. This reduces the main sample by 10,000 additional observations.

Data Sources

The data on the electoral results at the village level for the parliamentary election of 1971 and 1987, used for the robustness check of endogenous selection of kelurahan, was generously provided by Professor Dwight King, from Northern Illinois University.

The data on the occupational composition of villages used for robustness check in section 6.2., was constructed from the National Socioeconomic Survey (SUSENAS). This survey is conducted on a nationally representative sample of households. I constructed aggregates at the village level for the responses given and match those to my baseline data. Since not all the villages in Indonesia had respondents in this household survey, the sample of analysis drops to 4,300 villages.

Finally, the data used for the democratic capital robustness check, was generously shared by Vivi Alatas, Abhijit Banerjee, Rema Hanna, Julia Tobias and Ben Olken. This data was collected for their project "How to Target the Poor: Evidence from a Field Experiment in Indonesia". 9 respondents were interviewed per village on a total of 258 kelurahan villages and 382 desa villages. The survey was conducted in late 2008 in the provinces of Central Java, South Sulawesi, and North Sumatra.

Figures

Figure 1.

Individual Effort and Proportion of dictator's party sympathizers

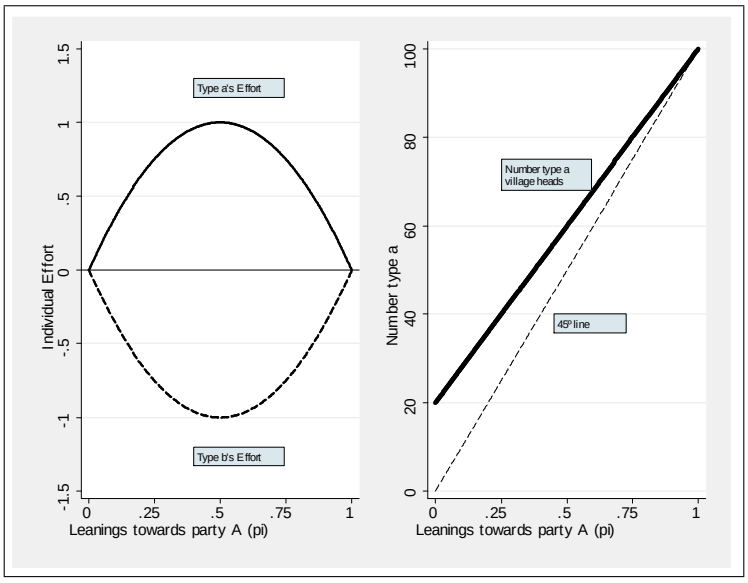
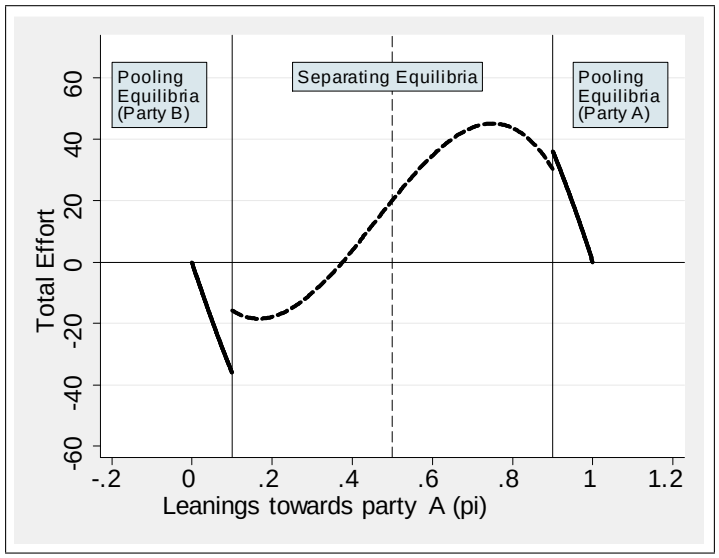


Figure 2. Total Effort



Figures 3A and 3B. Estimated Propensity Score distribution

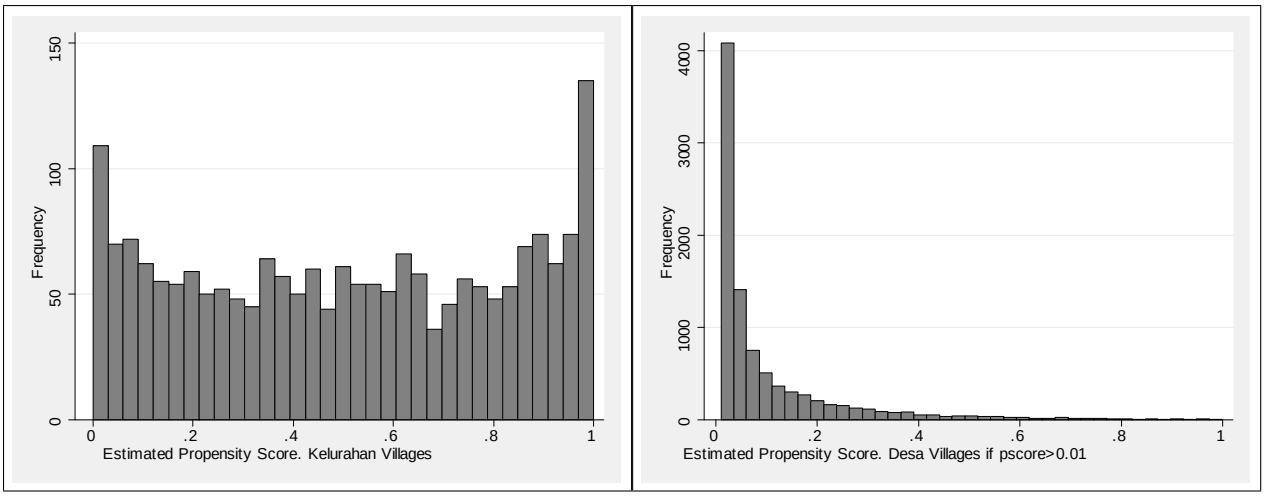
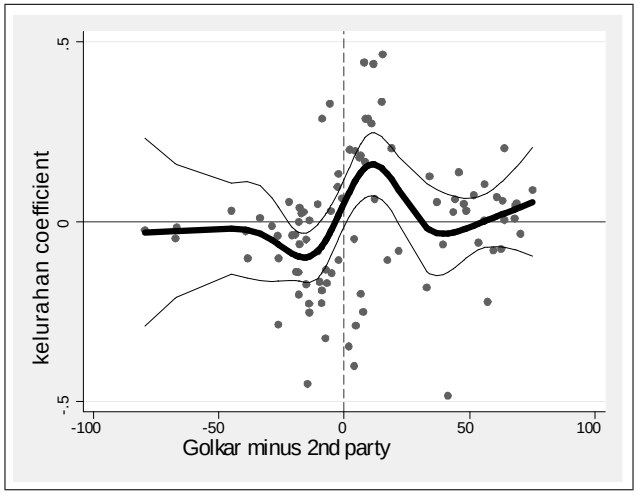


Figure 4. Heterogenous Effects



Figures 5A and 5B. Average Propensity Score of Kelurahan

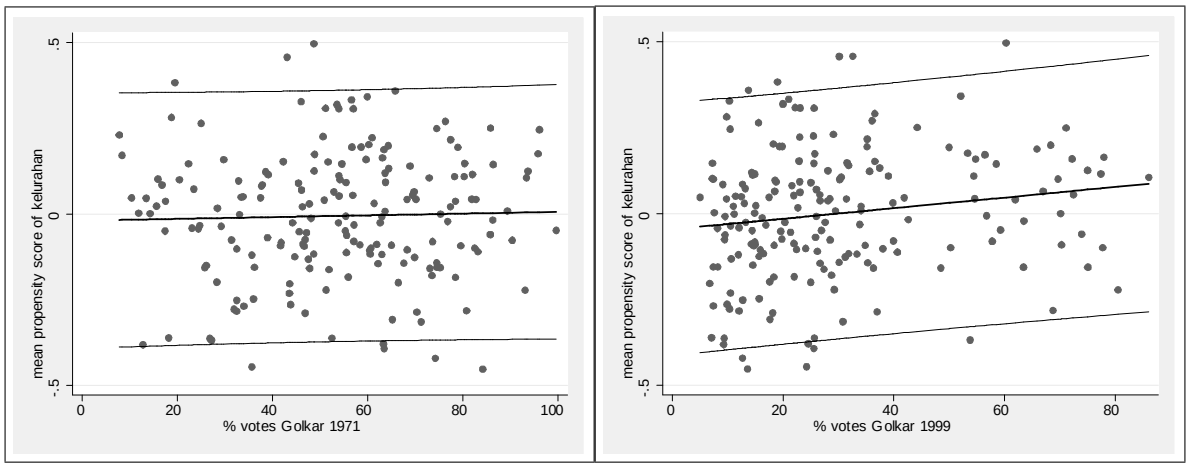


Figure 6. Dynamic Effects

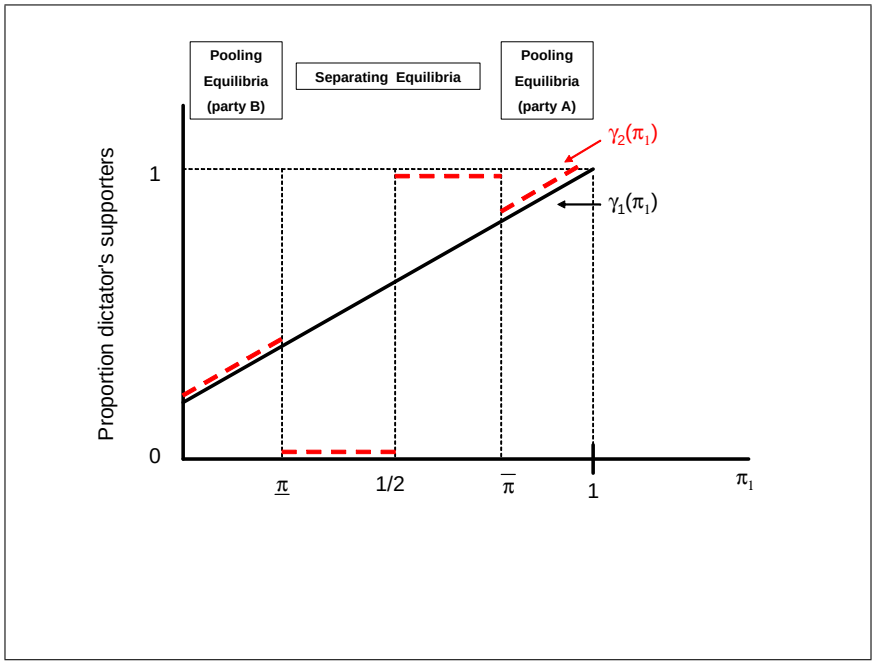


Figure 7. Intuitive Criterion

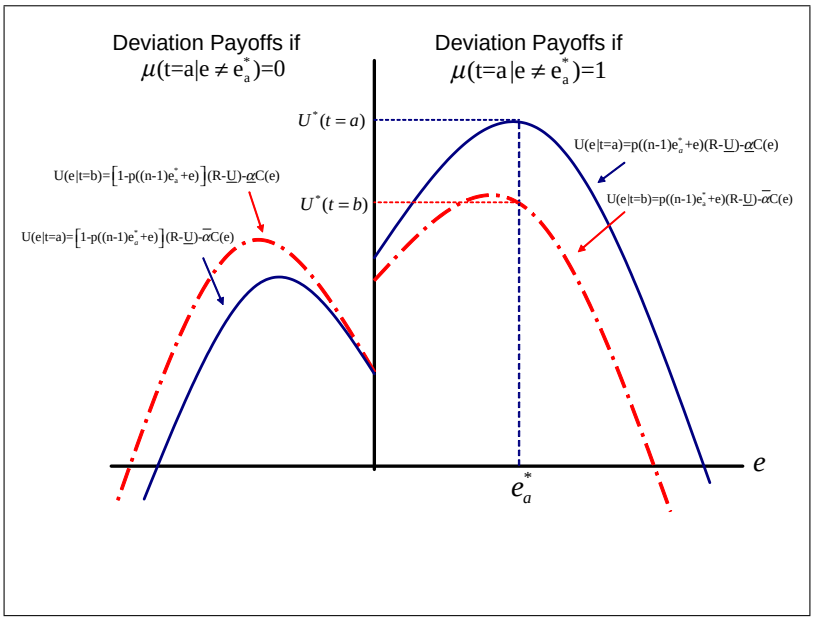


Table 1: Descriptive Statistics

	Whole Sample			Kelurahan		Desa	
	Obs	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Electoral Variables:							
% villages Golkar 1st in 1999	39,597	0.29	0.45	0.39	0.49	0.28	0.45
% villages PDI-P 1st in 1999	39,597	0.47	0.50	0.46	0.50	0.47	0.50
% villages PPP 1st in 1999	39,597	0.11	0.32	0.07	0.25	0.12	0.32
% villages PKB 1st in 1999	39,597	0.09	0.29	0.04	0.20	0.09	0.29
% villages Other Party 1st in 1999	39,597	0.04	0.19	0.04	0.19	0.04	0.19
% villages Golkar 1st in 2004	29,970	0.35	0.48	0.49	0.50	0.34	0.47
% villages PDI-P 1st in 2004	29,970	0.29	0.45	0.24	0.43	0.29	0.46
% villages PPP 1st in 2004	29,970	0.15	0.36	0.10	0.30	0.15	0.36
% villages PKB 1st in 2004	29,970	0.06	0.24	0.03	0.18	0.06	0.24
% villages Other Party 1st in 2004	29,970	0.11	0.31	0.07	0.26	0.11	0.31
Geographic controls							
kelurahan dummy	39,597	0.05	0.22	1	0	0	0
urban dummy	39,597	0.08	0.28	0.57	0.50	0.06	0.23
% HH in agr	36,842	69.90	23.78	35.75	30.19	71.90	21.74
% land in agriculture	36,842	76.69	21.62	54.60	32.35	77.99	20.08
high altitude dummy	36,842	0.28	0.45	0.16	0.37	0.29	0.45
population	36,842	2,783	2,371	4,906	3,929	2,658	2,183
population density (#people/ha)	36,842	0.99	2.67	3.72	8.98	0.84	1.54
village area (in ha)	36,842	18,148	85,900	9,795	29,499	18,637	88,065
distance sub-distr office (km)	39,597	11.11	26.60	2.75	4.96	11.56	27.22
subdistrict capital	39,597	0.05	0.22	0.17	0.38	0.04	0.19
Religious Controls							
num mosques / 1000 villagers	36,842	1.25	1.36	0.76	0.67	1.28	1.38
num prayerhouse / 1000 villagers	36,842	2.73	3.51	1.37	1.52	2.81	3.58
num churches / 1000 villagers	36,842	0.45	1.28	0.24	0.56	0.46	1.31
num buddhist temple / 1000 villagers	36,842	0.01	0.12	0.01	0.06	0.01	0.12
Facilities controls							
Village has road	34,783	0.91	0.29	0.99	0.10	0.90	0.30
Village has asphalt road	36,842	0.56	0.50	0.88	0.32	0.54	0.50
num TVs / 1000 villagers	36,842	42.24	42.21	88.45	53.90	39.54	39.79
num hospitals / 1000 villagers	36,842	0.003	0.04	0.022	0.08	0.002	0.03
num maternity hopitals / 1000 villagers	36,842	0.005	0.31	0.015	0.07	0.005	0.31
num polyclinic / 1000 villagers	36,842	0.010	0.09	0.027	0.09	0.009	0.09
num puskesmas / 1000 villagers	36,842	0.039	0.17	0.066	0.16	0.037	0.18
num kindgarden / 1000 villagers	36,842	0.18	0.35	0.31	0.31	0.18	0.35
num primary school / 1000 villagers	36,842	1.25	1.33	0.96	0.76	1.26	1.35
num high school / 1000 villagers	36,842	0.17	0.46	0.42	0.56	0.16	0.45

Additional Statistics

Number of districts	197
Number of subdistricts	2,627
Number of villages per district	201
Number of kelurahan per district	10.34
% of kelurahan per district	0.09
Number of population per district	520,382

Number of districts by most voted party in the 1999 election

	Most voted	Second most voted
PDI-P	98	56
Golkar	75	64
PKB	13	31
PPP	9	34
PAN	1	10
PDKB	0	1
no data	1	1
TOTAL	197	197

Table 2: Baseline Specification. OLS results

	Restricted Sample				Whole Sample
Dependent variable: Golkar wins in 1999	(1)	(2)	(3)	(4)	(5)
kelurahan	**0.0240***	**0.0541*****	**0.0547*****	**0.0513*****	**0.0523*****
	(0.0126)	**(0.0140)**	**(0.0137)**	**(0.0138)**	**(0.0120)**
urban	-0.0360***	-0.0116	-0.0091	-0.0095	-0.0098
	(0.0105)	(0.0112)	(0.0109)	(0.0113)	(0.0098)
% HH in agr		-0.0033	-0.0031	-0.0035	-0.0031
		(0.0033)	(0.0032)	(0.0030)	(0.0022)
% land in agr		0.0189	0.0218	0.0409*	0.0546***
		(0.0213)	(0.0219)	(0.0212)	(0.0186)
high altitude		0.0253**	0.0255**	0.0273**	0.0203**
		(0.0111)	(0.0107)	(0.0110)	(0.0095)
log population		1.0074	2.8683***	2.5848**	1.2960*
		(0.8331)	(1.0410)	(1.0726)	(0.7559)
population density		-0.0029**	-0.0026**	-0.0024**	-0.0008
		(0.0014)	(0.0012)	(0.0012)	(0.0006)
distance sub-distr office		0.0004***	0.0005***	0.0003	0.0003
		(0.0001)	(0.0001)	(0.0002)	(0.0002)
num mosques pc.			20.7508***	18.3965***	16.6670***
			(3.4456)	(3.3915)	(2.9665)
num prayerhouse pc.			-0.7529	-1.1336	-0.0852
			(1.2254)	(1.3044)	(1.2288)
num churches pc.			-8.3327	-11.1666*	-12.2663**
			(5.2569)	(5.7297)	(5.0951)
num hindu temple pc.			13.4817	4.6517	-0.2056
			(26.2767)	(26.8027)	(20.1304)
num hospitals pc.				0.0773*	0.0829**
				(0.0450)	(0.0376)
num puskesmas pc.				0.0222	0.0262*
				(0.0163)	(0.0138)
num road pc.				0.0057	0.0070*
				(0.0050)	(0.0040)
num kindgarden pc.				-0.0241***	-0.0228***
				(0.0078)	(0.0070)
num primary school pc.				0.0024	0.0018
				(0.0022)	(0.0020)
District FE	Y	Y	Y	Y	Y
Other Controls	N	N	N	Y	Y
Observations	36842	36842	36842	34783	43553
R-squared	0.398	0.407	0.410	0.418	0.412

Notes: Robust Standard errors clustered at the district level in parenthesis. Ordinary Least Squares regressions that includes a full of district fixed effects. The unit of observation is the village level. The dependent variable is a dummy that takes value 1 if Golkar was the most voted party in the village in the Parliamentary election of 1999 and 0 otherwise. All regressions include a quartic of the variables percentage of households in agriculture and log population. Facilities variables are defined per 1,000 people in the village. Other controls are number of TVs, number of maternity hospitals, number of polyclinics, dummy for whether the village has an asphalt road and the number of high schools. *** p<0.01, ** p<0.05, * p<0.1

Table 3A. Propensity Score Matching. Probit Estimation

Dependent variable kelurahan village	(1)	(2)	(3)
urban	0.9017***	0.8803***	0.7657***
	(0.0535)	(0.0538)	(0.0556)
% HH in agr	-0.0792***	-0.0786***	-0.0716***
	(0.0111)	(0.0111)	(0.0114)
% land in agr	-0.4218***	-0.4166***	-0.4531***
	(0.0833)	(0.0835)	(0.0897)
high altitude	0.0593	0.0757	0.0878*
	(0.0493)	(0.0499)	(0.0514)
log population	-13.1836**	-22.0521**	12.6202
	(6.5117)	(9.7974)	(18.8202)
population density	0.0344***	0.0313***	0.0305***
	(0.0060)	(0.0059)	(0.0060)
distance sub-distr office	-0.0485***	-0.0480***	-0.0407***
	(0.0033)	(0.0033)	(0.0036)
num mosques pc.		-93.1383***	-107.3868***
		(27.3681)	(28.1162)
num prayerhouse pc.		-74.8851***	-82.0017***
		(13.3810)	(14.0258)
num churches pc.		-108.6375***	-113.4421***
		(32.8425)	(36.2296)
num hindu temple pc.		-144.6544	-108.2913
		(233.3134)	(254.1095)
num hospitals pc.			0.8265***
			(0.2749)
num puskesmas pc.			0.0250
			(0.1009)
asphalt road pc.			0.1979***
			(0.0751)
num primary school pc.			-0.0205
			(0.0231)
num high school pc.			0.1757***
			(0.0312)
District Dummies	Y	Y	Y
Other Controls	N	N	Y
Observations	36279	36279	34152

Standard errors in parentheses. Probit regressions that include a full set of district dummies. The unit of observation is the village level. The dependent variable takes value 1 if the village is a kelurahan and 0 if it is a desa. All regressions include a quartic of the variables percentage of households in aggriculture and log population. Facilities variables are defined per 1,000 people in the village. Other controls are number of TVs, number of maternity hospitals, number of polyclinics, dummy for whether the village has a road and the number of kinder gardens. *** p<0.01, ** p<0.05, * p<0.1

Table 3B. Second Stage. Propensity Score Matching. Block Method

	Pscore computed using Geographic Controls		Pscore computed using Geographic + Religion Controls		Pscore computed using Geographic + Religion + Facilities Controls	
	pscore [0.01, 0.5]	pscore [0.01, 0.8]	pscore [0.01, 0.5]	pscore [0.01, 0.8]	pscore [0.01, 0.5]	pscore [0.01, 0.8]
	(1)	(2)	(3)	(4)	(5)	(6)
kelurahan	**0.0637*** **	**0.0512*** **	**0.0584*** **	**0.0490*** **	**0.0603*** **	**0.0469*** **
	(0.0138)	**(0.0128)**	**(0.0148)**	**(0.0119)**	**(0.0137)**	**(0.0116)**
Observations	11012	11763	10716	11472	9837	10609
R-squared	0.464	0.466	0.461	0.465	0.469	0.475

Notes: Each column corresponds to an OLS regression in which the dependent variable takes value 1 if Golkar was the most voted party in the village. The regressors are the kelurahan dummy, whose coefficient is displayed, and a full set of district fixed effects interacted with propensity score percentile dummies (dummies that take value 1 if the propensity score of a village is below the 20th percentile in their municipality, between the 20th and 40th percentile, and so on). To ensure a sufficient amount of overlap I restrict the sample to villages that have propensity score between 0.01 and 0.5, columns (1), (3) and (5) or to villages with propensity score between 0.01 and 0.8, columns (2), (4) and (6).

Table 4: Electoral Results 1999 by Subsample

	Dependent variable: Golkar wins in 1999					Dependent Variable: PDI-P wins in 1999				
	Whole sample	PDI-P Won Large 1999	PDI-P Just Won 1999	Golkar Just Won 1999	Golkar Won Large 1999	Whole sample	PDI-P Won Large 1999	PDI-P Just Won 1999	Golkar Just Won 1999	Golkar Won Large 1999
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
kelurahan	**0.0513*** **	**0.0066**	**0.0477**	**0.1327** **	**0.0388** **	**-0.0036**	**0.0435** **	**0.0097**	**-0.0410**	**-0.0246**
	(0.0138)	**(0.0164)**	**(0.0342)**	**(0.0500)**	**(0.0182)**	**(0.0160)**	**(0.0209)**	**(0.0518)**	**(0.0514)**	**(0.0186)**
Geographic Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Religion Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Facilities Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
District FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	34783	13147	7600	4073	4675	34783	13147	7600	4073	4675
R-squared	0.418	0.110	0.172	0.083	0.153	0.354	0.101	0.063	0.105	0.126
Districts	183	68	34	29	52	183	68	34	29	52

Notes: Robust Standard errors clustered at the district level in parenthesis. Ordinary Least Squares regression with district fixed effects. The unit of observation is the village level. The dependent variable for columns (1) to (5) is a dummy that takes value 1 if Golkar was the most voted party in the village in the Parliamentary election of 1999 and 0 otherwise. The dependent variable for columns (6) to (10) is a dummy that takes value 1 if PDI-P was the most voted party in the village in the Parliamentary election of 1999 and 0 otherwise. Columns (2) to (5) and (7) to (10) correspond to the same regression run in a sub-sample. Columns (2) and (7) restrict the sample to districts in which Golkar won by more than 10 percentage points with respect to the second most voted party. Columns (3) and (8) restrict the sample to districts in which Golkar won by less than 10 percentage points. Similarly for columns (4), (9) and (5), (10). The detailed list of controls included in each regression can be seen in the Table 1 Descriptive Statistics.

Table 5. Controls for Conflict, Military Presence and Mining

Dependent variable: Golkar wins in 1999	(1)	(2)	(3)	(4)	(5)
kelurahan	**0.0513*** **	**0.0512*** **	**0.0494*** **	**0.0513*** **	**0.0492*** **
	(0.0138)	**(0.0138)**	**(0.0137)**	**(0.0138)**	**(0.0138)**
conflict in 2002	-0.0026				-0.0479
	(0.0089)				(0.0772)
conflict among villagers		-0.0045			0.0438
		(0.0086)			(0.0775)
conflict villagers & gov apparatus		-0.0072			0.0380
		(0.0328)			(0.0783)
conflict between students		0.0654			0.1178
		(0.0480)			(0.0942)
ethnic conflict		-0.0477			0.0000
		(0.0771)			(0.0000)
other conflict		0.0017			0.0499
		(0.0271)			(0.0821)
army presence			0.0031		0.0034
			(0.0051)		(0.0050)
number army members			0.0001		0.0001
			(0.0001)		(0.0001)
Kamling Post			0.0090		0.0093
			(0.0134)		(0.0134)
Police Station			0.0321***		0.0320***
			(0.0093)		(0.0093)
Police Post			0.0175		0.0176
			(0.0113)		(0.0113)
% HH mining				-0.0009	-0.0009
				(0.0009)	(0.0008)
quarried coralstone				0.0135*	0.0129*
				(0.0075)	(0.0074)
quarried sand				-0.0126**	-0.0133**
				(0.0064)	(0.0063)
quarried lime				-0.0067	-0.0067
				(0.0179)	(0.0177)
quarried sulfur				-0.1681***	-0.1683***
				(0.0569)	(0.0574)
quarried kaolin				0.2134*	0.2155*
				(0.1153)	(0.1154)
quarried kwarsa				-0.0357	-0.0355
				(0.0375)	(0.0372)
Geographic Controls	Y	Y	Y	Y	Y
Religious Controls	Y	Y	Y	Y	Y
Facilities Controls	Y	Y	Y	Y	Y
District FE	Y	Y	Y	Y	Y
Observations	27695	27693	27695	27695	27695
R-squared	0.435	0.435	0.435	0.435	0.436

Notes: Robust Standard errors clustered at the district level in parenthesis. Ordinary Least Squares regressions that include a full set of district fixed effects. The unit of observation is the village level. The dependent variable is a dummy that takes value 1 if Golkar was the most voted party in the village in the 1999 Parliamentary Election and 0 otherwise. *** p<0.01, ** p<0.05, * p<0.1

Table 6. Controling for Changes in Facilities and Village Funding

Dependent variable: Golkar wins in 1999	(1)	(2)	(3)	(4)	(5)
kelurahan	**0.0538*** **	**0.0547*** **	**0.0534*** **	**0.0524*** **	**0.0612*** **
	(0.0150)	**(0.0139)**	**(0.0135)**	**(0.0140)**	**(0.0151)**
change hospitals 96 -99	-0.0070				-0.0086
	(0.0326)				(0.0322)
change puskesmas 96-99	-0.0017				-0.0017
	(0.0054)				(0.0054)
change maternity hosp 96-99	0.0152				0.0141
	(0.0224)				(0.0221)
change polyclinic 96-99	0.0498***				0.0507***
	(0.0105)				(0.0106)
change kinder garden 96-99	-0.0012				-0.0009
	(0.0019)				(0.0019)
change primary schools 96-99	0.0030				0.0027
	(0.0034)				(0.0034)
(ch hosp 96-99)*kelur	-0.0291				-0.0286
	(0.0666)				(0.0669)
(ch puskesmas 96-99)*kelur	-0.0068				-0.0073
	(0.0142)				(0.0137)
(ch maternity 96-99)*kelur	0.0327				0.0338
	(0.0332)				(0.0336)
(ch polyclinic 96-99)*kelur	-0.0280				-0.0301
	(0.0204)				(0.0206)
(ch kinder garden 96-99)*kelur	0.0016				0.0009
	(0.0064)				(0.0065)
(ch primary sch 96-99)*kelur	-0.0102				-0.0098
	(0.0101)				(0.0099)
% change funds District gov 96-03		-0.0019**			-0.0016*
		(0.0009)			(0.0009)
% change funds Prov gov 96-03		-0.0001			-0.0001
		(0.0010)			(0.0010)
% change funds Central gov 96-03		0.0002			0.0002
		(0.0007)			(0.0008)
(% ch District Gov)*kelur		0.0004			-0.0008
		(0.0021)			(0.0023)
(% ch Prov Gov)*kelur		0.0000			0.0006
		(0.0024)			(0.0025)
(% ch Central Gov)*kelur		-0.0015			-0.0023
		(0.0023)			(0.0023)
% change Regular Expenditures 96-03			0.0007		0.0004
			(0.0018)		(0.0019)
% change Development Expenditures 96-03			-0.0020		-0.0011
			(0.0014)		(0.0014)
(% ch Reg Exp)*kelur			-0.0007		-0.0013
			(0.0053)		(0.0056)
(%ch Dev Exp)*kelur			0.0027		0.0032
			(0.0036)		(0.0037)
IDT receipient				0.0200**	0.0196**
				(0.0087)	(0.0084)
(IDT receipient)*kelur				-0.0675	-0.0702
				(0.0494)	(0.0489)
% HH received IDT funds				0.0000	0.0000
				(0.0003)	(0.0003)
(% HH receive IDT)*kelur				0.0029	0.0030
				(0.0020)	(0.0019)
Geographic Controls	Y	Y	Y	Y	Y
Religious Controls	Y	Y	Y	Y	Y
Facilities Controls	Y	Y	Y	Y	Y
District FE	Y	Y	Y	Y	Y
Observations	33904	34780	34780	34591	33710
R-squared	0.420	0.418	0.418	0.419	0.421

Notes: Robust Standard errors clustered at the district level in parenthesis. Ordinary Least Squares regressions that include a full set of district fixed effects. The unit of observation is the village level. The dependent variable is a dummy that takes value 1 if Golkar was the most voted party in the village in the 1999 Parliamentary Election and 0 otherwise. *** p<0.01, ** p<0.05, * p<0.1

Table 7. Controling for the Occupational Composition of the Village

Dependent variable: Golkar wins in 1999	(1)	(2)	(3)	(4)
kelurahan	**0.0392****	**0.107****	**0.0833***	**0.141***
	(0.0167)	**(0.0451)**	**(0.0503)**	**(0.0796)**
% government employees		0.189***		0.248***
		(0.0667)		(0.0779)
% private employees		0.0242		0.0203
		(0.0423)		(0.0500)
% employers		0.106		0.105
		(0.119)		(0.120)
% temporary workers		0.0150		-0.0108
		(0.0259)		(0.0267)
% family employees		-0.207**		-0.226***
		(0.0852)		(0.0857)
(% government employees)*kelur		-0.0784		-0.146
		(0.115)		(0.138)
(% private employees)*kelur		-0.151		-0.144
		(0.101)		(0.121)
(% employers)*kelur		-0.353		-0.345
		(0.290)		(0.294)
(% temporary workers)*kelur		-0.120		-0.0961
		(0.0809)		(0.0876)
(% family employees)*kelur		0.0416		0.165
		(0.330)		(0.335)
% HH in agriculture			0.00245	0.0797**
			(0.0291)	(0.0364)
% HH in mining			-0.0133	0.0514
			(0.105)	(0.109)
% HH in industry			0.0389	0.104*
			(0.0490)	(0.0594)
% HH in electricity			-0.113	-0.0904
			(0.219)	(0.228)
% HH in construction			-0.0774	-0.0253
			(0.0634)	(0.0786)
% HH in trading			-0.0705	0.00658
			(0.0543)	(0.0577)
(% HH in agriculture)*kelur			-0.0469	-0.0480
			(0.0640)	(0.0930)
(% HH in mining)*kelur			-0.874**	-0.768**
			(0.341)	(0.346)
(% HH in industry)*kelur			-0.154	-0.0829
			(0.103)	(0.118)
(% HH in electricity)*kelur			-0.618	-0.414
			(0.649)	(0.693)
(% HH in construction)*kelur			0.235	0.314
			(0.185)	(0.200)
(% HH in trading)*kelur			-0.127	-0.112
			(0.142)	(0.149)
Geographic Controls	Y	Y	Y	Y
Religious Controls	Y	Y	Y	Y
Facilities Controls	Y	Y	Y	Y
District FE	Y	Y	Y	Y
Observations	4297	4297	4297	4297
R-squared	0.552	0.554	0.555	0.554

Notes: Robust Standard errors clustered at the municipality level in parenthesis. Ordinary Least Squares regressions that include a full set of municipality fixed effects. The unit of observation is the village level. The dependent variable is a dummy that takes value 1 if Golkar was the most voted party in the village in the 1999 Parliamentary Election and 0 otherwise. *** p<0.01, ** p<0.05, * p<0.1

Table 8: Democratic Capital Hypothesis

Dependent variables:	Sample Mean	Coefficients on kelur dummy	
		No controls	All controls & District FE
	(1)	(2)	(3)
% HH in the village that agree with the statement that [...] can be trusted			
most people	0.261	0.0880***	0.1018**
		(0.0331)	(0.0435)
people in this halmet	0.642	-0.0117	0.0192
		(0.0337)	(0.0456)
village head	0.768	-0.0086	-0.0441
		(0.0294)	(0.0398)
local government	0.644	0.0692*	0.0143
		(0.0361)	(0.0409)
the president	0.713	0.0596**	0.0138
		(0.0296)	(0.0362)
% HH in the village that participates in each type of organization			
government	0.306	-0.0823*	0.0193
		(0.0486)	(0.0471)
religious	0.565	-0.1477**	-0.0405
		(0.0591)	(0.0319)
recreational	0.0971	-0.0659***	-0.0281
		(0.0244)	(0.0250)
political	0.0309	-0.0010	-0.0094
		(0.0110)	(0.0150)
% HH heads that voted in the 2004 elections	0.935	0.0034	-0.0034
		(0.0149)	(0.0205)
% of HH that agree with the statement that his/her vote is influenced by [...] factor			
ethnic	0.250	-0.0338	-0.0240
		(0.0351)	(0.0468)
religious	0.401	-0.0745*	-0.0555
		(0.0399)	(0.0517)
program of candidate	0.483	0.0020	-0.1152**
		(0.0399)	(0.0490)
performance of candidate	0.491	0.0329	-0.0681
		(0.0402)	(0.0499)
% of HH that think corruption there is low corruption at [...] level			
central government	0.109	-0.0290	-0.0020
		(0.0192)	(0.0252)
district government	0.241	-0.0800**	-0.0567
		(0.0319)	(0.0370)
village government	0.634	-0.1326***	-0.1213***
		(0.0361)	(0.0443)

Notes: Robust Standard errors clustered at the district level in parenthesis. Ordinary Least Square Regressions in which the unit of observation is the village level. Column (2) displays the coefficient of the kelurahan dummy in a regression in which the dependent variable is as defined by each row. No further controls are added in column (2). Column (3) displays the coefficient of the kelurahan dummy when geographic, religious and facilities controls and district fixed effects are also included. The data comes from a survey conducted in 2008 for the project "How to Target the Poor: Evidence from a Field Experiment in Indonesia" (Vivi Alatas, Abhijit Banerjee, Ben Olken, Rema Hanna, and Julia Tobias). The results displayed comes from 5 districts in the provinces of Central Java and South Sulawesi. There are 198 villages in the sample, 59 kelurahan, 139 desa. *** p<0.01, ** p<0.05, * p<0.1.

Table 9: Electoral Results 2004 by Subsample

	Dependent variable: Golkar wins in 2004					Dependent Variable: PDI-P wins in 2004				
	Whole sample	PDI-P Won Large 1999	PDI-P Just Won 1999	Golkar Just Won 1999	Golkar Won Large 1999	Whole sample	PDI-P Won Large 1999	PDI-P Just Won 1999	Golkar Just Won 1999	Golkar Won Large 1999
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
kelurahan	**0.0884*** **	**0.0947*** **	**0.0844** **	**0.1183*** **	**0.0278**	**0.0076**	**0.0298**	**-0.0282**	**-0.0104**	**0.0079**
	(0.0154)	**(0.0255)**	**(0.0309)**	**(0.0368)**	**(0.0324)**	**(0.0127)**	**(0.0238)**	**(0.0267)**	**(0.0183)**	**(0.0068)**
Geographic Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Religion Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Facilities Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
District FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	29970	14518	7796	3587	4069	29970	14518	7796	3587	4069
R-squared	0.328	0.181	0.264	0.192	0.146	0.294	0.281	0.140	0.113	0.151
Districts	171	74	35	21	41	171	74	35	21	41

Notes: Robust Standard errors clustered at the district level in parenthesis. Ordinary Least Squares regression with district fixed effects. The unit of observation is the village level. The dependent variable for columns (1) to (5) is a dummy that takes value 1 if Golkar was the most voted party in the village in the district elections of 2004 and 0 otherwise. The dependent variable for columns (6) to (10) is a dummy that takes value 1 if PDI-P was the most voted party in the village in the district election of 2004 and 0 otherwise. Columns (2) to (5) and (7) to (10) correspond to the same regression run in a sub-sample. Columns (2) and (7) restrict the sample to districts in which Golkar won by more than 10 percentage points with respect to the second most voted party. Columns (3) and (8) restrict the sample to districts in which Golkar won by less than 10 percentage points. Similarly for columns (4), (9) and (5), (10). The detailed list of controls included in each regression can be seen in the Table 1 Descriptive Statistics.

Appendix Table 1: Endogenity Check

Dependent variable: average propensity score of kelurahan	(1)	(2)	(3)
Vote Share Golkar 1971	0.0247		
	(0.0648)		
Vote Share Golkar 1987		0.160	
		(0.0993)	
Vote Share Golkar 1999			0.153**
			(0.0692)
Constant	-0.0184	-0.128	-0.0452*
	(0.0373)	(0.0801)	(0.0246)
Observations	182	187	189
R-squared	0.001	0.014	0.025

Standard errors in parenthesis. OLS regressions were the unit of observation is the district level. The dependent variable is the demeaned average of the propensity score estimate among kelurahans at the district level. *** p<0.01, ** p<0.05, * p<0.1

Appendix Table 2

		PDI-P Won Large 1999	PDI-P Just Won 1999	Golkar Just Won 1999	Golkar Won Large 1999	Total
		(1)	(2)	(3)	(4)	(5)
PDI-P Won Large 2004	(A)	0.0060	0.0771			0.0136
		(0.0192)	(0.0000)			(0.0189)
Observations		3937	236			4173
Districts		21	2	0	0	23
PDI-P Just Won 2004	(B)	0.1298*	0.1579			0.1288**
		(0.0631)	(0.1027)			(0.0505)
Observations		3722	1489			5317
Districts		19	9	1	0	29
Golkar Just Won 2004	(C)	**0.2467*** **	**-0.0097**	**0.1436*** **	**-0.0041**	0.0727
		(0.0831)	(0.0688)	(0.0302)	(0.1305)	(0.0494)
Observations		2500	1831	615	210	5278
Districts		25	16	19	9	69
Golkar Won Large 2004	(D)			0.1249*	0.0318	0.0777***
				(0.0584)	(0.0327)	(0.0285)
Observations				2298	3859	8033
Districts		1	1	6	42	50
Total	(E)	0.1089***	0.0903**	0.1183***	0.0278	0.0884***
		(0.0295)	(0.0382)	(0.0368)	(0.0324)	-0.0154
Observations		11451	6308	3587	4069	29970
Districts		66	28	26	51	171

Notes: Robust Standard errors clustered at the district level in parenthesis. Each cell corresponds to a different Ordinary Least Squares regression that includes a full set of geographic controls, religious controls, facilities controls and municipality fixed effects. (For a detailed list of controls see Table 1. Descriptive Statistics). The unit of observation is the village level. The dependent variable is a dummy that takes value 1 if Golkar was the most voted party in the village in the Parliamentary election of 2004 and 0 otherwise. The sample is splitted along two dimensions: the electoral result at the municipality level in the 1999 election (columns (1) to (4)) and the electoral result at the municipality level in the 2004 election (rows (A) to (D)). Winning large means by more than 10 percentage points with respect to the 2nd most voted party and just winning stand for a margin of victory smaller than 10 percentage points.