The Role of Local Officials in New Democracies: Evidence From Indonesia*

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Abstract

New democracies experience greater electoral fraud and more clientelistic spending than established democracies. This paper shows that the body of appointed local officials that a new democracy inherits from the previous regime is a key determinant of the extent of these practices. With a unique dataset from the first post-Soeharto election in Indonesia, I show that the alignment of electoral results between village and district levels is considerably stronger for villages with appointed village heads than for those with elected village heads. I present a model that provides an intuitive interpretation of these results: appointed officials have stronger incentives to influence voters because of their political career concerns.

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1 Introduction

The transitions of nondemocratic regimes to democracy present a number of economic and political challenges. In addition to experiencing political instability and social unrest, nascent democracies operate in the context of the institutional legacy of the previous nondemocratic regime, which can condition the outcome of the first democratic elections and thus the economic and political equilibrium. One of these legacies is the body of local officials:[1] in most democratic transitions, a

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[1]Several scholars have documented the key role that local officials play in nondemocratic regimes and regimes in transition. 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.

majority of local officials selected during the nondemocratic regime remain in their positions at the time of the first democratic election. The difficulties inherent in undertaking several simultaneous reforms in the aftermath of the fall of a nondemocratic regime can prevent an immediate turnover in the government administration, especially among the lower- and local-level ranks.

There is extensive documentation of the fact that new democracies differ from established democracies in their economic and political outcomes. For instance, Brender and Drazen (2005) have shown that the political budget cycle – higher government spending during election years – is mostly driven by new democracies. Keefer (2007) finds that new democracies tend to rely more extensively on clientelistic policies and underprovide nontargeted public goods. These patterns coexist with substantial anecdotal evidence that first democratic elections are more prone to experience fraud and intimidation from powerful groups than elections in consolidated democracies. However, despite the fact that most of the clientelistic spending and voter intimidation takes place at the local level, we lack a good understanding of what incentives local officials have to engage in these practices, given the new political scenario that they face.

In this paper, I examine, theoretically and empirically, the behavior of local officials in the first election of the transition to democracy, by exploring the incentives that they face to influence voters. More specifically, I study how these incentives differ depending on whether these local officials are appointed or elected. I conduct the theoretical analysis in the context of a simple model of incomplete information, which incorporates a key ingredient that makes it specific to the context of new democracies: I assume that the political leanings of local officials are private information, a natural assumption for regimes in transition. Given the repressive nature of nondemocratic regimes, it is likely that local officials with political views different from those of the dictator hide their real political leanings. This generates a high degree of uncertainty regarding the real political leanings of those who served in the nondemocratic administration.

The model predicts that appointed officials have strong incentives to signal their alignment with upper levels of government because of their political career concerns. The continuation of appointed officials in their positions crucially depends on the decision of the upcoming upper-level government. By exerting effort during the electoral campaign to persuade voters, appointed officials can credibly signal their alignment with upper levels. The incentives to signal alignment are stronger when the upper-level election is expected to be lopsided: regardless of their real political leanings, appointed officials pretend to be supporters of the likely winner of political power in the upper levels of government. In contrast, elected officials face weaker incentives to signal their alignment, since the continuity in their positions mainly depends on the decision of their local constituents. Therefore, institutional arrangements at the local level – elections versus appointment systems – have the potential to be a key determinant of the extent of clientelistic behavior and vote buying in the transition to democracy.

The main contribution of this paper is to empirically explore the predictions of the model in

the context of the first democratic election in Indonesia after the fall of the Soeharto's dictatorship. For a number of reasons, this election in Indonesia offers an ideal setting for studying the behavior of local officials.

First, there is heterogeneity in the method of selection of local officials. The country is divided into two types of villages: *desa* and *kelurahan*. In *desa,* the village head is elected by villagers,[2] while in *kelurahan,* the village head is appointed by the district mayor.[3] The main empirical strategy relies on comparing the electoral results of *desa* and *kelurahan* within districts and when the main determinants of voting are controlled for. The remaining difference in terms of electoral outcomes can presumably be attributed to the different campaigning and intimidation efforts of the village heads.

Second, the fact that the *kelurahan* village heads are appointed by the district office — an intermediate level of government between the local government and the central government — provides fertile ground for testing the mechanism mentioned above. In the first democratic election of Indonesia post-Soeharto, the electorate voted simultaneously for the national and district legislatures.[4] Since the designation rights of appointed village heads rested at the district level, appointed officials should have been particularly concerned about signaling their alignment with the district leaders. This makes of Indonesia the ideal case for examining whether *kelurahan* villages tended to align more with the district electoral result, relative to *desa* villages, and whether this alignment depended on the party that was more likely to win — that is, Soeharto's party or the main reformist party.

My findings are as follows: first, I find that Soeharto's party was, on average, 5.5 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 (linear probability model, probit model, and propensity score matching). Consistent with the aforementioned mechanism, this result is driven by districts where Soeharto's party won the election. More important, this effect is reversed in districts where the main reformist party won by a large margin. In those districts, the reformist party is 3.7 percentage points more likely to win in villages with an appointed village head, relative to those with an elected village head. Therefore, the

[2] During the Soeharto regime, elections for the village head in *desa* villages took place in a highly restricted setup. Candidates were prescreened, and elections were nonpartisan.

[3] *Desa* villages tend to be more rural, while *kelurahan* tend to be more urban. Therefore, controlling for the differences in the level of urbaness is important for the econometric analysis. Still, there is some overlap between *desa* and *kelurahan* in terms of their observable characteristics: 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 some *desa* villages that were quite urban, according to their observable characteristics, at the time of the first democratic election in 1999. See Section 3.2. for further details.

[4] The national and district legislature designated the head of the executive branch of the corresponding level of government. Elections for the provincial legislatures also took place on the same day.

empirical evidence reveals that the *kelurahan* electoral outcome is aligned with the outcome at the district level to a greater extent than is the outcome in *desa* villages. The model presented in this paper provides an intuitive interpretation for this result: appointed village heads had stronger incentives to influence voters than did elected village heads because of their different political career concerns.

I conduct a series of robustness checks to rule out competing explanations. A main concern for the empirical strategy is the possibility that the classification of villages into *desa* and *kelurahan* categories was driven by political considerations. In particular, since *desa* villages were allowed to elect their village leaders it is possible that Soeharto's government was reluctant to classify as *desa*, those villages where there was a strong opposition to the regime. This is unlikely to explain my results for several reasons. First, this type of selection would introduce an attenuation bias into my average results. Hence, the result of Soeharto's party being, on average, more likely to win in *kelurahan* than in *desa* villages would constitute a lower-bound estimate. Second, the possible endogenous classification of villages cannot account for the heterogeneous effects documented in this paper: *kelurahan* villages are more likely to align with the district government winner, regardless of whether the likely winner is Soeharto's party or the main reformist party. Nevertheless, in order to mitigate the concern of endogenous selection of villages, I conduct several robustness checks: I verify that there is no evidence of a different implementation of the classification of *desa* and *kelurahan* across districts, and I check that the results are robust to controlling for proxies of political opposition to the Soeharto regime.

A second concern relates to the possibility that the different voting attitudes between *desa* and *kelurahan* are driven by other characteristics of these two types of villages, such as differences in fiscal transfers, differences in the occupational composition of their populations, and differences in the level of democratic capital. Controlling for this additional set of controls does not affect the results of the paper. Finally, I test for alternative hypotheses that could explain the stronger alignment of *kelurahan* to upper levels, such as endogeneity of the district electoral result and higher transfers being targeted to aligned *kelurahan* relative to aligned *desa*. I do not find support for any of these alternative explanations.

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 outcomes. Some examples are Ellman and Wantchekon (2001); Brender and Drazen (2005, 2008, 2009); Keefer (2007); and Keefer and Vlaicu (2007). My paper contributes to this literature by analyzing the incentives to engage in voter intimidation and clientelism from the local government standpoint and by finding evidence of these patterns using a novel dataset for the first democratic election in Indonesia post-Soeharto.

Second, this paper relates to the political science and economics literature on democratic capture by the elite or other interest groups by means of vote buying, voter cooptation, patronage networks,

and the use of force or its threat. Some examples are Robinson and Verdier (2002); Dal Bó and Di Tella (2003); Wantchekon (2003); Acemoglu and Robinson (2006); Dal Bó (2007); Baland and Robinson (2008); Acemoglu, Robinson, and Santos-Villagran (2010); Acemoglu, Ticchi, and Vindigni (2008, 2010); and Persson and Zhuravskaya (2011). My paper contributes to this literature by focusing on the role of local officials as a legacy of the previous autocratic regime. Furthermore, this paper provides evidence that, in the context of regimes in transition, 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, this paper 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); Alesina and Tabellini (2007, 2008); and Martinez-Bravo et al. (2011). However, to the best of my knowledge, this is the first paper to point out that even nonelected officials will have important electoral incentives in the elections for the politicians or officials who have decision rights over their appointment. Moreover, I highlight that these incentives will be intensified when there is an additional motivation to signal certain political leanings, as is the case in new democracies.

Finally, this paper relates to the literature that studies corruption, political institutions and political participation in Indonesia. Some examples are Fisman (2001), Liddle and Mujani (2007); Olken (2009, 2010); and Skoufias et al. (2011). However, none of these studies examines the within-district differences in electoral behavior of villages with appointed village heads and those with an elected village heads.

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. Section 6 presents the results. Section 7 provides the robustness checks that rule out competing explanations. 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, and to the district as the relevant upper-level office. Nevertheless, 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 tie 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. One candidate belongs to party D (the dictator's party); the other one belongs to party R (the reformist party). Subscript $m \in \{D, R\}$ denotes this party affiliation, which is publicly known.

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 $t \in \{d, r\}$ corresponds to a political sympathy towards party D or R, respectively, with corresponding population proportions of δ and $1-\delta$. These political leanings are assumed to be private information, which is the most natural specification for the first years of a democratic regime due mainly to two reasons. First, the previous nondemocratic regime probably repressed those who had views different from the dictator's 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.[5]

District mayors have a preference for village heads who share their same political views, deriving additional utility G for each village head who is ideologically aligned with them.[6] Upon taking office, the district mayor has an opportunity to decide over the reappointment of appointed village heads. Let $\phi \in \{0, 1\}$ be the decision of the district mayor to dismiss or retain, respectively, a particular incumbent appointed village head. In case of dismissal, the mayor incurs costs κ 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 be able to appoint one of her cronies as village head who she knows for sure is aligned with her.[7] Overall, the utility that district mayors

[5] The results of the model are robust to relaxing the information assumption about the political leanings of *elected* village heads. Since they were selected into office by winning village level elections, we can expect that some information about their political views may have been disclosed at the time of those elections. Nevertheless, the model requires that the political leanings of *appointed* village heads are private information, which is a more plausible assumption for the reasons described above.

[6] G can have a variety of interpretations: it can capture the utility that the mayor derives from the implementation of her preferred policies. 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 supporter of her same party.

[7] Hence, I assume that, during the democratic period, each party has a group of strong supporters who are committed to the party, and there is no uncertainty about their political leanings. However, this group might be small and the costs κ capture the opportunity cost of appointing them as village heads and not to alternative positions. In contrast, during the nondemocratic regime, anyone who wanted to be a village head had to pretend to share the same ideology as the dictator. The results of the model still hold if the technology to identify supporters

of party D and R, respectively, derive from a village with an appointed village head is

$$V_D^{app}(\phi, t) = \phi G \mathbf{1}_{\{t=d\}} + (1-\phi)[G-\kappa] \quad (1)$$

$$V_R^{app}(\phi, t) = \phi G \mathbf{1}_{\{t=r\}} + (1-\phi)[G-\kappa] \quad (2)$$

where $\mathbf{1}_{\{t=j\}}$ is a dummy that takes value 1 if the village head is a party j sympathizer, and 0 otherwise.

Similarly, the utility that district mayors of party D and R, respectively, derive from a village with an elected village head is

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

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

Notice that the only difference between the utility mayors derive from villages with appointed village heads versus those with elected village heads, is that, in the latter case, the mayor cannot 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 Z from being in office, whereas if he is fired, he obtains his reservation utility $\underline{U}$, which is assumed to satisfy $Z > \underline{U}$.

During the mayoral electoral campaign, village heads can exert effort to persuade voters in their villages to vote for party D or R. The possibility of influencing voter behavior is particularly plausible in the context of the first democratic election. Local patronage networks and other cooptation 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 illustrate the patterns of political support in new democracies, in this model, each village head decides 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 exerts in order to persuade voters, with positive values representing support for party D and negative values representing support for party R. Exerting effort is costly for village heads, captured by the cost function $C_t(e)$. The utility functions of village heads who are party t sympathizers are

$$U_t^{app}(e, \phi) = \phi Z + (1-\phi)\underline{U} - C_t(e) \quad (5)$$

$$U_t^{elec}(e) = Z - C_t(e) \quad (6)$$

where $\phi \in \{0, 1\}$ captures the dismissal decision. $C_t(e)$ is defined by $C_d(e) = (\overline{\alpha}\mathbf{1}_{\{e<0\}} + \underline{\alpha}\mathbf{1}_{\{e>0\}})C(|e|)$ if $t = d$ and $C_r(e) = (\underline{\alpha}\mathbf{1}_{\{e<0\}} + \overline{\alpha}\mathbf{1}_{\{e>0\}})C(|e|)$ if $t = r$ where $C(.)$ is a twice continuously differentiable cost function $C(.) : \mathbb{R}_+ \to \mathbb{R}_+$, defined over the absolute value of effort satisfying $C(0) = 0$,

is only slightly better during the democratic period than during the nondemocratic regime, which seems a plausible assumption.

$C'(0) = 0$, $C'(.) > 0$, $C''(.) > 0$[8], and $\mathbf{1}_{\{.\}}$ is the indicator function. Notice that exerting effort is more costly for a village head when this favors his least preferred candidate. This is captured by the parameters $\overline{\alpha}$ or $\underline{\alpha}$ (satisfying $\overline{\alpha} > \underline{\alpha}$) that multiply cost function $C(.)$, depending on the direction of the effort exerted.[9]

Finally, I specify the way effort of village heads affects the electoral outcome. I assume there is common knowledge about the share of the population that has a preference for the dictator's party, and denote that proportion by π. There are two other factors that can affect the electoral outcome. First, a valence shock φ uniformly distributed in the interval $[\frac{-1}{2\psi}, \frac{1}{2\psi}]$, which captures the unexpected component of the relative popularity of candidate D with respect to candidate R. 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 D can be specified in the following way:

$$\widetilde{\pi} = \pi + \varphi + g(E) \tag{7}$$

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 $g(0) = 0$, $\frac{\partial g(E)}{\partial E} \geq 0$, $\frac{\partial^2 g(E)}{\partial E^2} \leq 0$, which captures the way total effort affects the realized vote shares.

Effort of village heads is assumed to be observable by both candidates for mayor. One possible interpretation of this specification is that there is perfect information about the preferences of the median voter in each village. Any deviation of the electoral result from the median voter preference 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, may be vocal about it.

The probability that candidate D wins the mayoral election can be expressed as a function of total effort level as given by

$$p(E) = \underset{\varphi}{\text{Prob}}[\widetilde{\pi} \geq \frac{1}{2}] = \psi[\pi + g(E) - \frac{1}{2}] + \frac{1}{2} \tag{8}$$

The timing of events is as follows:

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 who obtains the highest number of votes takes office.

[8] 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.

[9] The introduction of partisan preferences through the cost of effort leads to results that are similar to 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 is further discussed below, e is interpreted as the additional effort that appointed village heads exert relative to elected village heads, because of their different selection mechanisms, or in other words, because of their different career concerns.

3. The new mayor decides whether to retain or dismiss every appointed village head $\phi_i \in \{0, 1\}$.

4. Payoffs are distributed, and the game ends.

2.2 Characterization of Equilibria

First, I describe the optimal level of effort that elected village heads exert in any equilibrium. Notice that, 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 it optimal to exert effort. The following proposition summarizes this result.

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

$$e_d^{elec} = e_r^{elec} = 0$$

Elected village heads keep their positions either if mayor D or mayor R wins the election, and at the end of the game, they receive payoff Z with certainty.

Proof. The level of effort that maximizes the utility of an elected village head of type t given by (6) is $e_t^{elec} = 0$ for $t \in \{d, r\}$. Since even by exerting no effort they can keep their positions as village heads, they cannot 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 who are aligned with them. In these scenarios, the elected village head might find it 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. The level of effort e in this model should be interpreted as the additional effort that appointed village heads exert over that of elected village heads, which is motivated by their different selection mechanism.

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 (PBE henceforth), and I refine the set of equilibria using the Intuitive Criterion and the Divinity Criterion.[10] In the rest of this subsection, I characterize

[10] See the Proof of Proposition 2 in the Appendix for formal definitions of the solution concept and equilibrium refinements.

the set of equilibria of this game, focusing on the interaction of appointed village heads and the two candidates for mayors.[11]

2.2.1 Mayor Optimization Problem

Upon taking office, the new mayor observes the levels of effort by appointed village heads and decides whether to retain or dismiss each of them. She decides to keep a particular village head as long as the expected utility from doing so is higher than the expected utility of dismissing him. For mayor D, this will be the case if $\mu(t = d|e)G \geq G - \kappa$, where $\mu(t = d|e)$ is the posterior probability that a village head is type d, given that he exerted effort level e.[12] Mayors derive this posterior probability using Bayes rule when applicable.[13] Similarly, if the candidate for mayor R takes office, she will retain the village head as long as $[1 - \mu(t = d|e)]\, G \geq G - \kappa$. Notice that decisions of the mayor depend on their assessment of how likely the village head is to be politically aligned with them, and on the relative benefits of alignment relative to firing costs.[14]

2.2.2 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 $t \in \{d, r\}$ and mayors cannot update their beliefs along the equilibrium path, that is, $\mu(t = d|\widehat{e}) = \delta$. Hence, mayor D finds it profitable to keep a village head who exerted effort $\widehat{e}$ as long as $\delta \geq \frac{G-\kappa}{G}$, while mayor R does so if $1 - \delta \geq \frac{G-\kappa}{G}$. Depending on how the proportion of each type of village head relates to the ratio $\frac{G-\kappa}{G}$, different strategies can be sustained in equilibrium. Let us focus on the following set of parameters and discuss the rest of cases in the Appendix.

CASE 1.

$$\delta > \frac{G - \kappa}{G} > 1 - \delta \tag{9}$$

[11] Since elected village heads always exert zero effort, they do not play any role in this game. Therefore, in order to minimize the use of notation, I omit the superscript *app* in the remaining of the section.

[12] It is straightforward to see this by noting that the utility function of mayor D is given by (1).

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

[14] Given the timing of events, mayors cannot commit to implementing any strategy different from their optimal one upon being elected. Otherwise, they might find it optimal to offer a more sophisticated contract to village heads during the electoral campaign, in order to give them incentives to exert effort. However, once elected, mayors have no incentive to fulfill their promises. This is why the preferences of mayors that are relevant are those at an interim stage, that is, immediately after being elected.

Consider the following strategies and beliefs as a candidate for PBE of this game for Case 1:[15]

$$\phi_D^*(e) = \begin{cases} 1 \text{ if } e = \widehat{e} \\ 0 \text{ if } e \neq \widehat{e} \end{cases} \qquad e_i^*(t) = \widehat{e} \geq 0 \text{ for } t \in \{d, r\}$$

$$\phi_R^*(e) = \begin{cases} 0 \text{ if } e = \widehat{e} & \mu(t = d | e = \widehat{e}) = \delta \\ 1 \text{ if } e \neq \widehat{e} & \mu(t = d | e \neq \widehat{e}) = 0 \end{cases} \tag{10}$$

According to these strategies, if mayor D wins the election, she retains all the appointed village heads, whereas if mayor R is elected, she fires them all. Notice that these strategies are sustained because we focus on Case 1, in which the proportion of type d village heads is high relative to the proportion of type r village heads. The above strategies constitute a PBE as long as type r village heads do not have incentives to deviate. This is the case if the following condition holds:

$$p(E^*)(Z - \underline{U}) - \overline{\alpha} C(\widehat{e}) \geq \left(1 - p(E')\right)(Z - \underline{U}) - \underline{\alpha} C(|e_r'|) \tag{11}$$

$$\pi \geq \frac{1}{2}\left(1 - g(E^*) - g(E')\right) + \frac{\overline{\alpha} C(\widehat{e}) - \underline{\alpha} C(|e_r'|)}{2\psi\,[Z\text{-}\underline{U}]} \tag{12}$$

where e_r' is type r optimal deviation,[16] $E^* = n\widehat{e}$ is total effort in equilibrium, $E' = [n\text{-}1]\,\widehat{e} + e_r'$ is total effort if a village head type r deviates. The second inequality follows from the first by plugging in the expression for the probability that party D wins the election, given by (8).

A number of features from the above expressions are worth noticing. First, the stronger the underlying support for party D in a district (higher π), the more likely this equilibrium is 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 smaller the differences in costs of effort $\overline{\alpha} - \underline{\alpha}$, the more likely this equilibrium is to exist. Hence, there cannot be strong partisan preferences among village heads; otherwise it would be very costly for village heads type r to support their least preferred candidate.[17]

Since there can be infinitely many levels of effort that satisfy inequality (12), I apply two refinements to the set of equilibria. The level of effort implicitly defined by the following equation satisfies the Intuitive Criterion first formalized by Cho and Kreps (1987). Moreover, it is the only

[15] Notice that, in equilibrium, all village heads of a particular type exert the same level of effort. This result is derived from the symmetry of their optimization problems and it is common to all equilibria described in this paper. In order to minimize notation, often I 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.

[16] e_r' is defined by $e_r' = \underset{e \leq 0}{\arg\max} \{[1 - p([n\text{-}1]\,\widehat{e} + e)]\,(Z - \underline{U}) - \underline{\alpha} C(|e|)\}$.

[17] Condition (12) provides two additional insights: The lower the equilibrium, level of effort, $\widehat{e}$, the more likely this equilibrium is to exist. A low required effort minimizes the incentives that type r has to deviate. Finally, the lower is the variance of the valence shock (lower ψ) and the higher are the returns from office relative to the outside option, the more likely is this equilibrium to exist.

pooling PBE that satisfies the Divinity Criterion of Banks and Sobel (1987).[18]

$$\frac{\partial g(ne_d^*)}{\partial E}\psi\left[Z-\underline{U}\right]=\underline{\alpha}C'(e_d^*) \tag{13}$$

The main intuition why this effort level satisfies the above equilibrium refinements is because e_d^* maximizes the ex-ante expected payoffs of type d. Hence, there is no combination of deviation and speech that could make type d better off. On the contrary, type r could reveal his type by undertaking certain deviations, but it is not profitable for him to do so because inequality (11) holds. The following proposition summarizes these results.

Proposition 2. *If condition $\delta > \frac{G-\kappa}{G} > 1-\delta$ is satisfied, for each $\widehat{e} \geq 0$ such that inequality (11) holds, the set of strategies and beliefs specified in (10) constitutes a pooling PBE of this game. Along the equilibrium path, all appointed village heads exert effort $\widehat{e}$ and keep their positions if candidate for mayor D wins the election and are dismissed otherwise. The PBE associated with level effort e_d^* defined by (13) satisfies the Intuitive Criterion and is the unique PBE that satisfies the Divinity Criterion.*

Proof. See the Appendix.

This proposition highlights the fact that, when the proportion of appointed village heads who are party D sympathizers and the population support for party D are high, a pooling equilibrium in which all appointed officials support party D is likely to emerge. Naturally, in the opposite scenario, in which a district has a large fraction of party R sympathizers among village heads and the population (i.e., $1-\delta > \frac{G-\kappa}{G} > \delta$), the most likely equilibrium to emerge is a pooling equilibrium in which all appointed officials give their support to party R. This other pooling equilibrium is symmetric to the one described in Proposition 2, and its derivations are omitted for the sake of brevity. Since the proportion of village heads who are sympathizers of a given party and the support in the population for that same party are likely to be positively correlated, these are the two most likely cases in which pooling equilibria will emerge.[19]

2.2.3 Separating Equilibria

Let us now turn to describing the set of separating equilibria in which each type of village head takes an action perfectly distinguishable from the action of the other type and types are truthfully revealed along the equilibrium path. Consider the following set of strategies and beliefs as a

[18] See the Proof of Proposition 2 in the Appendix for definitions and proofs.

[19] The description of pooling equilibria for other sets of parameters is omitted from the text because of space constraints. It is available from the author upon request.

candidate for separating PBE.

$$\phi_D^*(e) = \begin{cases} 1 \text{ if } e \geq 0 \\ 0 \text{ if } e < 0 \end{cases} \qquad \begin{array}{l} e_i^*(t=d) = e^{*s} \\ e_i^*(t=r) = -e^{*s} \end{array}$$

$$\phi_R^*(e) = \begin{cases} 0 \text{ if } e \geq 0 \\ 1 \text{ if } e < 0 \end{cases} \qquad \mu(t=d|e) = \begin{cases} 1 \text{ if } e \geq 0 \\ 0 \text{ if } e < 0 \end{cases} \tag{14}$$

where e^{*s} is implicitly defined by[20]

$$\frac{\partial g(n(2\delta\text{-}1)e^{*s})}{\partial E}\psi\left[Z - \underline{U}\right] = \underline{\alpha}C'(e^{*s}) \tag{15}$$

The following additional conditions ensure that a particular type d village head does not want to pretend to be type r by deviating to a negative level of effort, and vice versa.

$$\pi \geq \frac{1}{2}\left(1 - g(E^{*s}) - g(\widetilde{E}_d)\right) - \frac{\overline{\alpha}C(|\widetilde{e}_d|) - \underline{\alpha}C(e^{*s})}{2\psi(Z\text{-}\underline{U})} \tag{16}$$

$$\pi \leq \frac{1}{2}\left(1 - g(E^{*s}) - g(\widetilde{E}_r)\right) + \frac{\overline{\alpha}C(\widetilde{e}_r) - \underline{\alpha}C(e^{*s})}{2\psi(Z\text{-}\underline{U})} \tag{17}$$

where $E^{*s} = n(2\delta - 1)e^{*s}$ is total effort in equilibrium; $\widetilde{E}_d = [n(2\delta\text{-}1)\text{-}1]\, e^{*s} + \widetilde{e}_d$ is the total effort if a type d village head deviates; and $\widetilde{E}_r = [n(2\delta\text{-}1)\text{+}1]\, e^{*s} + \widetilde{e}_r$ is the total effort if a type r village head deviates.[21]

Proposition 3. *If conditions (16) and (17) hold, the set of strategies and beliefs specified in (14) constitutes a separating PBE of this game. In this equilibrium, type d appointed village heads exert effort e^{*s} as defined by (15), type r appointed village heads exert effort $-e^{*s}$, mayor D only retains appointed village heads who exerted effort e^{*s}, and mayor R only retains appointed village heads who exerted effort $-e^{*s}$. This equilibrium satisfies the Intuitive Criterion and is the unique PBE that satisfies the Divinity Criterion.*

Proof. See the Appendix.

A number of features are worth noticing from this proposition. First, π, the underlying strength of party D 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 possibilities of winning the election. Otherwise, some village heads would have strong incentives to deviate by pretending to be supporters of the likely

[20] Notice that, given the specified out of equilibrium beliefs, mayor D will retain any village head who exerts a positive level of effort. Therefore, the equilibrium effort of type d needs to maximize his ex-ante expected payoffs when the effort of the rest of village heads is taken as given. The same is true for type r. This is the case when they exert the level of effort defined by condition (15).

[21] $\widetilde{e}_d$ is defined by $\widetilde{e}_d = \arg\max_{e<0}\{[1 - p([n(2\delta\text{-}1)\text{-}1]\, e^{*s} + e)]\,(Z - \underline{U}) - \overline{\alpha}C(|e|)\}$ and $\widetilde{e}_r$ is defined by $\widetilde{e}_r = \arg\max_{e\geq 0}\{p\,([n(2\delta\text{-}1)\text{+}1]\, e^{*s} + e)\,(Z - \underline{U}) - \overline{\alpha}C(e)\}$

winner. Second, notice that for separating equilibria to exist, there must be strong enough partisan differences among village heads, that is, $\overline{\alpha} - \underline{\alpha}$, needs to be high enough. Finally, the lower the variance of the valence shock (lower ψ) and the higher the returns from office relative to the outside option, the less likely this equilibrium is to exist.

2.3 Average Level of Effort and Summary of Empirical Predictions

With the objective of obtaining empirically testable predictions, next I investigate how the average level of effort of appointed village heads in each district depends on the characteristics of the district and of the mayoral electoral contest.

Proposition 4.

1. *If condition* $1-\delta > \frac{G-\kappa}{G} > \delta$ *holds and* π *is low enough,*[22] *a pooling PBE emerges in which all appointed village heads exert effort to support party* R*. The average effort of appointed village heads is* $-e_d^* < 0$ *where* e_d^* *is defined by (13).*

2. *If* π *takes intermediate values —inequalities (16) and (17) hold— a separating PBE emerges. The average effort of appointed village heads is* $(2\delta\text{-}1)e^{*s}$ where e^{*s} is defined by *(15).*

3. *If condition* $\delta > \frac{G-\kappa}{G} > 1-\delta$ *holds and* π *is high enough —inequality (11) is satisfied— a pooling PBE emerges in which all appointed village heads exert effort to support party* D*. The average effort of appointed village heads is* $e_d^* > 0$ *where* e_d^* *is defined by (13).*

Proof. The derivations of Statement 1 are omitted. Statements 2 and 3 follow from Propositions 3 and 2, respectively.[23]■

As Proposition 4 highlights, π, the relative strength of party D in a district, plays a crucial role in determining whether a pooling or a separating equilibrium emerges. The intuition for this result is straightforward: when one of the parties has a very strong underlying support (π is very high or very low), a pooling equilibrium emerges because all appointed village heads want to pretend to be sympathizers of the likely winner. If, instead, the election is expected to be contested (π takes intermediate values) each appointed village head supports his preferred candidate and a separating equilibrium emerges.

In addition, it is likely that the relative strength of parties in a district affects the level of effort of appointed village heads through other channels. With the objective of obtaining more specific predictions, I incorporate two additional assumptions.

[22] The derivation of Statement 1 is omitted from the text because it is analogous to Proposition 2. The relevant inequality is $\pi \leq \frac{1}{2}\left(1 - g(n\widehat{e}) - g((n\text{-}1)\widehat{e}+e'_d)\right) + \frac{\underline{\alpha}C(e'_d) - \overline{\alpha}C(|\widehat{e}|)}{2\psi(Z-\underline{U})}$ where $e'_d = \arg\max_{e\geq 0}\{p((n\text{-}1)\widehat{e}) + e)(Z-\underline{U}) - \underline{\alpha}C(e)\}$

[23] Proposition 4 focuses on the set of equilibria that satisfies the Intuitive Criterion and the Divinity Criterion.

First, I assume that the impact of effort to influence voters on the electoral results also depends on the relative strength of parties. To capture this, let function $g(.,.)$ depend on π, as well as on E. In particular, $g(E,\pi) = E \cdot h(\pi)$ where $h(\pi)$ is a twice differentiable function satisfying $h'(.) > 0$ if $\pi < \frac{1}{2}$, $h'(.) < 0$ if $\pi > \frac{1}{2}$ and $h''(.) < 0$, and is therefore maximized when $\pi = \frac{1}{2}$. The modified $g(.,.)$ function captures the idea that the aggregate level of effort E will have a higher marginal effect on the probability that party D wins the election, when the election is expected to be contested $\pi \approx \frac{1}{2}$. Intuitively, when the underlying support for the two parties in the population is even, it is more likely that the effort of local officials makes the realized vote share pass the $\frac{1}{2}$ threshold, leading to a larger effect on the probability that one of them will win.[24]

Under this additional assumption it is straightforward to see that the levels of effort defined by (13) and (15) are equal to $e^*(\pi) = C'^{-1}\left(\frac{\psi(Z-\underline{U})}{\underline{\alpha}} h(\pi)\right)$ which follows an inverse U-shape maximized at $\pi = \frac{1}{2}$.

Second, I assume that δ, the fraction of village heads who are sympathizers of party D, is positively correlated with π, the fraction of the population that are sympathizers of party D. This is a natural specification, since village heads are a subgroup of the district population and, hence, may have some similar ideological composition. Nevertheless, incumbent appointed village heads are not a random sample of the population, since they were appointed by the dictator's party (party D) during the nondemocratic regime. Therefore, I also assume that in any district, the proportion of village heads who are party D sympathizers outnumbers their population counterpart, i.e., $\delta(\pi) > \pi$ $\forall\pi$. Figure 1 provides a graphic representation of these two additional assumptions.[25] Result 1 summarizes these assumptions and 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 $\pi > \frac{1}{2}$, $h''(.) < 0$, $h(0) = h(1) = 0$
2. $\delta(\pi)$ satisfies $\delta'(.) > 0$ and $\delta(\pi) > \pi$ $\forall\pi$

the average level of effort of appointed village heads, described in Proposition 4, follows a pattern similar to the one described in Figure 2.[26]

A number of aspects from Figure 2 are worth highlighting. Notice that, even when the equilibrium is separating, the high proportion of appointed village heads who are supporters of the

[24] Indeed, the fact that the levels of effort, as defined by (13) and (15), do not depend on π is an artifact of assuming a uniform distribution of the valence shock. A more general distribution of the valence shock with mode at 0 will endogenously lead to an optimal level of effort that depends on π and is maximized around $\pi \approx \frac{1}{2}$. See Section 10.2 in the Online Appendix for a more detailed discussion. I directly specify function $g(.,.)$ to depend on π because it substantially simplifies the algebra, but the intuition remains the same.

[25] Figure 1, Panel A shows the optimal individual effort as a function of the underlying strength of party D, π. Panel B displays the positive correlation between the proportion of village heads who are party D supporters and π.

[26] See Section 10.3 in the Online Appendix for a more detailed discussion of this result and for the way the thresholds of pooling and separating equilibria are modified under these additional assumptions.

dictator's party (party D) can lead to positive average levels of effort. Only if the reformist party is expected to win by a large margin we would expect to unambiguously obtain a negative average level of effort effect (i.e., appointed supporting party R).

Result 1, together with the prediction of zero effort level of elected village heads, leads to the following empirical predictions of the model:

1. In most districts, appointed village heads support more the dictator's party, on average, than do elected village heads.

2. Only in districts where the reformist party is expected to win by a large margin do we expect the opposite to happen: appointed village heads, on average, support more the reformist party than do elected village heads.

3. If assumptions 1 and 2 of Result 1 are satisfied, the average level of effort of appointed village heads, relative to elected village heads depends on the underlying strength of the dictator's party. In particular, it has a heterogeneous pattern similar to the one displayed in Figure 2.[27]

In Section 6 of this paper, I test these empirical predictions with data from the Indonesian first democratic election post-Soeharto. I compare the average differences in support for Golkar, Soeharto's party, between villages with appointed village heads and those with elected village heads, within districts and when the main determinants of voting behavior are controlled for. The empirical results corroborate, to a great extent, the predictions of the model. In particular, the data reflect a heterogeneous pattern similar to the one described in Figure 2. This finding is noteworthy, because most alternative explanations that rely on the existence of unobserved differences between these two types of villages cannot account for this heterogeneous pattern across districts.

3 Overview of the Indonesian Historical Context

3.1 Political Context

The regime of General Soeharto, also known as the New Order, lasted more than 30 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 government-controlled opposition parties were allowed to participate in these elections. Golkar (Functional Groups), Soeharto's electoral machinery, was always the overwhelming winner, achieving vote shares between 63% and 75

[27] Also note that the difference in average effort between pooling and separating equilibria might not be large. 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.

percent. 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 percent, respectively.[28]

Several scholars have pointed out that one of the most important reasons behind Golkar's landslide victories was 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 government on the basis of 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.

In March 1998, the imminent reappointment of Soeharto as President for a seventh consecutive term by his rubber-stamp Parliament sparked protests and riots throughout the country. Discontent with the regime had mounted because of the rampant corruption levels, which in many cases involved Soeharto's own family, together with the economic erosion produced by the Asian economic crisis of 1997. This general lack of confidence made Soeharto lose crucial support, and he was finally forced to step down in May 1998.

After the fall of Soeharto, 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-Soeharto era took place in June of 1999. On the same day, elections were held for the national, provincial, and district legislatures, although there were few split votes.[29] The two parties that were considered most 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 Soeharto'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]

[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 percent of the votes. In the next elections, the nine opposition parties were forced to merge into just two. PNI, Murba, IPKI, Partai Katolik, and Parkindo were forced to form PDI, while NU, Parmussi, PSS, and Peri merged into PPP.

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

[30] PDI-P participated in the New Order elections 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%. Each of the other parties obtained fewer than 2% of

Although the elections seemed fair on the surface, many analysts pointed out that more subtle cooptation 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 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 nonelected members of Parliament, mostly from the military and the security forces.

3.2 Organization of the State and *desa* - *kelurahan* classification

At the time of the first democratic election, Indonesia was divided into 27 provinces and each province was divided into districts, of which there were 306.[32] Even though there have been changes 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.[33] 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. *Kelurahan* could be formed in *kota* districts, in the capital of *kabupaten* districts, and in the surroundings of 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

the votes.

[32] The number of districts substantially increased in the decentralization period: from 306 in 1999 to 434 in 2003.

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

of them was quantitative or strictly enforced.[34,35]

Despite the fact that *kelurahan* villages are, on average, more urban than *desa* villages, certain aspects of the process of *kelurahan* formation generate some overlap between the two village categories in terms of their observable characteristics. As previously mentioned, *kelurahan* were formed in the surroundings of the capital of the subdistrict, even in rural districts.[36] These *kelurahan* are quite rural in terms of their observable characteristics. Also, in 1992, the Ministry of Home Affairs stopped the natural conversions of *desa* into *kelurahan* as they became more urban (Niessen 1999).[37] This leads to the existence of some villages in our sample are classified as *desa* despite being quite urban based on their observable characteristics.

Desa and *kelurahan* villages have some differences regarding their village government structure. The village head of *desa* is elected by villagers every 8 years for a maximum of 2 terms,[38] 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 Soeharto'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 right to appoint the *kelurahan* heads in that district. During Soeharto'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 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) provided extensive rights to the heads of the districts to make decisions on the careers of appointed village heads and other civil servants. In particular,

[34] In order to obtain more details on how this classification was conducted, in June 2009, I interviewed several high-ranking officials of the Ministry of Home Affairs, in Jakarta, who were involved in the classification. They pointed out that they did not follow any more specific criteria 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 these officials, all areas were treated equally and they only considered the level of urbanness for *kelurahan* formation. (This is corroborated by my data analysis, as discussed in section 7.1: I do not find evidence that the urbanness requirements for being classified as *kelurahan* were different across districts on the basis of strength of Golkar in the district). The ministry officials also mentioned that the main constraint for *kelurahan* formation was the additional financial burden for the central government, since the *kelurahan* head has the status of civil servant and has to be on the government payroll.

[35] Some of the requirements for *kelurahan* formation were having good communications and transportation systems, good facilities, a population larger than 2,500 habitants, and having "urban traits".

[36] For further details see Indonesia Ministry of Home Affairs Regulation No. 5 of year 1982.

[37] The reason provided by the Ministry of Home Affairs for this change in policy was the financial cost of the conversion of *desa* into *kelurahan.*

[38] With the implementation of Law no. 22 of 1999, the term length of *desa* heads was changed to 5 years with a maximum of two terms of service (Article 96).

districts heads were given rights to conduct appointment, transfer, dismissal, stipulation of pension, salary, and other benefits.[39] Hence, it is very likely that, in this context, *kelurahan* heads were particularly concerned about the electoral outcome of the first democratic election at the district level.

3.3 Local Politics and Persistence of Patronage Networks Post-Soeharto

Many authors have highlighted the fact that practices of voter cooptation and the presence of patronage networks have persisted after the fall of Soeharto (see King 2003; Antlöv 2004; 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 Soeharto 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. (p.711)

Furthermore, some scholars argue that vote buying has become an even more extended practice post-Soeharto: 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. The 2009 "Special Report on Indonesia," published by *The Economist*, argues that these mechanisms have persisted to a great extent.

> 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 mechanisms of voter cooptation that village heads had during the Soeharto regime had largely persisted, and therefore were likely to be present at the onset of the first democratic election.

4 The Data

4.1 Data Sources

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

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

and the data contain information on a wide variety of village characteristics. For the purpose of this paper, I use the 1996, 2000, and 2003 waves.

The 2003 wave contains information on the 1999 Parliamentary election at the village level. In particular, it contains the ranking of the three most voted parties in the village in the previous legislative election. Unfortunately, information about the vote shares of each party at the village level was not reported in the survey, but the ranking of the three most voted parties serves as an approximation. The village characteristics used as controls are obtained from the 1996 wave, since this is the wave prior to the election that is the closest to the election.

The data on the electoral results at the district level were provided by the Electoral Commission of Indonesia (*Komisi Pemilihan Umum, KPU*). These data contain the vote shares obtained by each party at the district level.[40] Additional data sources used for some of the robustness checks are described in the Online Data Appendix (Section 10.4).

4.2 Descriptive Statistics

Table 1 shows the descriptive statistics. Columns 2 and 3 display descriptive statistics for the whole sample, while columns 4 to 7 disaggregate the information by *desa* and *kelurahan* villages. The sample contains 43,394 villages, of which 3,036 are *kelurahan* and 40,358 are *desa*. Each PODES dataset contains approximately 66,000 observations. However, 11,000 of them do not provide an exact match or have some missing information across the three different PODES waves. In addition, in order to ensure that my results are not driven by few observations, I exclude from the analysis districts in which there are fewer than 5 *desa*, or fewer than 5 *kelurahan*. This reduces the sample by 12,000 additional observations.[41] The reason why so many observations are dropped is that, in some urban districts or *kota*, all the villages are *kelurahan*. For instance, this is the case of the capital city of Jakarta. In some other rural districts, or *kabupaten*, all the villages are *desa* (e.g., Jombang, in East Java). Since my empirical strategy compares *desa* and *kelurahan* within districts, the lack of enough variation of these two types of villages hinders the estimation of the effect on those districts. Fortunately, in most districts, there is a sufficient amount of variation to permit undertaking a relevant econometric comparison. In particular, the baseline sample contains information on 199 districts.

A comparison between columns 4 and 6 shows that *kelurahan* and *desa* differ on several dimensions. This highlights the importance of controlling for a wide set of characteristics for the validity of the empirical analysis. The first ten rows correspond to the electoral results at the village level for the 1999 Parliamentary election. As we can see, both Golkar and PDI-P are, on average, more likely to win in *kelurahan* than in *desa* villages. In contrast, the other smaller parties are more

[40] The village-level electoral results reported in PODES are broadly consistent with the district-level electoral results reported by KPU.

[41] See the Data Appendix (Section 10.4) for further details.

likely to win in *desa* villages. Next, we can see the descriptive statistics of the geographic characteristics. As expected, *kelurahan* villages tend to be more urban than *desa*. 62% of *kelurahan* are classified as urban according to the Statistics Agency of Indonesia, whereas only 6% of *desa* belong in this category. Compared with *desa*, *kelurahan* villages tend to have fewer households whose main occupation is in agriculture, a smaller percentage of village land dedicated to agricultural uses, a larger population, a greater population density, and they tend to be closer to the capital of the subdistrict. However, notice that the average *kelurahan* in our sample is still quite rural: 48% of land is devoted to agricultural activities, and almost 40% of *kelurahan* are classified as rural according to an alternative definition of the statistics agency. This is important for the empirical strategy because it highlights that there is enough overlap between *desa* and *kelurahan* in terms of their observable characteristics. Regarding the religious controls, we observe that, in general, *desa* villages tend to have a higher number of religious facilities per capita. Although this finding is likely to be mainly driven by the fact that *desa* villages are more sparsely populated, controlling for religious attitudes is also important for the empirical analysis. Finally, *kelurahan* tend to have a higher number of TVs, and a higher number of health and educational facilities per capita. The only exception is the number of primary schools per capita, which is higher in *desa* villages. Again, this is likely to be driven by *desa* villages being more sparsely populated. Since all these characteristics may be important determinants of voting behavior, I control for them all in my preferred econometric specification.

The next set of rows displays the descriptive statistics of some of the additional controls used in the robustness checks. 9% of *kelurahan* villages experienced some conflict in 2003, compared with 5% of *desa* villages. *Kelurahan* are substantially more likely than *desa* to have a resident who is a member of the army. *Kelurahan* are also 13 percentage points more likely to have a police station. These differences are likely to be a result of *kelurahan* being formed in the surroundings of the capital of the subdistrict. However, since this could reflect differences in the underlying opposition to Golkar or a different occupational composition in these two types of villages, it is important to verify that the results are robust to these additional controls. Interestingly, *desa* and *kelurahan* do not differ on the change in health facilities or the change in sources of funding during the decentralization period. Finally, the tables at the bottom provide some additional statistics regarding the number of administrative subdivisions and the district electoral results.

5 Empirical Strategy

The model presented in section 2 leads to a number of predictions regarding the average level of effort to influence voters that appointed village heads exert relative to the effort of elected village heads. Unfortunately, there are no available direct measures of the effort that village heads exert to influence voters. Instead, the strategy that I follow in order to test the validity of the predictions

of the model relies on comparing the electoral results of *desa* and *kelurahan*, within districts and controlling for the main determinants of voting behavior. The differences in the electoral outcome between these two types of villages, once a host of factors have been controlled for, can presumably be attributed to the different campaigning efforts of the village leaders. Given the important role that local officials played in the determination of the electoral outcome during the Soeharto period elections, it is likely that village heads still had ways to substantially influence the electoral result in the first democratic election.

As I will discuss in the next section, these differences in electoral outcomes that could proxy for the relative effort of appointed versus elected village heads, vary across districts in the same way than the theory predicts. Moreover, as I describe in the robustness checks section, these differences cannot be explained by any of a number of alternative competing explanations.

5.1 Econometric Specifications

Three different econometric methods are used in this empirical study: linear probability model (henceforth LPM), probit model, and propensity score matching.

The LPM specification takes the following form:

$$\Pr(y_{vd} = 1) = \beta k_{vd} + \delta_d + \mathbf{X}'_{vd}\boldsymbol{\theta} + \varepsilon_{vd} \tag{18}$$

where y_{vd} is a dummy that takes value 1 if party y obtained the highest number of votes in the 1999 parliamentary election in village v that belongs to district d; k_{vd} is a dummy that takes value 1 if the village v in district d is a *kelurahan* (i.e., it has an appointed village head) and 0 if it is a *desa*; δ_d are district fixed effects; and $\mathbf{X}'_{vd}$ are a set of village covariates. The main coefficient of interest is β, since it estimates the within-district difference in the probability of party y being the most voted party in the village between *kelurahan* and *desa* of similar characteristics.

The second method I use is a probit model that estimates the following equation:

$$\Pr(y_{vd} = 1) = G(\beta k_{vd} + \delta_d + \mathbf{X}'_{vd}\boldsymbol{\theta} + \xi_{vd}) \tag{19}$$

where $G(.)$ is the cumulative distribution function of the standard normal.

Finally, the third method I use is propensity score matching, first introduced by Rosenbaum and Rubin (1983). This method compares the differences in the outcome of interest between treatment and control units with a similar probability of being treated. In our context, this method compares the differences in the probability of party y being the most voted party in *kelurahan* and *desa* that have a similar probability of being classified as *kelurahan* on the basis of their observable characteristics. This method estimates the average treatment effect as long as the following two conditions hold:

$$\text{(Unconfoundendness given the propensity score)} \quad (y_{vd} = 0, y_{vd} = 1) \perp k_{vd} \mid p(X_{vd},\ \delta_d)$$

$$\text{(Overlap)} \quad 0 < \ p(X_{vd}, \ \delta_d) < 1$$

where $p(X_{vd}, \delta_d)$ is the propensity score or the probability of receiving treatment (being a *kelurahan*) conditional on the covariates and the district dummies.[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, and hence the results are analogous to those of LPM. 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, the sample is restricted to those observations for which there is sufficient overlap of the estimated propensity score between the two comparison groups. Third, the sample of villages is divided into five subgroups depending on the percentile of the propensity score distribution in their district. Each of these groups is assigned a dummy variable.[43] Then I interact these dummies with the full set of district fixed effects. Finally, the dependent variable of interest is regressed 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.[44]

In order to evaluate whether the overlap condition is satisfied in the data, I visually examine the propensity score estimates. Figure 3, panel A, displays the distribution of the estimated propensity score for *kelurahan* villages and panel B displays the distribution for *desa* villages.[45] In panel A we observe that there is substantial heterogeneity in the urban characteristics of *kelurahan.* Most of *kelurahan* have a propensity score close to 1, but there is a considerable amount of dispersion in the propensity score estimates and an important fraction of them have a propensity score close to 0. This latter set of *kelurahan* are quite rural in terms of their observable characteristics. This is consistent with the nature of the process of *kelurahan* formation: as described in Section 3.2, even in very rural districts *kelurahan* were formed in the surroundings of the capital of the subdistrict.

In panel B, we also observe that there are a considerable number of *desa* villages with quite high propensity score estimates. This is also consistent with our earlier discussion, which described the way the natural conversion of villages from *desa* to *kelurahan* as they become more urban stopped

[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] 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.

[44] The first stage of the propensity score estimation can be seen in Table A.1 in the Online Appendix. The three different columns correspond to different sets of covariates included in the first stage. As expected, all the covariates that measure the level of urbanness are positively and significantly correlated with the probability of being a *kelurahan.*

[45] The propensity score estimates correspond to the model that includes geographic, religious, and facilities controls in the first stage (column (3) in Table A.1 in the Online Appendix). The results are similar for the other two propensity score specifications.

in 1992. This can explain why we observe *desa* villages with high propensity score estimates.[46]

The comparison between panel A and panel B highlights the fact that there is enough overlap in the baseline sample. Therefore, there is no need to drop any additional observations for the validity of the propensity score estimation.

6 Results

6.1 Baseline Results

Next I examine the results when the dependent variable is a dummy that takes value 1 if Golkar, Soeharto's party, is the most voted party in the village. Although the model presented in Section 2 leads to heterogeneous predictions depending on the underlying strength of the two main parties at the district level, I first examine the average effect across districts. Table 2, panel A presents the results of the LPM; panel B presents the probit estimation; and panel C shows the results of the block propensity score matching estimation.[47]

Column 1 shows the raw difference in voting patterns between *desa* and *kelurahan* when no controls or fixed effects are included. Both the LPM and the probit results lead to a statistically significant difference. However, as column 2 shows, this result vanishes once district fixed effects are included. This is not surprising, given the large geographical differences in support for different parties across Indonesia. Interestingly, once geographic controls are included, the difference in voting behavior between *desa* and *kelurahan* becomes significant at the 1% level, as shown in column 3. This highlights the fact that, once we are comparing *desa* and *kelurahan* with a similar level of urbanization, there are significant differences in their voting behavior. The LPM results suggest that, on average, Golkar was 5.75 percentage points more likely to win in villages with an appointed village head (*kelurahan*) than in similar villages with an elected village head (*desa*). Given that the mean of the dependent variable for *desa* villages is 0.32, this means that Golkar was 18% more likely to win in a *kelurahan* than in a similarly urbanized *desa*. The probit and propensity score matching estimates are slightly larger in magnitude but broadly consistent with the LPM results: the probit estimates suggest that Golkar is 10 percentage points more likely to win in *kelurahan* than in similar *desa*, while this difference is 8.4 percentage points according to the propensity score matching results.

Column 4 displays the results when additional controls for the number of religious facilities are included. Column 5 further controls for the number of health and educational facilities per capita. Remarkably, neither the magnitude nor the significance of the results is affected by controlling for

[46] Notice that Panel B only displays *desa* villages with propensity score estimate higher than 0.1. This is done in order to observe the graph at a larger scale. There are 39,564 *desas* with propensity score estimate lower than 0.1.

[47] Notice that the use of covariates is necessary to estimate the propensity score. This is the reason why there is no estimation of the propensity score model in columns 1 and 2.

this additional host of variables. This holds for the three alternative estimation methods. This finding is important for at least two reasons. First, the significant differences in voting behavior between *desa* and *kelurahan* cannot be accounted for by differences in religious intensity or availability of public goods. As I will discuss in further detail below, these remaining differences in electoral results, after controlling for the main determinants of voting, may reflect different campaigning efforts of the two types of village heads. Second, the finding that the coefficient on the *kelurahan* dummy does not change once covariates unrelated to geographical characteristics are included, suggests that the classification of villages as *desa* and *kelurahan* was fundamentally driven by observable geographic characteristics. This mitigates the potential concern of endogeneity in the formation of *kelurahan* which will be addressed in further details in the robustness checks section.

Table A.2 in the Online Appendix displays the coefficients on the different set of covariates included in these regressions.[48] Although the results do not change much once geographical controls are included, in the remainder of the paper, I focus on the most conservative specification, that is, the specification that includes geographic, religious, and facilities controls (column 5).

6.2 Heterogeneous Effects

The model presented in Section 2 leads to different predictions about the average level of effort exerted by appointed village heads, compared with the effort of elected village heads, depending on the relative strength of parties at the district level. These predictions are summarized in Figure 2. The main reason why the theory leads to heterogeneous predictions is that the incentives for appointed village heads to signal sympathies for a particular party crucially depend on the expectation of who is going to be the district mayor in the next term.

Indonesia is the ideal setting to test the heterogeneous predictions of the model. As documented in Section 3.2, district mayors were granted extensive rights over the appointment of and stipulation of benefits for appointed village heads just one month before the election. Hence, it is natural that *kelurahan* heads were particularly concerned about the electoral results at the district level.[49] Indonesia also has important and well-documented regional differences in terms of the relative

[48] The coefficients on some of the controls are also noteworthy. The number of mosques per thousand people is strongly correlated with votes 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 may have realized their returns in the 1999 election. In contrast, PDI-P has some affinities to Christian groups, which may 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 Soeharto period.

[49] It is important to keep in mind that the 1999 election selected the national, provincial, and district legislatures. There were no direct elections for the district mayor. However, according to the theoretical model presented in section 2, what determines the incentives of appointed village heads is their expectation of what candidate is more likely to become the mayor. It is natural to expect that the party that achieves the highest vote share at the district legislature election is the most likely to form the coalition that designates the mayor.

strength of the two main parties. For instance, Sulawesi was the stronghold of Golkar, were it achieved vote shares of around 60% in the 1999 election. In contrast, PDI-P obtained landslide victories in the province of Bali: PDI-P obtained a vote share of 62% in Jembrana and vote shares above 75% in the other seven districts of Bali.

In order to evaluate the heterogeneous predictions of the theory, I estimate the econometric models specified in Section 5.1 in different sets of districts, depending on the relative strength of the two main parties. Unfortunately, there are no available measures of the expected district electoral results at the time of the electoral campaign. I use the actual vote share of the different parties as a proxy for its expectation. Although there may have been more uncertainty in districts with more contested elections, in districts that were strongholds of one of the two main parties, the results were largely anticipated.

In particular, I estimate the different econometric models on different subsamples, depending on whether PDI-P or Golkar won and whether the margin of victory was large (higher than 10 percentage points) or small (lower than 10 percentage points). 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* differ across districts depending on the electoral result at the district level.

Table 3 shows the results. The dependent variable in columns 1 to 6 is a dummy that takes value 1 if Golkar is the most voted party in the village. The dependent variable in columns 7 to 12 is a dummy that takes value 1 if PDI-P is the most voted party in the village. Columns 1 and 7 show the results in the whole sample, while the rest of the columns correspond to different subsamples of districts, depending on the electoral result at the district level.

As we can see from columns 2 to 5, the average effect of *kelurahan*, voting more than *desa* for Golkar is driven by districts in which Golkar won, while it is absent in districts in which PDI-P won by a large margin. We also observe Golkar having a higher probability of winning in *kelurahan* in districts where PDI-P won by a tight margin (column 3), but this is not robust across econometric specifications.[50]

Columns 7 to 12 show the results of the estimation of the same econometric model when the dependent variable is a dummy that takes value 1 if PDI-P is the most voted party in the village. As we can see, although not consistently statistically significant, PDI-P is less likely to win in *kelurahan* villages in districts were Golkar wins the election. However, column 8 highlights that this effect is reversed in districts in which PDI-P wins by a large margin. In those districts, PDI-P

[50] Nevertheless, notice that the positive coefficient of column 3 is not at odds with the predictions of the theory. As Figure 2 shows, the average effort of appointed village heads relative to elected village heads can be positive to the left of the 50 percent vote share threshold. This is driven by the overall higher proportion of appointed village heads who are party D sympathizers.

is between 3.7 and 4.8 percentage points (depending on the econometric model) more likely to win in *kelurahan* than in similar *desa*. Although this result is only statistically significant at the 10% level for the LPM, the probit and propensity score matching results are significant at the 5% and 1% level, respectively. More important, this result is robust to the inclusion of a host of additional controls, as will be further discussed in the robustness check section. This result is consistent with the model presented in Section 2, which predicts that appointed village heads will unambiguously exert effort to signal their alignment to the party that is expected to win by a large margin.

Also consistent with the model, in districts in which neither PDI-P nor Golkar wins the election, no clear pattern emerges regarding whether Golkar or PDI-P is more likely to win in *kelurahan* or in *desa*.[51]

In order to further explore these heterogeneous results, and to avoid relying on an ad hoc decision regarding what constitutes a large versus a tight margin of victory, I estimate the difference in the probability that Golkar is the most voted party in *kelurahan* and *desa* for each district. In particular, for each district, I regress the dummy that takes value 1 if Golkar is the most voted party in the village on the *kelurahan* dummy and the geographic, religious, and facilities covariates.[52] Then I plot the coefficients on the *kelurahan* dummy against a measure of Golkar's margin of victory at the district level.[53] The result of this exercise is shown in Figure 4. Finally, in order to evaluate whether, on average, the *kelurahan* coefficients follow a pattern similar to the one in Figure 2, I estimate a nonparametric cubic spline regression.[54] The result is also displayed in Figure 4.

As Figure 4 shows, there is a heterogeneous pattern of the results across districts that is remarkably similar to the one predicted by the model and summarized in Figure 2.[55] This graph also highlights the fact that, in districts with contested elections, there is substantial variation in terms of the coefficients on the *kelurahan* dummy, but far smaller variation when one of the parties wins by a large margin.

Overall, the empirical evidence suggests that the electoral outcome of *kelurahan* villages tends to align with the electoral outcome at the district level to a greater extent than does the electoral outcome in *desa* villages. This holds even when controlling for the main determinants of voting.

[51] Although some of the coefficients are statistically significant they are not robust across econometric specifications and robustness checks.

[52] In order to allow for a more flexible specification, each of these regressions is estimated by nearest neighbor propensity score matching with replacement.

[53] Golkar's margin of victory is equal to the vote share of Golkar minus the vote share of the second most voted party, if Golkar won, and it equals the vote share of Golkar minus the vote share of the most voted party if Golkar lost.

[54] For this estimation I take each pair of *kelurahan* coefficient and Golkar's margin of victory, as an observation. In other words, I fit a cubic spline to the scatterplot shown in Figure 4.

[55] Recall that the predictions summarized in Figure 2 emerge when the two additional assumptions summarized in Figure 1 are incorporated. The considerable fit of the predictions of the model to the empirical pattern, reinforces the validity of these two assumptions.

Moreover, the pattern of *kelurahan* alignment is clearer when the party that wins at the district level does so by a large margin. The model presented in Section 2 provides an intuitive interpretation of this empirical pattern: *kelurahan* heads have stronger incentives than *desa* heads to signal their alignment to the party that is expected to win at the district level. This is so because the continuity of appointed village heads in their positions depends on the decision of the upcoming district government. In contrast, the alignment incentives are weaker for elected village heads because the continuity in their positions depends mainly on their constituents and to a lesser extent on upper levels.

The heterogeneous results described in this section are particularly noteworthy because alternative hypotheses that rely on unobserved characteristics of *kelurahan* and *desa* that affect their intrinsic voting attitudes cannot account for this empirical pattern. Nevertheless, since omitted factors can still invalidate the analysis and lead to biased estimates, I investigate the robustness of the results to the inclusion of a host of other factors.

Finally, there are other alternative hypothesis that could explain the stronger alignment of *kelurahan* with upper levels —for instance, higher targeted transfers to aligned *kelurahan* than to aligned *desa*. In the next section, I also document the lack of supporting evidence for these alternative explanations.

7 Robustness Checks

7.1 Endogenous Selection of *Kelurahan*

A first concern for the empirical results is that the classification of villages between the *kelurahan* and *desa* categories is driven by political considerations. Since *desa* villages were allowed to elect their village heads, it is likely that the Soeharto regime was reluctant to classify as *desa* those where there was a strong opposition to the regime. This is unlikely to explain the empirical results of the paper for several reasons. First, the described results rely in a within-district comparison. Hence, the actual concern would be that the Soeharto government classified as *kelurahan* those villages with a relatively stronger opposition to the regime within a district. Second, this sort of strategic village classification would bias downward the average results. In this case, the results presented in Table 2 would constitute a lower-bound estimate. Third, this pattern of endogenous village classification cannot account for the heterogeneous result described in Table 3. In order to explain the heterogeneous results, the Soeharto government would have had to implement a different sort of village classification across districts: in districts where Golkar was strong, *kelurahan* should have been more likely to be formed in areas of the district were Golkar was relatively stronger, but the opposite happened in districts that were PDI-P strongholds (in those districts, *kelurahan* should have been less likely to be formed in areas were Golkar was relatively stronger). This seems unlikely,

since it is difficult to conceptualize what reasons could motivate such a behavioral pattern.

Nevertheless, in order to mitigate the concern of endogenous selection, I conduct a series of robustness checks. First, I examine whether the urbanness requirements for being classified as *kelurahan* systematically differ across districts. Although, as mentioned above, the endogeneity concern emerges from *within*-district manipulation of *kelurahan* formation, one could think that, if the Soeharto regime engaged in these practices, it might also have promoted the formation of *kelurahan* in certain districts. The estimates of the propensity score of being classified as *kelurahan* provide a good measure of these urbanness requirements, because they estimate a probability for each village of being classified as *kelurahan* based only on its observable characteristics.

In order to explore this, I first estimate the propensity score of being classified as *kelurahan*.[56] Then, for each district, I compute the average propensity score among the villages that were actually classified as *kelurahan*. A higher average propensity score of *kelurahan* suggests that the urbanness requirements for being classified as *kelurahan* were higher in that district. Next I explore the correlation between the average urbanness requirements in a district and a measure of Golkar's strength at the time of *kelurahan* classification. As a measure of the latter, I use the vote share that Golkar obtained in the different Parliamentary elections during the Soeharto regime. One additional step is required in this exercise. Recall from Section 3.2 that, because of the features of the process of *kelurahan* formation, the requirements for being classified as *kelurahan* were lower in more rural districts.[57] Since Golkar has traditionally obtained stronger support in rural districts, using raw vote shares for Golkar can lead to misleading conclusions. Hence, as a measure of Golkar strength in a district I use the vote share of Golkar after it has been partialed out by the average level of ruralness of the district.[58]

Figure 5 displays the results of this exercise when using the vote share that Golkar obtained in the 1971 election. As we can see, there is no correlation between the urbanness requirements for being classified as *kelurahan* and support for Golkar. Table A.3 in the Online Appendix shows the results of this exercise when using Golkar vote shares for other Parliamentary elections. None of the estimates of the correlation between urbanness requirements of *kelurahan* and Golkar support are statistically significant. Overall, there is no evidence that the rule for classification of villages as *desa* or *kelurahan* was implemented differently by districts depending political considerations. This mitigates our concern that the process of *kelurahan* formation within districts was endogenous to unobserved political factors.

Still, this approach does not rule out the possibility that *kelurahan* were formed in the areas with

[56] In particular, I estimate the propensity score with a probit model that includes geographic, religious, and facilities covariates. It is important to note that I do not include district dummies in the propensity score estimation. The results are available from the author upon request.

[57] *Kelurahan* were formed in the surroundings of the capital of the subdistrict. It is very likely that those villages were substantially more rural in an overall very rural district than in a more urbanized district.

[58] In particular, by the share of households in the district whose main occupation is agricultural.

higher relative support for Golkar *within* a district. Unfortunately, I do not have a direct measure of support for Golkar at the village level before the first democratic election. An alternative approach consists of examining whether the results are robust to the inclusion of additional controls that can proxy for political preferences or other unobservable variables that the Soeharto regime could have taken into account when conducting the village classification. Panel A in Table 4 reports the result of this exercise. The first row includes controls of whether the village experienced any conflict in 2002, disaggregated by type of conflict (including conflict between villagers and the government apparatus).[59] The second row includes dummy variables for presence of the army and presence of the police in the village. The third row incorporates covariates for the availability of natural resources — in particular, the percentage of households working in the mining sector and type of mining activity in the village.[60]

As we can see, neither the significance nor the point estimates of the *kelurahan* coefficients change when controlling for this additional set of covariates. Moreover, when all the previously mentioned controls are incorporated in the same specification (fifth row), the empirical results remain unaffected — and if anything, they are more precisely estimated. Overall, this suggests that it is unlikely that the potential endogenous classification of villages into *kelurahan* and *desa* can explain the results described in Section 6.

7.2 Changes in Village Resources and Occupational Composition

The results could be confounded if there were other determinants of voting behavior, that were different for *desa* and *kelurahan*, but that were not related to the method of selection of the village heads. For instance, we have seen that *kelurahan* had higher levels of public goods. If there was a process of expansion of public goods during the Soeharto regime, particularly targeting *kelurahan* villages, this could potentially explain the average higher support of Soeharto's party in those villages. In order to explore this possibility, the fourth row of panel A in Table 4 incorporates controls for whether the village was allocated the *Inpres Desa Tertinggal* (henceforth, IDT) poverty alleviation program and the percentage of households that were recipients of the program.[61] As we can see, the results remain unaffected. This is the case even when we combine these controls with the ones described above, as the last row of panel A shows.

Panel B shows the results when adding covariates for the changes in transfers from upper levels

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

[60] See the notes in Table 4 for a list of the additional controls included. The tables showing the coefficients on the additional controls are omitted for the sake of brevity. They are available from the author upon request.

[61] The IDT program was a poverty alleviation program implemented by the central government between 1994 and 1996. Each village selected received 20 million Rupiahs ($8,700) 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.

of government — in particular, the percentage change in transfers to the village from the central, provincial, and district governments between the years 1996 and 2002.[62] Notice that the sample size is substantially reduced because only a fourth of the villages reported their village budgets. This reduces the statistical significance of some of the results, but the magnitude and sign of the estimates is very similar to the baseline estimates.

In panel C, I examine whether the results are driven by differences in the occupational composition of *kelurahan* and *desa*. 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 results. Panel C of Table 4, displays 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, and as a result, the statistical significance of some of the results is also reduced. However, the point estimates show a substantial stability with respect to previous results.

7.3 *Kecamatan* (Subdistrict) Fixed Effects

As an additional check, I verify that the results are robust to the inclusion of *kecamatan* (subdistrict) fixed effects. Villages that are in the same subdistrict are geographically very close to one another; the average distance to the capital of the subdistrict is 7.4 miles (12 kilometers), and subdistricts have, on average, 15.6 villages. Villages within a subdistrict are likely to have substantial similarities in terms of ethnic and socioeconomic composition, and consequently in voting attitudes.

Panel D in Table 4 displays the results with subdistrict fixed effects. The heterogeneous results remain remarkably stable when the restricting the comparison to geographically close *kelurahan* and *desa*. In particular, the coefficient on column 8 remains significant at the 10% level, highlighting the robustness of the reversal effect predicted by the model. The only exception is the coefficient on column 4 that diminishes in magnitude and is no longer statistically significant.

7.4 Democratic Capital Hypothesis

The flip side of the average result presented in Table 2 is that villages with an elected village head (*desa* villages) are less likely to vote for Soeharto's party. An alternative explanation for the average result might be the following: because these villages were able to hold village elections to select their leaders, their citizens might 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 they tended to vote more for reformist parties. Although this hypothesis cannot provide

[62] Information about the village budget was only reported in PODES 1996 and PODES 2003.

a rationale for the heterogeneous result, I examine its validity in this subsection. Nevertheless, it is important to emphasize that village elections were highly controlled by the Soeharto regime: candidates were prescreened by government officials and the election was nonpartisan. Moreover, village elections in *desa* took place every 8 years, while 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 have been small.

In order to test this hypothesis, I examine data from a household survey conducted in 2008 for the project Alatas et al. (2010). 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 5, I explore the differences in the responses to these questions in *desa* and *kelurahan* villages. Column 2 shows the coefficients of specifications with no controls, while column 3 displays the coefficients when controls and district fixed effects are incorporated.

Notice that most of the differences in political participation become insignificant once the covariates of my preferred specification are included. This suggests that these covariates successfully control for the main determinants of voting behavior and political preferences. Still, there are some significant differences: villagers in *kelurahan* are more likely to agree with the statement that most people can be trusted than villagers in *desa*, which is not consistent with the democratic capital hypothesis. Also, *kelurahan* villagers are less likely to vote on the basis of the program of the candidate. Finally, there are no differences in the answers provided by *desa* and *kelurahan* villagers to questions about whether their vote was motivated by performance, religious or ethnic considerations. Interestingly, villagers of *kelurahan* are less likely to think there is a low level of corruption in the village government, which is consistent with the mechanism highlighted in this paper.

Overall, these data do 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 participation in community organizations.

7.5 Endogeneity of the District Electoral Result and Targeting Transfers to Supporters

The last set of robustness checks examines two different hypotheses that, in contrast to the previous ones, can provide a rationale for the heterogeneous results presented in Table 3. The first of these hypotheses relates to the possibility that the district electoral result is endogenous to the electoral results in *kelurahan* villages. If most of the villages in a district are *kelurahan*, the stronger alignment of *kelurahan* villages to the district electoral result could be mechanical: the party that wins in the *kelurahan* villages will also win the district. There are several reasons why this is not the case in

the current context. First, *kelurahan* villages are considerably fewer in number than *desa*: only 7% of the villages in the sample are *kelurahan*. Second, there are only 14 districts in which the number of *kelurahan* is higher than the number of *desa*. Those districts contain a total of 646 villages, which corresponds to a 1.5% of the observations in our sample. And third, dropping those districts does not affect the empirical results.[63]

A second hypothesis that could explain the stronger alignment with *kelurahan* to the district level could be targeted transfers. District mayors might distribute additional transfers or allocate public goods to villages in which they obtained higher support in the election. If district mayors reward villages that are aligned with them, *and* they do so to a greater extent if the village is a *kelurahan*, this could indeed explain the heterogeneous results. If this were the case, the stronger alignment of *kelurahan* to the district electoral result would be driven by voters in *kelurahan* anticipating higher returns on being aligned with the district, than their *desa* neighbors.

In Table 6, I investigate whether there is evidence that upper levels of government reward aligned villages. The variable aligned with district is a dummy that takes value 1 if the most voted party in the village was also the most voted party in the district. Columns 1, 3, and 5 of Panel A show that there is no evidence that villages aligned with the district government obtain additional transfers from upper levels. Next, I incorporate the *kelurahan* dummy and the interaction between *kelurahan* and the alignment dummy. If higher transfers were allocated to aligned *kelurahan*, relative to aligned *desa*, we would expect the coefficient of the interaction to be positive and significant. As Table 6 shows, this is not the case, since the coefficients on the interaction term are close to 0 in magnitude and not statistically significant. A similar picture emerges when studying changes in health and educational facilities between the years 2000 and 2003, as illustrated by panel B. None of the on the interactions is statistically significant at the 5% level. Only the interaction coefficient on *puskesmas* (primary care centers) is only significant at the 10 percent. Overall, the empirical evidence does not support the notion that fiscal transfers or public goods were allocated on the basis of political alignment. Neither do the data support that aligned *kelurahan* received a different treatment in terms of transfers and public goods from aligned *desa* villages.

8 Conclusions

This paper investigates the first general election after the fall of Soeharto in Indonesia from the standpoint of local governments. I find empirical evidence that villages with an appointed village head are more likely to vote for the party that wins by a large margin at the district level. In other words, villages with appointed village heads experience a stronger electoral alignment with the district level, relative to villages with elected village heads.

This result is robust to controlling for the main determinants of individual voting behavior and

[63] The results are omitted for the sake of brevity. They are available from the author upon request.

a host of other variables that could capture underlying political attitudes (religious intensity, level of public goods, incidence of conflict, presence of the army, occupational composition, availability of natural resources, etc.). These results are present in a within-district comparison and even in a within-subdistrict comparison, that is, even when comparing villages geographically very close to one another.

This paper presents a theoretical model that provides an intuitive interpretation for these findings: appointed village heads have stronger incentives to exert effort to manipulate voters because of their political career concerns. Since the designation rights of appointed village heads rest at the district level, appointed village heads have a strong incentive to signal their alignment with the likely winner of the district seat. As long as appointed officials have a lower marginal disutility of effort to support their inherently favorite candidate, effort can serve as a credible signal of political partisanship. In this context appointed officials have a twofold motivation for exerting effort: it can signal political alignment with upper levels, and it increases the probability of victory of the candidate the appointed official is signaling support to. In contrast, elected officials lack this additional incentive to signal their political affiliation with upper levels since the continuity in their positions depends not on the decision of upper levels, but on the will of their local constituents.

I test for other competing explanations that could provide a rationale for this stronger electoral alignment of villages with an appointed village head. In particular, I test for the endogeneity of the district electoral result to the electoral outcome of appointed villages, and for additional returns on being aligned with the district government for appointed villages. I do not find empirical support for any of these alternative hypotheses.

This study provides a number of insights that might be promising ground for further research. First, it highlights the need for a better understanding of the incentives faced by political representatives and government officials in regimes in transition. In contrast to political institutions developed during the nondemocratic regime (such as the size of the army or certain laws and regulations) that persist during the transitional period, the loyalty ties of these officials can suddenly change, given the new political scenario. This is reinforced by the presence of imperfect information regarding real political leanings that characterizes regimes in transition. Second, this paper highlights the fact that a better understanding of clientelism and voter manipulation requires modeling the strategic interaction between different levels of government. This is especially necessary because most countries have some degree of political decentralization, and voter manipulation practices are rooted at the local level. Finally, this paper highlights the fact that nonelected officials have high stakes in the upper-level elections of the office where their own appointment rights rest. This feature needs to be incorporated into the literature of appointed and elected officials, which has traditionally perceived nonelected officials as independent and neutral to electoral concerns.

9 Appendix

9.1 Proof of Proposition 2

First, I provide a formal definition of the solution concept used in Proposition 2.

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

$$\phi_m^*(e_i) \in \arg\max_{\phi} \left\{ \sum_t \mu(t|e_i) V_m^{app}(\phi,t) \right\} \tag{20}$$

$$e_i^*(t) \in \arg\max_{e_i} \left\{ p(E_{-i}+e_i) U_t^{app}(e_i, \phi_D^*(e_i)) + (1-p(E_{-i}+e_i))\, U_t^{app}(e_i, \phi_R^*(e_i)) \right\} \tag{21}$$

where $\mu(t|e_i)$ is derived using Bayes rule (when applicable); $V_m^{app}(\phi,t)$ $m \in \{D,R\}$ are defined by (1) and (2), respectively; $U_t^{app}(e,\phi)$ $t \in \{d,r\}$ is defined by (5); $p(.)$ is defined by (8); and E_{-i} is the aggregate effort level of all village heads other than i, (i.e., $E_{-i} = \sum_{j \neq i} e_j$).

Pooling Perfect Bayesian Equilibria. First, notice that given mayors' optimization problem derived in subsection 2.2.1, it is obvious that the mayors' strategies formulated in this equilibrium are best responses given the specified beliefs. Second, provided that condition (12) holds, type r does not have incentives to deviate. Hence, neither does type d.

Intuitive Criterion. Proposition 2 states that the pooling PBE in which all village heads exert effort level e_d^* 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., $\Theta = \{d,r\}$), and T a subset of Θ. Let $BR_D(T,e)$ be the set of pure strategy best responses of candidate for mayor D given beliefs, $\mu(.|e)$ such that $\mu(T|e) = 1$. That is, $BR_D(T,e) = \bigcup_{\mu:\mu(T|e)=1} BR_D(\mu|e)$ where $BR_D(\mu|e) = \arg\max_{\phi} \sum_t \mu(t|e) V_D^{app}(\phi,t)$. $BR_R(T,e)$ is defined similarly.

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

$$U^*(t) > \max_{\substack{\phi_D \in BR_D(\Theta,e) \\ \phi_R \in BR_R(\Theta,e)}} \left\{ p(E_{-i}+e) U_t^{app}(e,\phi_D) + (1-p(E_{-i}+e))\, U_t^{app}(e,\phi_R) \right\} \tag{22}$$

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

$$U^*(t') < \min_{\substack{\phi_D \in BR_D(\Theta \backslash J(e),e) \\ \phi_R \in BR_R(\Theta \backslash J(e),e)}} \left\{ p(E_{-i}+e) U_{t'}^{app}(e,\phi_D) + (1-p(E_{-i}+e))\, U_{t'}^{app}(e,\phi_R) \right\} \tag{23}$$

then the equilibrium fails the Intuitive Criterion.

Claim 1. Consider the equilibrium stated in Proposition 2 with effort level e_d^*. If $\frac{G-\kappa}{G} > \frac{1}{2}$, for any deviation $e \neq e_d^*$ inequality (22) is satisfied for type d (i.e., $\{d\} \subseteq J(e)$ for $e \neq e_d^*$).

Proof. The equilibrium payoffs of type d are given by $U^*(t=d) = p(ne_d^*)(Z-\underline{U})+\underline{U}-\underline{\alpha}C(e_d^*)$. Next, we examine mayors' best responses and type d deviation payoffs for different out of equilibrium beliefs.

i. $\mu(t=d|e \neq e_d^*) = 1$. In this case, mayors' best responses to deviations are $\phi_D^*(e) = 1$ and $\phi_R^*(e) = 0$ for $e \neq e_d^*$. The deviation payoffs for type d are $U(e|t=d) = p((n\text{-}1)e_d^*+e)(Z\text{-}\underline{U}) + \underline{U} - \underline{\alpha}C(e)$.[64] Hence, the optimal deviation are implicitly defined by the expression below

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

If we take the limit of e when it tends to e_d^*, we find that the above expression is equal to equation (13), in which e_d^* was implicitly defined. In other words, e_d^* is defined such that the optimal deviation of type d, when every other village head is exerting effort e_d^*, is exactly to the level e_d^*. Consequently, when out of equilibrium beliefs are $\mu(t=d|e \neq e_d^*) = 1$, the deviation payoffs are always lower than the equilibrium payoffs.

ii. $\mu(t=d|e \neq e_d^*) = 0$. These are the out of equilibrium beliefs of the candidate for PBE specified in (10). Hence, as long as condition (12) holds, neither type has a profitable deviation.

iii. $\mu(t=d|e \neq e_d^*) = \theta \in (0,1)$. Depending on the values of θ and $\frac{G-\kappa}{G}$ mayors have different best responses.

iii.a. $\theta \geq \frac{G-\kappa}{G} > 1-\theta$. In this case, the best responses to a deviation are $\phi_D^*(e) = 1$ and $\phi_R^*(e) = 0$ if $e \neq e_d^*$. The same discussion as in case i applies.

iii.b. $1-\theta \geq \frac{G-\kappa}{G} > \theta$. Mayors' best responses are $\phi_D^*(e) = 0$ and $\phi_R^*(e) = 1$ if $e \neq e_d^*$. The same discussion as in case ii follows.

iii.c. $\frac{G-\kappa}{G} > \theta$ and $\frac{G-\kappa}{G} > 1-\theta$. Mayors' best responses are $\phi_D^*(e) = 0$ and $\phi_R^*(e) = 0$ if $e \neq e_d^*$. Village head type d deviation payoff is $U(e|t=d) = \underline{U}$, which is lower than equilibrium payoff.

iii.d. $\theta \geq \frac{G-\kappa}{G}$ and $1-\theta \geq \frac{G-\kappa}{G}$. This case it is ruled out by the assumption of $\frac{G-\kappa}{G} > \frac{1}{2}$. I discuss the case in which $\frac{G-\kappa}{G} \leq \frac{1}{2}$ at the end of this proposition.

Therefore, as long as $\frac{G-\kappa}{G} > \frac{1}{2}$, for any possible out of equilibrium beliefs a deviation to $e \neq e_d^*$ is not profitable for type d.■

[64] Deviating to negative values of effort is dominated by deviations to $e \geq 0$.

Next, I check the second part of the Intuitive Criterion. Let us consider deviations in which type d is the only element of set $J(e)$ and, hence, $\Theta \backslash J(e) = \{r\}$.[65] The only out of equilibrium beliefs that could be formed, when restricted to the set of types $\Theta \backslash J(e)$ are $\mu(t = d|e \neq e_d^*) = 0$. This leads to best responses of mayors $\phi_D^*(e) = 0$ and $\phi_R^*(e) = 1$ if $e \neq e_d^*$. In this scenario, type r's deviation payoff is $U(e|t = r) = [1 - p((n\text{-}1)e_d^* + e)]\,(Z\text{-}\underline{U}) + \underline{U} - \underline{\alpha} C(|e|)$. Notice that inequality (11) guarantees that equilibrium payoffs are higher than this deviation payoff, thus, ruling out that type r has a profitable deviation to e. Therefore, we can conclude that, for $\frac{G-\kappa}{G} < \frac{1}{2}$, the Intuitive Criterion is satisfied.

Finally, let us consider the case in which $\frac{G-\kappa}{G} \leq \frac{1}{2}$. In this case, the following out of equilibrium beliefs could be formed: $\mu(t = d|e \neq e_d^*) = \theta$ where $\theta \geq \frac{G-\kappa}{G}$ and $1 - \theta \geq \frac{G-\kappa}{G}$. The resulting deviation best responses of mayors are $\phi_D^*(e) = 1$ and $\phi_R^*(e) = 1$ if $e \neq e_d^*$. In this case, both types would like to deviate from an equilibrium with these out of equilibrium beliefs. Consequently $J(e) = \{\varnothing\}\ \forall e \neq e_d^*$. 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.[66]

In addition to the PBE with effort level e_d^*, there exist other pooling PBE that satisfy the Intuitive Criterion. Consequently, a stronger equilibrium refinement is required. I apply the Divinity Criterion and show that the PBE with effort level e_d^* is the only pooling PBE that satisfies the Divinity Criterion. The formal proof is presented in the online appendix. The main intuition is similar in spirit to the intuition behind the Intuitive Criterion. At pooling PBE different than e_d^*, type d is always infinitely more likely to deviate than type r (more specifically, type d deviation is profitable for a larger set of mixed strategy best responses of mayors). In these other pooling PBE type d has therefore a profitable deviation, upon revision of the mayors' beliefs. Consequently, the pooling PBE unravels. On the contrary, this is not the case for pooling PBE with effort level e_d^*, since type d does not have a profitable deviation for any out of equilibrium beliefs.■

9.2 Proof of Proposition 3

First notice that, given the beliefs specified in (*14*), it is straightforward to see that mayors' strategies are best responses to village heads actions. Second, if condition (16) holds, type d village head does not have a profitable deviation to negative levels of effort. Similarly, if condition (17) is satisfied, village head type r does not have a profitable deviation to positive levels of effort. Third, since, in equilibrium, type d exerts effort e^{*s} defined by equation (*15*) and type r exerts effort $-e^{*s}$, village head type d (r) does not have a profitable deviation to positive (negative) levels

[65] If $J(e) = \{d, r\}$, then $\Theta \backslash J(e) = \{\varnothing\}$ and therefore the second part of the Intuitive Criterion does not hold.

[66] See the online appendix for further discussion and a graphic illustration of the proof of the Intuitive Criterion.

of effort. To see this, let $\widehat{e}_d$ ($\widehat{e}_r$) denote the equilibrium level of effort exerted by type d (type r) in a given separating PBE. Type d's deviation payoffs to an alternative positive level of effort are $U(e \neq \widehat{e}_d | t = d, e \geq 0) = p((n_d\text{-}1)\widehat{e}_d + n_r\widehat{e}_r + e)(Z - \underline{U}) + \underline{U} - \underline{\alpha}C(e)$.[67] At an interior solution, the optimal deviation denoted by e''_d would be implicitly defined by

$$\psi(Z - \underline{U}) \left. \frac{\partial g(E)}{\partial E} \right|_{E=(n_d-1)\widehat{e}_d + n_r\widehat{e}_r + e''_d} = \underline{\alpha}C'(e''_d) \tag{24}$$

Similarly, the optimal deviation of village head type r to a negative level of effort, e''_r, is defined by the negative root of

$$\psi(Z - \underline{U}) \left. \frac{\partial g(E)}{\partial E} \right|_{E=n_d\widehat{e}_d + (n_r\text{-}1)\widehat{e}_r + e''_r} = \underline{\alpha}C'(|e''_r|) \tag{25}$$

In order for village heads not to have a profitable deviation the following has to hold $e''_d = \widehat{e}_d$ and $e''_r = \widehat{e}_r$. Plugging these into equations (24) and (25), we obtain $\widehat{e}_d = e^{*s}$ and $\widehat{e}_r = -e^{*s}$, where e^{*s} is defined by (*15*).

The proof that this equilibrium satisfies the Intuitive Criterion and is the only equilibrium that satisfies the Divinity Criterion is very similar to the one on proposition 2 and is omitted for the sake of brevity. Here I just provide the main intuition. First, notice that since both types are maximizing their ex-ante payoff and revealing their type in equilibrium, there is no combination of deviation and speech that leads to a higher payoff. Hence, equilibrium (*14*) satisfies the Intuitive Criterion. It is also the unique equilibrium that satisfies the Divinity Criterion. Notice that only if $\frac{G-\kappa}{G} \leq \frac{1}{2}$, a separating equilibrium other than the one described in (*14*) can be sustained. For this set of parameters we could have out of equilibrium beliefs $\mu(t = d | e \neq \widehat{e}_d,\ e \neq \widehat{e}_r) = \theta$, where $\frac{G-\kappa}{G} \geq \theta$ and $\frac{G-\kappa}{G} \geq 1 - \theta$. This would lead to out of equilibrium actions of mayors: $\phi^*_D(e) = 1$ and $\phi^*_R(e) = 1$. Only for these out of equilibrium beliefs and strategies a separating equilibrium with levels of effort other than e^{*s} and $-e^{*s}$ can be sustained. It is possible that this alternative separating PBE satisfies the Intuitive Criterion: all the deviations that could potentially make type d better off, also make type r better off, and vice versa. However, this equilibrium does not satisfy the Divinity Criterion because type d is infinitely more likely to deviate to e^{*s} than type r and type r is infinitely more likely to deviate to $-e^{*s}$ than type d. ■

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[67] $n_d = n\delta$ and $n_r = n\,(1 - \delta)$

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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 wins in 1999	43,394	0.32	0.47	0.39	0.49	0.32	0.46
% villages PDI wins in 1999	43,394	0.46	0.50	0.49	0.50	0.46	0.50
% villages PPP wins in 1999	43,394	0.09	0.29	0.05	0.22	0.10	0.29
% villages PKB wins in 1999	43,394	0.09	0.28	0.04	0.19	0.09	0.29
% villages Other Party wins in 1999	43,394	0.04	0.19	0.03	0.18	0.04	0.19
Geographic controls							
kelurahan dummy	43,394	0.07	0.26	1	0	0	0
urban dummy	43,394	0.10	0.30	0.62	0.49	0.06	0.23
% HH in agriculture	43,394	70.09	25.25	31.11	30.67	73.02	22.18
% land in agriculture	43,394	75.53	24.30	48.25	34.72	77.58	22.00
high altitude dummy	43,394	0.28	0.45	0.18	0.38	0.29	0.45
population	43,394	2,952	7,714	6,315	10,922	2,699	7,355
population density (# people / ha)	43,394	1.05	3.38	4.95	9.34	0.76	2.12
distance subdistrict office (km)	43,394	12.26	29.00	2.92	5.64	12.96	29.91
distance district capital (km)	43,394	101.26	155.99	67.85	124.65	103.78	157.81
Religious Controls							
number of mosques§	43,394	1.25	1.43	0.74	0.66	1.29	1.47
number of prayerhouse§	43,394	2.51	3.53	1.23	1.43	2.61	3.62
number of churches§	43,394	0.49	1.39	0.26	0.58	0.50	1.43
number of buddhist temple§	43,394	0.01	0.16	0.02	0.08	0.01	0.17
Facilities Controls							
number of TVs§	43,394	43.91	46.22	97.35	60.64	39.89	42.31
number of hospitals§	43,394	0.003	0.041	0.022	0.083	0.002	0.036
number of maternity hopitals§	43,394	0.004	0.086	0.016	0.091	0.003	0.086
number of polyclinic§	43,394	0.013	0.111	0.031	0.097	0.011	0.112
number of puskesmas§	43,394	0.040	0.183	0.064	0.154	0.038	0.185
number of kindgarden§	43,394	0.165	0.333	0.289	0.288	0.156	0.334
number of primary school§	43,394	1.314	1.538	0.918	0.747	1.344	1.577
number of high school§	43,394	0.174	0.459	0.403	0.524	0.157	0.449
Additional Controls							
conflict in 2003	43,394	0.06	0.23	0.09	0.28	0.05	0.23
army member in Village	43,394	0.40	0.49	0.87	0.34	0.37	0.48
police	43,394	0.06	0.23	0.18	0.38	0.05	0.21
% HH in mining sector	43,394	0.64	3.42	0.76	4.14	0.63	3.36
change in puskesmas 1996 - 1999	43,393	0.33	0.52	0.33	0.61	0.33	0.52
change in central gov funds 1996 - 2002	39,723	-0.39	1.06	-0.48	1.03	-0.39	1.06
change in province gov funds 1996 - 2002	21,140	-0.55	0.92	-0.63	0.84	-0.54	0.92
change in district gov funds 1996 - 2002	18,157	0.31	1.62	0.25	1.45	0.31	1.63

§ Per 1,000 villagers

Additional Statistics

Number of districts	199
Number of subdistricts	2,779
Number of villages per district	218
Number of *kelurahan* per district	15
Number of *desa* per district	203
Number of population per district	643,702

Number of districts by most voted party in the 1999 election

	Most voted	2nd most voted
PDI-P	105	54
Golkar	74	74
PKB	11	29
PPP	8	34
PAN	1	8
TOTAL	199	199

Table 2
Effects of Appointed Official on Support for Golkar

	Dependent variable: Golkar wins in 1999				
	(1)	(2)	(3)	(4)	(5)
	A. Linear Probability Model				
Kelurahan dummy	0.0739***	0.0065	0.0575***	0.0573***	0.0552***
	(0.028)	(0.012)	(0.012)	(0.012)	(0.012)
Observations	43,394	43,394	43,394	43,394	43,394
R-squared	0.002	0.371	0.378	0.381	0.382
Adjusted R-squared	0.0016	0.368	0.375	0.378	0.379
	B. Probit Model				
Kelurahan dummy	0.1995***	0.0287	0.2881***	0.2856***	0.2774***
	(0.074)	(0.054)	(0.056)	(0.055)	(0.055)
Marginal Effect	0.0739***	0.0095	0.1006***	0.0997***	0.0966***
	(0.028)	(0.018)	(0.021)	(0.020)	(0.020)
Observations	43,394	43,027	43,027	43,027	43,027
Log-likelihood	-27,197	-18,447	-18,208	-18,127	-18,104
Pseudo R-squared	0.0013	0.317	0.326	0.329	0.329
	C. Propensity Score Model				
Kelurahan dummy			0.0844***	0.0797***	0.0820***
			(0.010)	(0.011)	(0.007)
Observations			43,394	43,394	43,394
Adjusted R-squared			0.301	0.300	0.301
Geographic Controls	No	No	Yes	Yes	Yes
Religious Controls	No	No	No	Yes	Yes
Facilities Controls	No	No	No	No	Yes
District Fixed Effects	No	Yes	Yes	Yes	Yes

Notes: Robust Standard errors clustered at the district level in parenthesis. 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. Columns (2) to (5) include district fixed effects. Geographic controls include: a quartic in the percentage of households whose agriculture is their main occupation, a quartic in log village population, population density, percentage of land devoted to agriculture, dummy for rural village, dummy for high altitude village, distance to the capital of the subdistrict, and distance to the capital of the district. Religious controls include: number of mosques, churches, prayer houses, and Buddist temples, per capita. Facilities controls include: number of hospitals, maternity hospitals, polyclinics, primary care centers, kindergarden, primary schools, high schools and number of TVs, per capita. Propensity score matching results include a full set of district fixed effects interacted with the propensity score percentile dummies. The different set of controls specified are used in the first stage, i.e. in the propensity score estimation. Standard errors of the propensity results are bootstrapped. *** p<0.01, ** p<0.05, * p<0.1.

Table 3
Heterogenous Effects of Appointed Official on Suppor for Golkar

	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	Neither Won	Whole sample	PDI-P Won Large 1999	PDI-P Just Won 1999	Golkar Just Won 1999	Golkar Won Large 1999	Neither Won
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	A. Linear Probability Model											
Kelurahan dummy	0.0552***	0.0016	0.0764**	0.1277***	0.0441**	0.0677*	-0.0208	0.0370*	-0.0370	-0.0870*	-0.0241	-0.0036
	(0.012)	(0.016)	(0.029)	(0.037)	(0.018)	(0.038)	(0.014)	(0.021)	(0.045)	(0.043)	(0.015)	(0.045)
Observations	43,394	15,430	9,114	5,946	7,378	5,526	43,394	15,430	9,114	5,946	7,378	5,526
Adjusted R-squared	0.379	0.0812	0.167	0.0621	0.110	0.143	0.339	0.0792	0.0782	0.0928	0.103	0.129
Districts	199	70	35	26	48	20	199	70	35	26	48	20
	B. Probit Model											
Kelurahan dummy	0.2774***	0.0580	0.3978***	0.3493***	0.2240**	0.4433**	-0.0539	0.1727**	-0.1023	-0.2749**	-0.1614	-0.0041
	(0.055)	(0.096)	(0.115)	(0.103)	(0.106)	(0.184)	(0.056)	(0.083)	(0.122)	(0.131)	(0.129)	(0.162)
Marginal Effect	0.0966***	0.0098	0.1191***	0.1353***	0.0466**	0.0946*	-0.0213	0.0462**	-0.0408	-0.0755**	-0.0280	-0.0009
	(0.020)	(0.017)	(0.039)	(0.038)	(0.020)	(0.049)	(0.022)	(0.021)	(0.049)	(0.032)	(0.021)	(0.036)
Observations	43,027	15,267	9,068	5,946	7,254	5,492	42,391	15,363	9,114	5,931	6,457	5,526
Log-likelihood	-18,104	-5,059	-4,028	-3,893	-3,017	-1,842	-21,310	-7,573	-5,900	-3,037	-2,319	-2,200
Pseudo R-sq	0.329	0.12	0.172	0.0538	0.127	0.184	0.273	0.0849	0.0641	0.0923	0.117	0.147
	C. Propensity Score Matching Model											
Kelurahan dummy	0.0820***	-0.0114	0.0212	0.0991***	0.0723***	0.0268	-0.0058	0.0481***	0.0174	0.0363	-0.0462***	0.0815**
	(0.010)	(0.011)	(0.022)	(0.037)	(0.019)	(0.028)	(0.006)	(0.012)	(0.023)	(0.026)	(0.014)	(0.035)
Observations	43,394	15,430	9,114	5,946	7,378	5,526	43,394	15,430	9,114	5,946	7,378	5,526
Adjusted R-squared	0.301	0.0622	0.134	0.0439	0.0867	0.119	0.266	0.0630	0.0564	0.0638	0.0786	0.0896

Notes: Robust Standard errors clustered at the district level in parenthesis. The unit of observation is the village level. For columns (1) to (6) 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. For columns (7) to (12) the dependent variable 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. All regressions include district fixed effects, geographic, religious, and facilities controls (see notes in Table II for a complete list of these controls). Columns (2) to (6) and (8) to (12) correspond to the same regression run in a different sub-sample. Columns (2) and (8) restrict the sample to districts in which PDI-P won by more than 10 percentage points with respect to the second most voted party. Columns (3) and (9) restrict the sample to districts in which PDI-P won by less than 10 percentage points. Similarly for the rest of columns. Propensity score matching results include a full set of district fixed effects interacted with the propensity score percentile dummies. Standard errors of the propensity results are bootstrapped. *** p<0.01, ** p<0.05, * p<0.1.

Table 4
Robustness Checks

Coefficients on the *kelurahan* dummy	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	Neither Won	Whole sample	PDI-P Won Large 1999	PDI-P Just Won 1999	Golkar Just Won 1999	Golkar Won Large 1999	Neither Won
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	A. Additional Controls Baseline Sample											
Incidence of Conflict	0.0550***	0.0008	0.0790***	0.1271***	0.0442**	0.0668*	-0.0204	0.0376*	-0.0373	-0.0871*	-0.0242	-0.0045
	(0.012)	(0.016)	(0.029)	(0.038)	(0.018)	(0.037)	(0.014)	(0.021)	(0.044)	(0.044)	(0.015)	(0.044)
Presence of the Army and the Police	0.0539***	0.0018	0.0760**	0.1220***	0.0365*	0.0708*	-0.0223	0.0356*	-0.0394	-0.0880**	-0.0206	-0.0066
	(0.012)	(0.016)	(0.029)	(0.037)	(0.019)	(0.039)	(0.014)	(0.021)	(0.044)	(0.042)	(0.016)	(0.045)
Natural Resources	0.0540***	0.0006	0.0752**	0.1251***	0.0426**	0.0669*	-0.0167	0.0384*	-0.0366	-0.0828*	-0.0234	-0.0052
	(0.012)	(0.016)	(0.028)	(0.037)	(0.018)	(0.038)	(0.015)	(0.020)	(0.044)	(0.042)	(0.015)	(0.045)
Poverty Alleviation Program	0.0555***	0.0018	0.0786**	0.1275***	0.0416**	0.0661	-0.0209	0.0368*	-0.0392	-0.0847*	-0.0218	-0.0050
	(0.012)	(0.016)	(0.029)	(0.037)	(0.018)	(0.039)	(0.014)	(0.020)	(0.045)	(0.043)	(0.015)	(0.044)
All of the above	**0.0535*** **	**-0.0051**	**0.0845*** **	**0.1221*** **	**0.0344***	**0.0782***	**-0.0179**	**0.0438** **	**-0.0434**	**-0.0758***	**-0.0207**	**-0.0114**
	(0.012)	(0.015)	(0.028)	(0.036)	(0.019)	(0.041)	(0.014)	(0.020)	(0.046)	(0.040)	(0.016)	(0.046)
Observations	41,498	14,848	8,613	5,742	7,128	5,167	41,498	14,848	8,613	5,742	7,128	5,167
Adjusted R-squared	0.383	0.0835	0.175	0.0622	0.115	0.150	0.342	0.0820	0.0810	0.0946	0.111	0.132
	B. Changes in Village Funding 1996 - 2002											
Changes in Transfers from Upper Governments	**0.0493** **	**-0.0102**	**0.0102**	**0.2000** **	**0.1482*** **	**0.1288** **	**0.0034**	**0.0348**	**0.0989**	**-0.1527** **	**-0.1001*** **	**0.0166**
	(0.019)	(0.020)	(0.042)	(0.074)	(0.045)	(0.061)	(0.025)	(0.028)	(0.106)	(0.059)	(0.025)	(0.058)
Observations	10,956	4,987	1,945	1,288	1,811	925	10,956	4,987	1,945	1,288	1,811	925
Adjusted R-squared	0.448	0.102	0.183	0.0591	0.106	0.167	0.386	0.109	0.0960	0.167	0.110	0.162
	C. Village Employment Composition. SUSENAS subsample											
Government and Private Sector Employment	**0.0383** **	**-0.0010**	**0.0326**	**0.0690**	**0.0654** **	**-0.0043**	**-0.0090**	**0.0363**	**-0.0285**	**-0.0948**	**-0.0319***	**0.1080**
	(0.016)	(0.019)	(0.058)	(0.074)	(0.026)	(0.031)	(0.020)	(0.029)	(0.077)	(0.067)	(0.018)	(0.089)
Observations	6,856	2,570	1,311	803	1,385	787	6,856	2,570	1,311	803	1,385	787
Adjusted R-squared	0.465	0.0675	0.198	0.0679	0.0916	0.143	0.392	0.104	0.0646	0.168	0.109	0.182
	D. Kecamatan (subsistrict) Fixed Effects											
Kecamatan (subdistrict) fixed effects	**0.0513*** **	**-0.0095**	**0.1140*** **	**0.0591**	**0.0731*** **	**0.0349**	**-0.0181**	**0.0337***	**-0.0568**	**-0.0316**	**-0.0378** **	**0.0221**
	(0.010)	(0.015)	(0.031)	(0.039)	(0.018)	(0.034)	(0.011)	(0.019)	(0.035)	(0.035)	(0.016)	(0.049)
Observations	43,394	15,430	9,114	5,946	7,378	5,526	43,394	15,430	9,114	5,946	7,378	5,526
Adjusted R-squared	0.535	0.275	0.382	0.330	0.314	0.370	0.498	0.277	0.321	0.308	0.315	0.325

Notes: Robust Standard errors clustered at the district level in parenthesis. The unit of observation is the village level and the econometric model is Linear Probability Model. For columns (1) to (6) 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. For columns (7) to (12) the dependent variable 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. All regressions include district fixed effects, geographic, religious, and facilities controls (see notes in Table 2 for a complete list of these controls). Columns (2) to (6) and (8) to (12) correspond to the same regression run in a sub-sample. Columns (2) and (8) restrict the sample to districts in which PDI-P 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 PDI-P won by less than 10 percentage points. Similarly for the rest of columns. Panel B is run in the subsample for which there is information about type of employment of the population. Panel C includes subdistrict fixed effects instead of district fixed effects. Standard errors in Panel C are clustered at the subdistrict level. Incidence of conflict controls are dummies for conflict between villagers and the government apparatus, conflict between students, conflict among villagers and other types of conflict. Presence of the army and the police controls include dummy for whether at least one army member is present in the village, existence of police or Kamling -guard post- station. Natural resources controls include % of households in the mining sector and dummies for whether the following minerals are quarried: coralstone, sand, lime, sulfur, quartz, and kaolin. Poverty alleviation program controls include a dummy for whether the village was a IDT recepient and the percentage of households that recevied funds. Changes in transfers by upper governments includes the percentage change in funds from the central, provincial, and district governments. Government and private sector employment controls include the percentage of people work in the private and public sectors. *** p<0.01, ** p<0.05, * p<0.1.

Table 5
Robustness Checks: Democratic Capital Hypothesis

Dependent variables:	Sample Mean	Coefficients on the *kelurahan* 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)
the village head	0.768	-0.0086	-0.0441
		(0.0294)	(0.0398)
the 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 participate 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 there is low corruption at the [...] 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. The unit of observation is the village level and the econometric model is Linear Probability Model. 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 belong to 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). In this survey a random sample of villages were interviewed in 5 districts on the provinces of Central Java and South Sulawesi. There are 198 villages in the sample: 59 kelurahan and 139 desa. *** p<0.01, ** p<0.05, * p<0.1.

Table 6
Robustness Checks: Targeting Supporters Hypothesis

	A. % Change in Village Funds between 1996 and 2002 by Source					
Dependent Variables:	Central Government		Provincial Goverment		District Goverment	
	(1)	(2)	(3)	(4)	(5)	(6)
Aligned to District	-0.0103	-0.0084	0.0158	0.0137	0.0224	0.0256
	(0.017)	(0.018)	(0.022)	(0.023)	(0.038)	(0.039)
Kelurahan		-0.0550		-0.1588**		-0.1250
		(0.056)		(0.077)		(0.126)
Aligned * *Kelurahan*		**-0.0390**		**0.0694**		**-0.0496**
		(0.058)		(0.060)		(0.113)
Observations	42,208	42,198	23,270	23,267	19,353	19,346
Adjusted R-squared	0.117	0.118	0.274	0.274	0.230	0.230

	B. % Change in Facilities between 2000 and 2003											
Dependent Variables:	Hospitals		*Puskesmas*		Maternity Hospitals		Polyclinics		Kinder Gardens		Primary Schools	
	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Aligned to District	-0.0001	0.0001	-0.0017	-0.0042	0.0002	0.0004	0.0026	0.0031	0.0036	0.0032	-0.0050	-0.0060
	(0.001)	(0.001)	(0.006)	(0.006)	(0.001)	(0.001)	(0.003)	(0.003)	(0.004)	(0.005)	(0.005)	(0.005)
Kelurahan		0.0028		0.0874***		0.0113		-0.0036		-0.0159		-0.0164
		(0.007)		(0.022)		(0.012)		(0.014)		(0.025)		(0.019)
Aligned * *Kelurahan*		**-0.0023**		**0.0409***		**-0.0047**		**-0.0111**		**0.0028**		**0.0221**
		(0.008)		(0.023)		(0.014)		(0.016)		(0.023)		(0.019)
Observations	45,791	45,713	45,624	45,546	44,301	44,223	43,104	43,026	42,867	42,797	45,383	45,305
Adjusted R-squared	0.0138	0.0138	0.144	0.146	0.0129	0.0131	0.0268	0.0269	0.0290	0.0290	0.0320	0.0315

Notes: Robust Standard errors clustered at the district level in parenthesis. The unit of observation is the village level. The dependent variable in Panel A is the % change in Village Funds between 1996 and 2002 by Source. The dependent variable in Panel B is the % change in the different facilities between 2000 and 2003. *** p<0.01, ** p<0.05, * p<0.1.

Figures

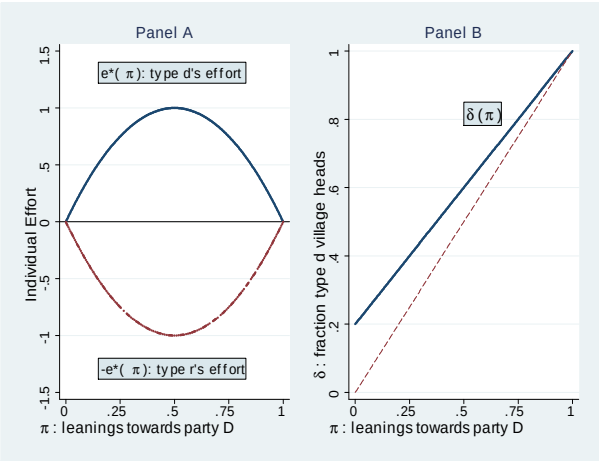

FIGURE 1. Individual Effort and Fraction of Dictator's Party Sympathizers

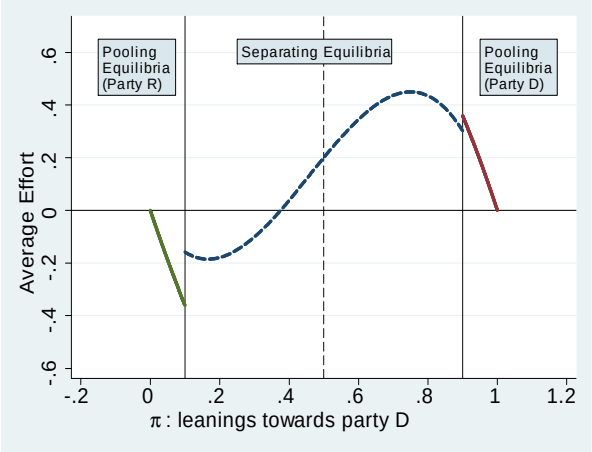

FIGURE 2. Average Effort of Appointed Village Heads

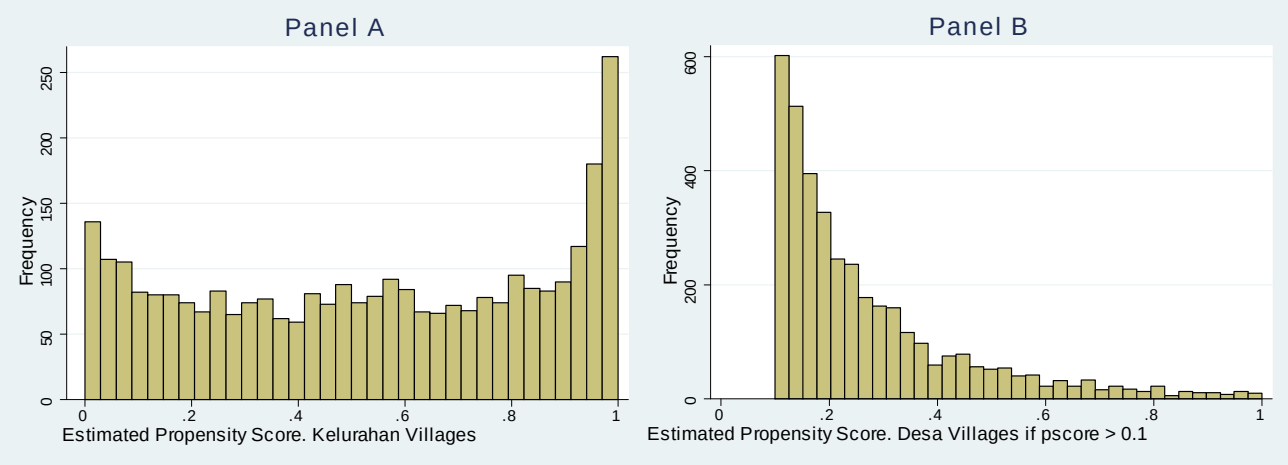

FIGURE 3. Distribution of the Propensity Score

Figure 3 displays the estimates of the propensity score of being classified as *kelurahan* of a model that includes geographic, religious, and facilities controls. Panel A displays the estimates for *kelurahan* villages while Panel B displays the estimates for *desa* villages. The large majority of *desa* villages (39,564) have propensity score estimates lower than 0.1. Panel B does not show those villages in order to see the histogram at a larger scale.

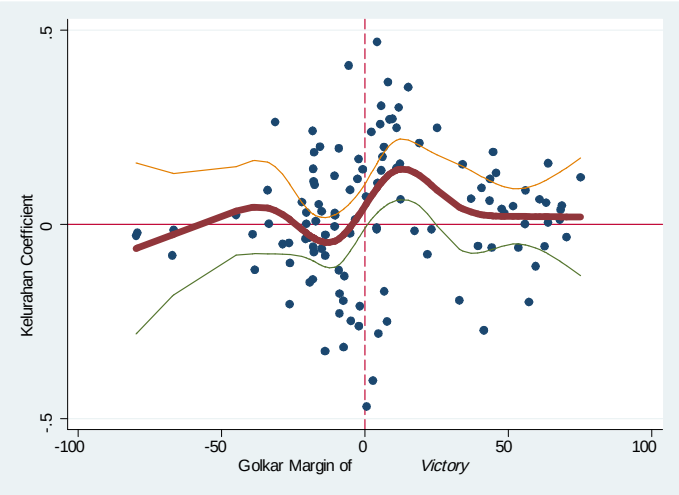

FIGURE 4. Heterogenous Effects

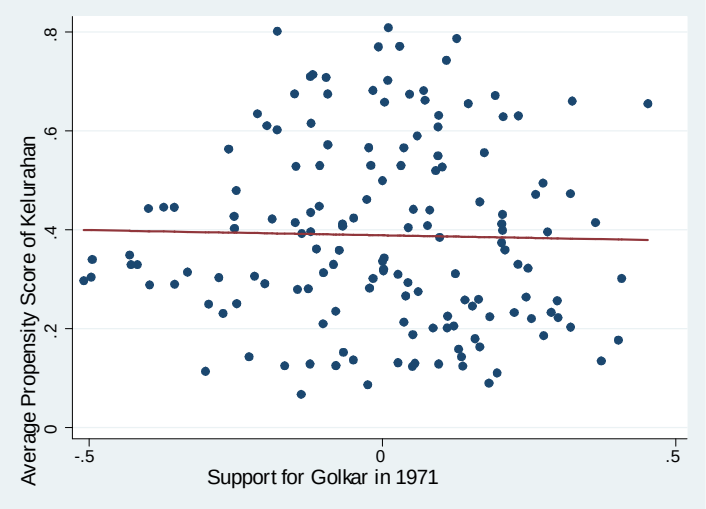

FIGURE 5. Endogeneity Check

10 Appendix - For Online Publication Only

10.1 Further Discussion on Proposition 2

In subsection (9.1) I provided a formal proof that the pooling PBE with effort level e_d^* satisfies the Intuitive Criterion. In this online appendix, Figure A.1. provides the main intuition why this pooling PBE satisfies the Intuitive Criterion. First, the graph depicts the levels of utility that both types obtain in equilibrium, $U^*(t=d)$ and $U^*(t=r)$. Then, in the right hand side it plots the deviation payoffs for both types when out of equilibrium beliefs are $\mu(t=d|e \neq e_d^*)=1$, while in the left hand side it plots the deviation payoffs when out of equilibrium beliefs are $\mu(t=d|e \neq e_d^*)=0$. As we can see, type d obtains a higher payoff in equilibrium than what he would achieve undertaking any possible deviation, for either out of equilibrium beliefs. On the contrary, type r could conceivably increase his payoffs by deviating to $e_d^*-\varepsilon$, for $\varepsilon>0$ and small, conditional on out of equilibrium beliefs being $\mu(t=d|e \neq e_d^*)=1$. However, since type d would never have deviated to $e_d^*-\varepsilon$, mayors would deduce the deviator is type r. Hence, the relevant deviation payoffs would be those on the left hand side of the graph, in which out of equilibrium beliefs are $\mu(t=d|e \neq e_d^*)=0$ and, consequently, deviation $e_d^*-\varepsilon$ would not be profitable for type r.

A similar picture to Figure A.1 is useful in illustrating the set of pooling PBE, and the subset of those that satisfy the Intuitive Criterion. In the right hand side of Figure A.2 I plot the equilibrium payoffs of each type for strategies and beliefs given by (10) as a function of the equilibrium level of effort. In the left hand side we plot the deviation payoffs.[68] Then, it is straightforward to see that the equilibrium levels of effort $e \in [e_1, e_3]$ constitute PBE of this game, since type r does not have incentives to deviate. Notice also that effort levels $e \in [e_2, e_d^*)$ are PBE, but do not satisfy the Intuitive Criterion: type d could deviate to $\widehat{e}+\varepsilon$ and send a speech to mayors claiming he is type d. This speech would be credible since type r would have never deviated to $\widehat{e}+\varepsilon$. However, notice that effort levels $e \in [e_1, e_2) \cup (e_d^*, e_3]$ are associated to PBE that *do* satisfy the Intuitive Criterion: since both types could potentially benefit from some deviations, none of them can reveal their type by undertaking deviating and sending a speech. Next, I provide a formal proof that these PBE do not satisfy the Divinity Criterion.

Divinity Criterion. In order to define the Divinity Criterion I introduce some additional notation. Let $MBR_D(T,e)$ be the set of mixed strategy best responses of candidate for mayor D given beliefs $\mu(.|e)$ such that $\mu(T|e)=1$, that is, $MBR_D(T,e) = \underset{\mu:\mu(T|e)=1}{\cup} MBR_D(\mu|e)$. $MBR_R(T,e)$ is defined similarly.

Fix a particular equilibrium with vector of equilibrium payoffs $U^*(.)$. Consider a given out of equilibrium effort, e, and type, t. Denote by q_D, q_R mixed strategies played by mayor D and R,

[68] This figure is only intended for illustration purposes. Notice that deviation payoffs depend on the total level of effort exerted in equilibrium. Hence deviation payoffs of different equilibria cannot be represented by the same function: an equilibrium with higher aggregate effort will have a deviation payoff shifted downwards.

respectively.[69] Let $D(t,T,e)$ be the set of mixed strategies of mayors that are best responses to deviation e for beliefs, that are concentrated in the subset of types $T \subseteq \Theta$, and that make type t strictly prefer e to his equilibrium strategy.

$$D(t,T,e) = \bigcup_{\mu:\mu(T|e)=1} \left\{ \begin{array}{c} q_D \in MBR_D(T,e),\ q_R \in MBR_R(T,e) \text{ s.t.} \\ U^*(t) < p(E_{-i}+e)U_t^{app}(e,q_D) + (1\text{-}p(E_{-i}+e))\, U_t^{app}(e,q_R) \end{array} \right\}$$

Let $D^0(t,T,e)$ be defined similarly as the set of mixed strategies of mayors that make type t exactly indifferent between deviation to e and following the equilibrium actions.

Definition 3. The Divinity Criterion. If for some type t there exists a second type $t\prime$ with

$$D(t,T,e) \cup D^0(t,T,e) \subseteq D(t',T,e) \tag{26}$$

then, (t,e) may be pruned from the game.

The intuition for this criterion is the following: if the criterion holds, it means that type $t\prime$ strictly wishes to defect whenever type t is indifferent between defection and following the equilibrium actions. This leads mayors to believe that it is infinitely more likely that defection to e comes from type t' than from type t. Once the pair (t,e) is pruned from the game, we revise the out of equilibrium beliefs and best responses of mayors. Then, we evaluate if the equilibrium actions can still be sustained. By following this procedure, we next show that PBE with associated levels of effort $\widetilde{e} \in [e_1,e_2) \cup (e_d^*,e_3]$ do not satisfy the Divinity Criterion.

Claim 2. Consider a pooling PBE as defined by (10) with equilibrium level of effort $\widetilde{e} \in [e_1,e_2)$ and deviation $e' = \widetilde{e} + \varepsilon$ (ε positive and small). Then, $D(t=r,\Theta,e') \cup D^0(t=r,\Theta,e') \subseteq D(t=d,\Theta,e')$.

Proof. First, notice that the equilibrium payoff of each type are:

$$\begin{aligned} U_d^*(\widetilde{e}) &= p(n\widetilde{e})(Z-\underline{U}) + \underline{U} - \underline{\alpha}C(\widetilde{e}) \\ U_r^*(\widetilde{e}) &= p(n\widetilde{e})(Z-\underline{U}) + \underline{U} - \overline{\alpha}C(\widetilde{e}) \end{aligned}$$

In order to prove Claim 2, I first find the set of mixed strategy best responses that make type r strictly better off deviating to e' than following the equilibrium actions — i.e., $D(t=r,\Theta,e')$. Note that this set contains mixed strategies that can be sustained for any out of equilibrium beliefs. Let me first focus on the set of parameters such that $\frac{G-\kappa}{G} > \frac{1}{2}$. I will discuss the case in which $\frac{G-\kappa}{G} \leq \frac{1}{2}$ at the end of this proposition.

i. $\mu(t=d|e \neq \widetilde{e}) = 1$ or $\mu(t=d|e \neq \widetilde{e}) = \theta$, where $\theta > \frac{G-\kappa}{G} > 1-\theta$. In these two cases, the best responses of mayors are to play pure strategies $\phi_D = 1$ and $\phi_R = 0$. This leads to deviation payoffs $U_r(e' = \widetilde{e}+\varepsilon) = p(n\widetilde{e}+\varepsilon)(Z\text{-}\underline{U}) + \underline{U} - \overline{\alpha}C(\widetilde{e}+\varepsilon)$, which are higher than the equilibrium payoff since $\widetilde{e} \in [e_1,e_2)$ (see Figure A.2). Hence, $\{q_D = 1, q_R = 0\} \in D(t=r,\Theta,e')$.

[69] q_D is the probability of choosing $\phi_D = 1$ in a mixed strategy of mayor D. Similarly for q_R.

ii. $\mu(t=d|e\neq\widetilde{e})=0$, $\mu(t=d|e\neq\widetilde{e})=\theta$, where $1-\theta>\frac{G-\kappa}{G}>\theta$, or $\frac{G-\kappa}{G}>\theta$ and $\frac{G-\kappa}{G}>1-\theta$. In these two cases, the best responses of mayors are to play pure strategies $\phi_D=0$ and $\phi_R=1$. In these cases the deviation payoffs are lower than the equilibrium payoffs and, therefore, these strategies do not belong in the set $D(t=r,\Theta,e')$.

iii. $\mu(t=d|e\neq\widetilde{e})=\theta$, where $\theta=\frac{G-\kappa}{G}>1-\theta$. In this case, mayor R plays pure strategy $\phi_R=0$. Mayor D is indifferent between pure strategy actions $\phi_D=1$ and $\phi_D=0$. Mayor D plays a mixed strategy with q_D representing the probability of action $\phi_D=1$. Type r's deviation payoffs are strictly higher than equilibrium payoffs as long as $q_D\in(q_{D\overline{\alpha}},1]$ where[70]

$$q_{D\overline{\alpha}}=\frac{\overline{\alpha}\left[C(\widetilde{e}+\varepsilon)-C(\widetilde{e})\right]+p(n\widetilde{e})(Z-\underline{U})}{p(n\widetilde{e}+\varepsilon)(Z-\underline{U})} \tag{27}$$

Hence, $\{q_D\in(q_{D\overline{\alpha}},1],q_R=0\}\in D(t=r,\Theta,e')$. Notice that type r is exactly indifferent between deviating or not deviating if $q_D=q_{D\overline{\alpha}}$ and $q_R=0$.

iv. $\mu(t=d|e\neq\widetilde{e})=\theta$, where $\theta>\frac{G-\kappa}{G}=1-\theta$. In this case, mayor D plays pure strategy $q_D=1$. Mayor R plays mixed strategy q_R. Type r's deviation payoffs are strictly higher than equilibrium payoffs as long as $q_R\in(q_{R\overline{\alpha}},1]$ where

$$q_{R\overline{\alpha}}=\frac{\overline{\alpha}\left[C(\widetilde{e}+\varepsilon)-C(\widetilde{e})\right]+\left[p(n\widetilde{e})-p(n\widetilde{e}+\varepsilon)\right](Z-\underline{U})}{\left[1-p(n\widetilde{e}+\varepsilon)\right](Z-\underline{U})} \tag{28}$$

Hence, $\{q_D=1,q_R\in(q_{R\overline{\alpha}},1]\}\in D(t=r,\Theta,e')$.

v. $\mu(t=d|e\neq\widetilde{e})=\theta$, where $1-\theta=\frac{G-\kappa}{G}>\theta$. In this case, mayor D plays pure strategy $q_D=0$. Mayor R plays a mixed strategy q_R. However, notice that this leads to a deviation payoff lower than in case *ii*. Hence, these strategies are not part of the set $D(t=r,\Theta,e')$.

vi. $\mu(t=d|e\neq\widetilde{e})=\theta$ where $1-\theta>\frac{G-\kappa}{G}=\theta$. In this case, mayor R plays pure strategy $q_R=1$. Mayor D plays a mixed strategy q_D. Type r's deviation payoffs are strictly higher than equilibrium payoffs as long as $q_D\in(\widehat{q}_{D\overline{\alpha}},1]$ where

$$\widehat{q}_{D\overline{\alpha}}=\frac{\overline{\alpha}\left[C(\widetilde{e}+\varepsilon)-C(\widetilde{e})\right]+\left[p(n\widetilde{e})-p(n\widetilde{e}+\varepsilon)-1\right](Z-\underline{U})}{p(n\widetilde{e}+\varepsilon)(Z-\underline{U})} \tag{29}$$

Hence, $\{q_D\in(\widehat{q}_{D\overline{\alpha}},1],q_R=1\}\in D(t=r,\Theta,e')$.

vii. $\mu(t=d|e\neq\widetilde{e})=\theta$ where $\theta\geq\frac{G-\kappa}{G}$ and $1-\theta\geq\frac{G-\kappa}{G}$. This case is ruled out by our restriction on the set of parameters that satisfy $\frac{G-\kappa}{G}\leq\frac{1}{2}$.

[70] $q_{D\overline{\alpha}}$ is obtained by equating the deviation payoffs of type r to his equilibrium payoffs, i.e., $[1\text{-}p(n\widetilde{e}+\varepsilon)]\underline{U}+p(n\widetilde{e}+\varepsilon)q_{D\overline{\alpha}}Z+p(n\widetilde{e}+\varepsilon)\left(1-q_{D\overline{\alpha}}\right)\underline{U}=U_r^*(\widetilde{e})$

Notice that type r is exactly indifferent between deviating and not deviating when the corresponding mixing probabilities are equal to $q_{D\overline{\alpha}}, q_{R\overline{\alpha}}$, and $\widehat{q}_{D\overline{\alpha}}$. Hence, we have shown that if $\frac{G-\kappa}{G} \leq \frac{1}{2}$:

$$D(t=r,\Theta,e') \cup D^0(t=r,\Theta,e') = \left\{ \begin{array}{c} \{q_D=1, q_R=0\}, \{q_D \in [q_{D\overline{\alpha}},1], q_R=0\}, \\ \{q_D=1, q_R \in [q_{R\overline{\alpha}},1]\}, \{q_D \in [\widehat{q}_{D\overline{\alpha}},1], q_R=1\} \end{array} \right\}$$

In order to complete the proof of Claim 2, we need to find $D(t=d,\Theta,e')$. Notice that, for any possible out of equilibrium beliefs, the deviation payoff of type d is the same as type r, except for the value of the parameter α.[71] Hence, the set of mixed strategies that make type d strictly better off by deviating are $\{q_D \in (q_{D\underline{\alpha}},1], q_R=0\}$ where $q_{D\underline{\alpha}} < q_{D\overline{\alpha}}$.[72] The same applies for the other cases in which mixed strategies are played.

Therefore we have:

$$D(t=d,\Theta,e') = \left\{ \begin{array}{c} \{q_D=1, q_R=0\}, \{q_D \in (q_{D\underline{\alpha}},1], q_R=0\}, \\ \{q_D=1, q_R \in (q_{R\underline{\alpha}},1]\}, \{q_D \in (\widehat{q}_{D\underline{\alpha}},1], q_R=1\} \end{array} \right\}$$

where $q_{D\underline{\alpha}} < q_{D\overline{\alpha}}$, $q_{R\underline{\alpha}} < q_{R\overline{\alpha}}$, and $\widehat{q}_{D\underline{\alpha}} < \widehat{q}_{D\overline{\alpha}}$. Consequently we have shown that for $\frac{G-\kappa}{G} \leq \frac{1}{2}$, $D(t=r,\Theta,e') \cup D^0(t=r,\Theta,e') \subseteq D(t=d,\Theta,e')$ holds. This concludes the proof of Claim 2. ■

According to the divinity criterion the pair $(t=r,e')$ can be pruned from the game. This means that, upon observing a deviation to $e'=\widetilde{e}+\varepsilon$, mayors deduce the type that deviates is type $t=d$, and update their out of equilibrium beliefs accordingly. However, given this revision of beliefs, type d has an incentive to deviate to e'. We can observe this in Figure A.2. Type d will have a higher payoff by deviating to $\widetilde{e}+\varepsilon$. Consequently, we can say that the pooling PBE $\widetilde{e}$ does not satisfy the divinity criterion.

The same argument can be applied to any pooling PBE that $e \in [e_1,e_2) \cup (e_d^*,e_3]$: all of those pooling PBE fail to satisfy the divinity criterion.[73] Intuitively, in any of these PBE, type d is more likely to deviate than is type r: a larger set of best responses mixed-strategies of mayors would make a deviation profitable for type d.

Finally, what remains to be proven is that the pooling PBE with equilibrium level of effort e_d^* does satisfy the Divinity Criterion. In order to show this, I first prove the following claim.

Claim 3. Consider the pooling PBE as defined by (10) with equilibrium level of effort e_d^* as defined by (13). If $\frac{G-\kappa}{G} > \frac{1}{2}$, then $D(t=d,\Theta,e') = \{\varnothing\}$ for any e'.

[71] For instance, for out of equilbrium believes $\mu(t=d|e \neq \widetilde{e}) = \theta$ where $\theta = \frac{G-\kappa}{G} > 1-\theta$ (case *iii*) the deviation payoff of the two types is given by:

$$\begin{aligned} U_r(e'=\widetilde{e}+\varepsilon) &= [1-p(n\widetilde{e}+\varepsilon)]\,\underline{U} + p(n\widetilde{e}+\varepsilon)q_D Z + p(n\widetilde{e}+\varepsilon)\,(1\text{-}q_D)\,\underline{U} - \overline{\alpha}C(\widetilde{e}+\varepsilon) \\ U_d(e'=\widetilde{e}+\varepsilon) &= [1-p(n\widetilde{e}+\varepsilon)]\,\underline{U} + p(n\widetilde{e}+\varepsilon)q_D Z + p(n\widetilde{e}+\varepsilon)\,(1\text{-}q_D)\,\underline{U} - \underline{\alpha}C(\widetilde{e}+\varepsilon) \end{aligned}$$

[72] $q_{D\underline{\alpha}}$ is defined similarly as (27) except for parameter $\underline{\alpha}$, which is replaced by $\overline{\alpha}$.

[73] The proof for the other cases is very similar to the one above and it is omitted for the sake of brevity.

Proof. The level of effort e_d^* is defined so that type d does not have a profitable deviation, even when out of equilibrium beliefs are $\mu(t = d|e \neq e_d^*) = 1$. Hence if $\frac{G-\kappa}{G} > \frac{1}{2}$, there are no best response of mayors that could make type d better off after a deviation. It is straightforward to verify this for each subcase *i* - *vi* discussed above.■

Therefore, as long as $\frac{G-\kappa}{G} > \frac{1}{2}$, the condition $D(t = r, T, e) \cup D^0(t = r, T, e) \subseteq D(t = d, T, e)$ is not satisfied and the PBE with level of effort e_d^* satisfies the Divinity Criterion. The intuition is similar to the one provided for the Intuitive Criterion. Since type d is obtaining his maximum possible payoff, he cannot reveal his type by deviating. On the contrary, type r could potentially reveal his type by deviating to some negative level of effort. However, it is not in his interest to do so.[74]

Finally, I discuss the situation in which $\frac{G-\kappa}{G} \leq \frac{1}{2}$ holds. For this set of parameters there can be out of equilibrium beliefs such that $\mu(t = d|e \neq \widetilde{e}) = \theta$ where $\theta \geq \frac{G-\kappa}{G}$ and $1 - \theta \geq \frac{G-\kappa}{G}$. This means that the following best responses of mayors can be sustained: $\phi_D = 1$ and $\phi_R = 1$, one of them playing a mixed strategy and the other playing $\phi_m = 1$, or both playing mixed strategies. In the case in which mayors play $\phi_D = 1$ and $\phi_R = 1$, the deviation payoffs for type d are $U_d(e') = Z - \underline{\alpha}C(e')$, which are higher than the payoffs in any PBE described by (10). As a result, the following holds $D(t = r, \Theta, e') \cup D^0(t = r, \Theta, e') \subseteq D(t = d, \Theta, e')$. That is, in any pooling PBE, including the equilibrium in which effort is e_d^*, type d strictly wants to deviate when type r is indifferent. Hence, type d could potentially reveal his type by undertaking a particular deviation. However, if and only if the pooling PBE considered is e_d^*, it is not in type d's interest to undertake such deviation. Remember that upon revealing d's type, the updated mayors' beliefs will be $\mu(t = d|e \neq \widetilde{e}) = 1$. When the pooling PBE considered has effort level e_d^*, by construction the resulting deviation payoffs are lower than the equilibrium payoffs of type d. Hence, I conclude that regardless of the value of $\frac{G-\kappa}{G}$, the pooling PBE with equilibrium effort level e_d^* is the only equilibrium that satisfies the Divinity Criterion. This completes the proof of Proposition 2.■

10.2 Optimal Level of Effort for a General Distribution of the Valence Shock

The realized vote share of party D is defined according to the following function

$$\widehat{\pi} = \pi + \varphi + g(E)$$

Suppose that the valence shock φ is distributed according to a more general cumulative distribution function $F(\varphi)$.

[74] I do not provide a formal proof of the latter statement. It can be shown that for deviations to negative levels of effort e'', the following holds: $D(t = d, T, e'') \cup D^0(t = d, T, e'') \subseteq D(t = r, T, e'')$. However, pruning from the equilibrium the pair $(t = d, e'')$ does not eliminate the PBE considered because it is not in the interest of type r to undertake deviation e'', even with the corresponding update of mayors' beliefs.

The probability that party D wins the election is now given by

$$p(E,\pi) = \underset{\varphi}{\text{Prob}}\left[\pi + g(E) + \varphi \geq \frac{1}{2}\right] = 1 - F\left(\frac{1}{2} - \pi - g(E)\right)$$

The level of effort that satisfies the Intuitive Criterion in the pooling equilibrium towards party D, is now defined by.

$$e^* = \arg\max_e \{p((n\text{-}1)e^* + e, \pi)(Z - \underline{U}) - \underline{\alpha}C(e)\} \tag{30}$$

$$e^* = \arg\max_e \left\{1 - F\left(\frac{1}{2} - \pi - g((n\text{-}1)e^* + e)\right)(Z - \underline{U}) - \underline{\alpha}C(e)\right\} \tag{31}$$

$$f\left(\frac{1}{2} - \pi - g(ne^*)\right)\frac{\partial g(ne^*)}{\partial E}(Z - \underline{U}) = \underline{\alpha}C'(e^*) \tag{32}$$

where $f(.)$ is the probability distribution function of the valence shock φ equal to $F'(.)$ and the last equality follows by imposing $e = e^*$.

The level of effort e^* implicitly defined by (32) is now a function of the π, that is, underlying strength of party D. If $f(.)$ has mode at $\varphi = 0$, the marginal productivity of effort is high when $\pi \approx \frac{1}{2}$ (as long as $g(ne^*)$ is small). This leads to the optimal level of effort being maximized around $\pi \approx \frac{1}{2}$. The intuition for this result is the following: when $f(.)$ has mode at $\varphi = 0$, the most likely realizations of the valence shock are those in a neighborhood of 0, which means a small valence shock. In that case, effort has the highest effect on the probability that party D wins when the election is contested, ($\pi \approx \frac{1}{2}$). This is so because when the election is contested it is more likely that effort will make the realized vote share pass the $\frac{1}{2}$ threshold that determines which party wins the election. In the extreme case in which there is no valence shock, the probability of party D winning changes discontinuously at $\pi = \frac{1}{2}$, and therefore, only when the election is contested, effort can have a large effect on the probability that party D wins the election.

10.3 Discussion of Result 1

Given the assumptions stated in Result 1, it is straightforward to see that the level of effort defined in the pooling equilibrium towards party D, defined by (13), can be simplified by the following expression:

$$\frac{\psi(Z - \underline{U})}{\underline{\alpha}}h(\pi) = C'(e^*) \tag{33}$$

$$e^*(\pi) = C'^{-1}\left(\frac{\psi(Z - \underline{U})}{\underline{\alpha}}h(\pi)\right) \tag{34}$$

Notice that since $h(\pi)$ is maximized at $\pi = \frac{1}{2}$ and $C'(.)$ is an increasing function, the level of effort $e^*(\pi)$ will have an inverse U-shape with respect to π, maximized at $\pi = \frac{1}{2}$. Consequently, $e_d^* = e^*(\pi)$

and the optimal deviation in this type of equilibria is $e'_r = -e^*(\pi)$. This simplifies condition (12) which becomes

$$\pi \geq \frac{1}{2} - (n\text{-}1)e^*(\pi)h(\pi) + \tau C(e^*(\pi)) \tag{35}$$

where $\tau = \frac{\overline{\alpha}-\underline{\alpha}}{2\psi(\overline{Z}-\underline{U})}$. This condition characterizes the set of pooling equilibria towards party D.

However, notice that we no longer have closed form solutions of the threshold of π that makes this expression hold with equality. For an examination of this threshold let us define:

$$f^d(\pi) = \pi - \frac{1}{2} + (n\text{-}1)e^*(\pi)h(\pi) - \tau C(e^*(\pi)) \geq 0$$

Similarly, in the pooling equilibrium towards party R, the equilibrium level of effort e^*_r becomes $e^*_r = -e^*(\pi)$, the optimal deviation of type d, e'_d becomes $e'_d = e^*(\pi)$, and the set of π for which this equilibrium can be sustained is defined by

$$f^r(\pi) = \pi - \frac{1}{2} - (n\text{-}1)e^*(\pi)h(\pi) + \tau C(e^*(\pi)) \leq 0$$

In the separating equilibrium, the levels of effort are defined by $e^{*s} = e^*(\pi)$, and the optimal deviations are defined by $\widetilde{e}^s_d = -e^*(\pi)$, and $\widetilde{e}^s_r = e^*(\pi)$. The set of π for which this equilibrium can be sustained defined by the following two inequalities:

$$g^l(\pi) = \pi - \frac{1}{2} + (2n\gamma\text{-}n\text{-}1)e^*(\pi)h(\pi) + \tau C(e^*(\pi)) \geq 0$$

$$g^u(\pi) = \pi - \frac{1}{2} + (2n\gamma\text{-}n\text{+}1)e^*(\pi)h(\pi) - \tau C(e^*(\pi)) \leq 0$$

10.3.1 Thresholds Pooling and Separating Equilibria

Given our assumptions on function $h(.)$ and $C(.)$ we have $e(0) = e(1) = h(0) = h(1) = 0$ and $e'(\frac{1}{2}) = h'(\frac{1}{2}) = 0$. This implies that:

$$\begin{aligned} f^d(0) &= g^u(0) = g^l(0) = f^r(0) = -\frac{1}{2} \\ f^d(1) &= g^u(1) = g^l(1) = f^r(1) = \frac{1}{2} \end{aligned}$$

Hence, a sufficient condition for each of this thresholds to exist and be uniquely defined is that these functions are strictly increasing in the interval $\pi \in [0,1]$, — i.e., $f^{d\prime}(\pi) > 0$, $g^{u\prime}(\pi) > 0$, $g^{l\prime}(\pi) > 0$, $f^{r\prime}(\pi) > 0$ for $\pi \in [0,1]$. However, this cannot be proved without assuming specific functional forms for $h(.)$ and $C(.)$.

An alternative approach consists on approximating these functions using first order Taylor expansions around different points of the interval $\pi \in [0,1]$. I follow this approach to illustrate that this first linear approximation are actually increasing functions on π.

The first order Taylor approximation of a function $\phi(.)$ around $x \approx a$ is $\phi(x) \approx \phi(a) + \phi'(a)(x-a)$

$$
\begin{aligned}
&\pi \approx 0 \qquad f^d(\pi) \approx -\tfrac{1}{2} + \pi \\
&\pi \approx \tfrac{1}{2} \qquad f^d(\pi) \approx (n\text{-}1)e^*(\tfrac{1}{2})h(\tfrac{1}{2}) - \tau C(e^*(\tfrac{1}{2})) + \pi \\
&\pi \approx 1 \qquad f^d(\pi) \approx \tfrac{1}{2} + \pi
\end{aligned}
$$

$$
\begin{aligned}
&\pi \approx 0 \qquad g^u(\pi) \approx -\tfrac{1}{2} + \pi \\
&\pi \approx \tfrac{1}{2} \qquad g^u(\pi) \approx (2n\gamma\text{-}n\text{+}1)e^*(\tfrac{1}{2})h(\tfrac{1}{2}) - \tau C(e^*(\tfrac{1}{2})) + \pi \\
&\pi \approx 1 \qquad g^u(\pi) \approx \tfrac{1}{2} + \pi
\end{aligned}
$$

$$
\begin{aligned}
&\pi \approx 0 \qquad g^l(\pi) \approx -\tfrac{1}{2} + \pi \\
&\pi \approx \tfrac{1}{2} \qquad g^l(\pi) \approx (2n\gamma\text{-}n\text{-}1)e^*(\tfrac{1}{2})h(\tfrac{1}{2}) - \tau C(e^*(\tfrac{1}{2})) + \pi \\
&\pi \approx 1 \qquad g^l(\pi) \approx \tfrac{1}{2} + \pi
\end{aligned}
$$

$$
\begin{aligned}
&\pi \approx 0 \qquad f^r(\pi) \approx -\tfrac{1}{2} + \pi \\
&\pi \approx \tfrac{1}{2} \qquad f^r(\pi) \approx -(n\text{-}1)e^*(\tfrac{1}{2})h(\tfrac{1}{2}) + \tau C(e^*(\tfrac{1}{2})) + \pi \\
&\pi \approx 1 \qquad f^r(\pi) \approx \tfrac{1}{2} + \pi
\end{aligned}
$$

As we can see, the first order approximations around $\pi \approx 0$, $\pi \approx \frac{1}{2}$, and $\pi \approx 0$ are all increasing in π. Therefore, the corresponding threshold for the pooling and separating equilibria exists and is uniquely defined by the roots of the corresponding function.

10.4 Data Appendix

The main data set used in this paper is constructed by merging different waves of the Indonesian Village Census PODES. Unfortunately, BPS (Statistical Agency of Indonesia) did not keep a consistent numerical code to merge observations across different waves of the PODES. I merge the different files based on village names. Out of the 66,000 villages of Indonesia, 7,000 do not have an exact match across these three waves. 4,000 additional observations have missing data for the electoral result in the village or for whether the village is *kelurahan* or *desa*. Finally, I restrict the sample to those districts in which there is enough variation in terms of the number of *desa* and *kelurahan*. In particular, I exclude from the analysis districts with fewer than 5 *kelurahan* or fewer than 5 *desa*. This reduces the sample by 12,000 additional observations.

The data on the electoral results at the district level for the Parliamentary elections of 1971, 1977, 1982, 1987, and 1992 used for the endogeneity robustness check, 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 7.2, 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 Benjamin Olken. This data was collected for the paper Alatas et al. (2010). Nine 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.

Table A.1
Propensity Score Matching. Probit Estimation

Dependent variable: *kelurahan* village	(1)	(2)	(3)
urban	0.9617***	0.9428***	0.8558***
	(0.046)	(0.046)	(0.047)
% HH in agr	-0.0687***	-0.0673***	-0.0592***
	(0.009)	(0.009)	(0.009)
% land in agr	-0.0057***	-0.0056***	-0.0051***
	(0.001)	(0.001)	(0.001)
high altitude	0.0052	0.0142	0.0177
	(0.042)	(0.043)	(0.043)
log population	-1.6416	-4.6023	-3.5439
	(4.318)	(4.406)	(4.570)
population density	0.0166***	0.0148***	0.0159***
	(0.003)	(0.003)	(0.003)
distance sub-distr office	-0.0387***	-0.0381***	-0.0344***
	(0.002)	(0.002)	(0.002)
distance district capital	-0.0007***	-0.0007***	-0.0006***
	(0.000)	(0.000)	(0.000)
num mosques§		-0.0894***	-0.0889***
		(0.023)	(0.024)
num prayerhouse§		-0.0566***	-0.0580***
		(0.012)	(0.012)
num churches§		-0.0801***	-0.0827***
		(0.026)	(0.027)
num hindu temple§		-0.0760	-0.0861
		(0.141)	(0.151)
num TVs§			0.0041***
			(0.000)
num hospitals§			0.5482***
			(0.199)
num maternity hospitals§			0.2402**
			(0.095)
num polyclinics§			-0.2152
			(0.142)
num puskesmas§			0.0187
			(0.076)
num kindergarden§			0.0346
			(0.046)
num primary school§			-0.0189
			(0.018)
num high school§			0.1233***
			(0.025)
Observations	45,923	45,923	45,923

Notes: § Per 1,000 villagers. 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. *** p<0.01, ** p<0.05, * p<0.1.

Table A.2
Effects of Appointed Official on Support for Golkar

	Dependent variable: Golkar wins in 1999				
	(1)	(2)	(3)	(4)	(5)
kelurahan	**0.0739*** **	**0.0065**	**0.0575*** **	**0.0573*** **	**0.0552*** **
	(0.028)	(0.012)	(0.012)	(0.012)	(0.012)
urban			-0.0206*	-0.0184*	-0.0212*
			(0.011)	(0.011)	(0.011)
% HH in agr			-0.0036	-0.0033	-0.0030
			(0.003)	(0.003)	(0.003)
% land in agr			0.0003	0.0003	0.0003
			(0.000)	(0.000)	(0.000)
high altitude			0.0255**	0.0274**	0.0276***
			(0.011)	(0.011)	(0.011)
log population			0.0348	0.4695	0.4584
			(0.569)	(0.415)	(0.420)
population density			-0.0012	-0.0010	-0.0010
			(0.001)	(0.001)	(0.001)
distance sub-distr office			0.0002	0.0002	0.0002
			(0.000)	(0.000)	(0.000)
distance district capital			0.0000	0.0000	0.0000
			(0.000)	(0.000)	(0.000)
num mosques§				0.0175***	0.0173***
				(0.003)	(0.003)
num prayerhouse§				-0.0007	-0.0006
				(0.001)	(0.001)
num churches§				-0.0119**	-0.0118**
				(0.005)	(0.005)
num hindu temple§				0.0167	0.0156
				(0.015)	(0.015)
num TVs§					0.0002*
					(0.000)
num hospitals§					0.0516
					(0.043)
num maternity hospitals§					-0.0102
					(0.020)
num polyclinics§					0.0576*
					(0.030)
num puskesmas§					0.0280**
					(0.013)
num kindergarden§					-0.0287***
					(0.008)
num primary school§					0.0018
					(0.002)
num high school§					-0.0002
					(0.005)
District Fixed Effects	No	Yes	Yes	Yes	Yes
Observations	43,394	43,394	43,394	43,394	43,394
Adjusted R-squared	0.00161	0.368	0.375	0.378	0.379

Notes: § Per 1,000 villagers. Robust Standard errors clustered at the district level in parenthesis. The unit of observation is the village level. Linear Probability Model regressions. 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. Regressions in columns (3) to (6) include a quartic in the percentage of households in agriculture and log population. *** p<0.01, ** p<0.05, * p<0.1.

Table A.3
Endogeneity Check

	Dependent variable: Average Propensity Score of *kelurahan* Villages				
	(1)	(2)	(3)	(4)	(5)
Vote Share Golkar 1971§	-0.0208				
	(0.075)				
Vote Share Golkar 1977§		-0.0467			
		(0.092)			
Vote Share Golkar 1982§			-0.0760		
			(0.090)		
Vote Share Golkar 1987§				-0.2015	
				(0.126)	
Vote Share Golkar 1992§					-0.0285
					(0.033)
Constant	0.3888***	0.3933***	0.3933***	0.3933***	0.3933***
	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)
Observations	152	155	155	155	155
R-squared	0.001	0.002	0.005	0.016	0.005

Notes: Standard errors in parenthesis. The unit of observation is the district level. The dependent variable is the average propensity score of kelurahan villages in each district. This propensity score is computed adding as controls geographic, religious, and facilities controls but no district fixed effects. The controls and kelurahan classification corresponds to the 1996 dataset. § The different independent variables are the vote share that Golkar obtained in the different elections, after being partialled out by the share of rural households in the district. *** p<0.01, ** p<0.05, * p<0.1

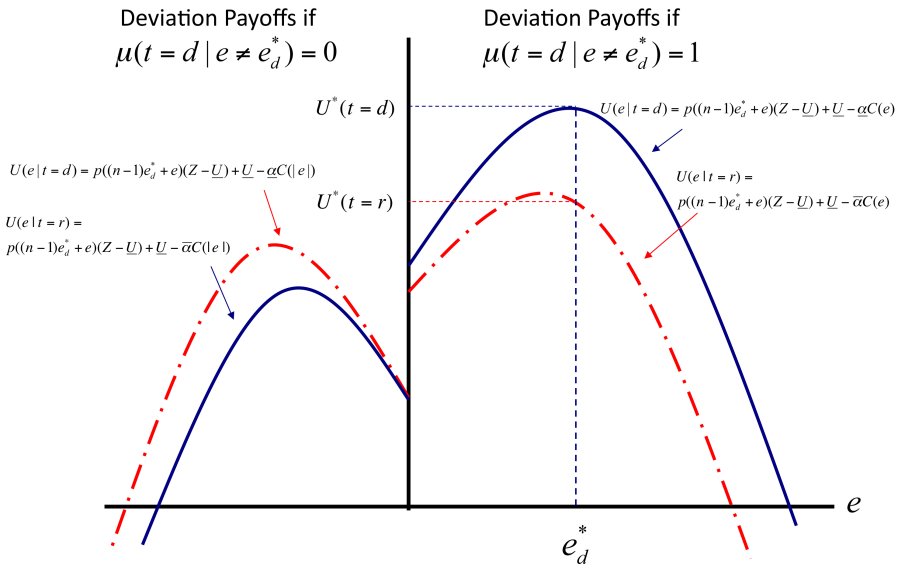

FIGURE A.1

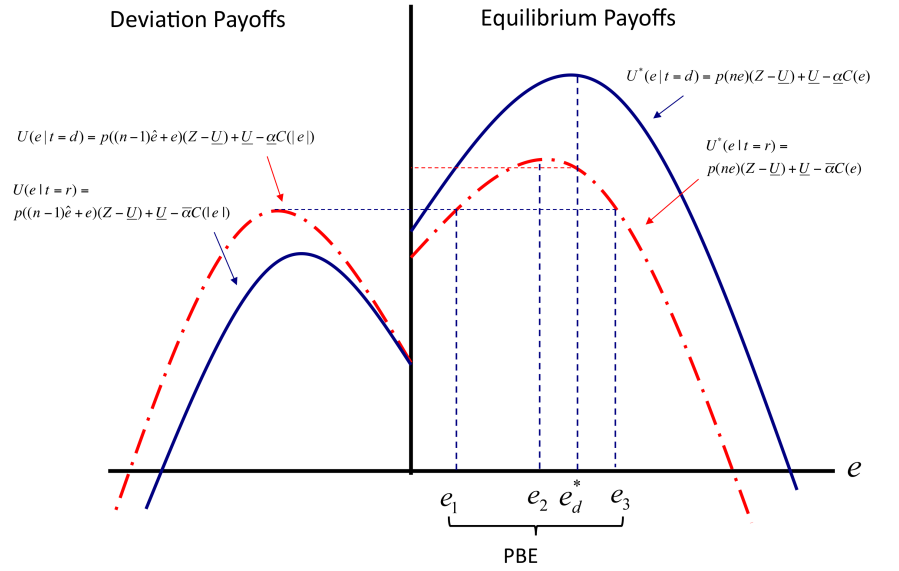

FIGURE A.2