Political Elites and Land Rents: Evidence from Indonesia

Gedeon J. Lim*
The University of Hong Kong

October 19, 2026

Abstract

This paper examines the effects of non-salary, asset-based compensation schemes on local leader performance. Using a spatial regression discontinuity, I exploit a historical policy that granted elected village chiefs cultivation rights over village rice land (*bengkok*) on one side of a historical border, but not the other. Chiefs generate higher local revenue, village public goods, and schooling. Using original surveys, I trace this to positive political selection and, suggestively, higher embedded-ness and pro-social motivation. I discuss policy implications. Awarding leaders economic rents derived from a stable, community-owned asset, can have persistently positive effects on local governance and development

*Faculty of Business and Economics. Pokfulam Rd., Hong Kong SAR. Email: gedeonl@hku.hk. I thank Sam Bazzi, Dilip Mookherjee and Robert A. Margo for advice, support and encouragement. I thank three anonymous referees for their useful comments. I thank Rahmad Efendi, Herlina Wati and friends at AKATIGA for invaluable advice and support. I thank the entire research team in West Java, Ziqi Lu, Sakshi Goel, Lukman Edwindra, Amangku Brahmanaputra, and Sheva Sonia Rahmani, for excellent research assistance, and AKATIGA, SMERU Research Institute for hosting me for extended periods of time. I also thank Francesco Amodio, Eric Chaney, Melissa Dell, James Feigenbaum, Frederico Finan, Eleonora Guarnieri, Allen Hicken, Thea How Choon, Clement Imbert, Monica Martinez-Bravo, Nathan Nunn, Nico Ravanilla, Gianluca Russo, Paola Sapienza and Nico Voigtlander for conversations and feedback and participants at the Boston University Development Reading Group, Harvard Economic History Tea, SSDEV 2017 and Nordic Conference in Development Economics 2018. I am grateful for financial support from BU's Global Development Policy Center, IED and the GSAS Graduate Research Abroad Fellowship. I am grateful to Melissa Dell for sharing her data on (colonial) roads and railways. This project received IRB approval from BU (5069X). This paper was previously circulated as "Village Elites, Political Land Rents, and Incentives for Development: Evidence from Indonesia";"Why Pay the Chief? Land Rents and Political Selection in Indonesia"; "Village Strongmen and State Accountability: Evidence from Indonesia's *Tanah Bengkok*"

1 Introduction

Traditional local leaders are crucial for rural development: they form the last mile of service delivery and are often directly responsible for local policy implementation (Baldwin and Raffler, 2019; Balán et al., 2022; Michalopoulos and Papaioannou, 2013).[1] Most studies, however, have found an overwhelmingly negative impact of traditional leaders on development outcomes – reasons for which are often traced to their authoritarian and despotic rule (Acemoglu et al., 2014; Mamdani, 1997). Yet, a simple reason could be that local leaders are often poorly compensated. Naturally, this raises the question: given the importance of local leaders, what is the most effective way to improve their performance? Specifically, is it possible to implement an effective compensation scheme that does not rely solely on higher wage compensation?[2]

I answer this question in the context of village chiefs in Java, Indonesia. The Indonesian context is ideal for three reasons. First, the presence of *tanah bengkok* – an institution whereby chiefs are remunerated in the form of cultivation rights over village rice land during their term of office.[3] Typically, chiefs lease out *bengkok* land to poor local villagers on fixed rental contracts at discounted rates (conditional on successful harvests), and nearly all villagers pay in-kind rents (i.e. in the form of un-husked rice).[4] As a result, a large fraction of *bengkok* chiefs' pay is tied to a stable, community-owned asset.

Second, Indonesia has a long history of largely free and fair village chief elections (dating back to the Dutch colonial era). The existence of elections are crucial for both disciplining and selecting leaders whose preferences are aligned with constituents (Ferraz and Finan, 2009; Dal Bó and Finan, 2018). Third, I collect a unique panel dataset from thousands of hours of qualitative interviews with (ex-)village chiefs and local elites across 193 villages in West Java (January — May 2019). This allows me to provide suggestive evidence on key mechanisms and study the inner workings of village institutions from a bottom-up perspective. This is especially crucial given the paucity of detailed micro data on local leaders and elections.

To that end, this paper answers the following question: In the presence of elections, how do persistent differences in political rents, derived from a stable, community-owned asset, affect chief performance and long-run economic development? I do so by taking advantage of a historical Dutch contingency which generated unique variation in *bengkok* remuneration across villages in West Java, Indonesia. I hypothesize that *bengkok* chiefs might invest more in local develop-

[1] Close to a quarter of the world's population is governed by some form of active traditional political leadership (Baldwin and Raffler, 2019) and organizations like the World Bank have spent nearly US$80bn on local development programs, the majority of which, channel funds through these leaders (Mansuri and Rao, 2013).

[2] As Bandiera et al. (2019) note: "finding ways to leverage non-pecuniary incentives for politicians may be particularly important in low- and middle-income countries" (pp. 16).

[3] *Bengkok* land is also awarded to lesser village officials. The size of these allotments, however, are typically much smaller. In addition, chiefs are the key decision-makers. Hence, I focus on the effects of *bengkok* land awarded to chiefs.

[4] Similar discounts on land rents have also been observed in other rural Southeast Asian agrarian economies. See, for example, pp. 106-107 of Scott (1985) which describes the case of Malaysia where local landowners often provide a discount to tenants if these tenants reside in the same village. In rural agrarian economies, in-kind rents are also often thought of as being more beneficial for tenants, since the landowner takes on the arduous task of husking, milling, and transporting the de-husked rice to the nearest market.

ment, given that *bengkok* remuneration is tied to the stability of local rice production. As a result, *bengkok* possibly attracts better quality leaders, influencing chief performance, local public goods provision, and economic development.

For identification, I leverage plausibly exogenous variation in the persistence of *bengkok*, arising from the introduction of the Dutch Cultivation System in the early 19th Century.[5] Specifically, frequent redelineation efforts led to the split of a previously homogenous region coinciding with the introduction of differential chief remuneration systems *within* the System. Section 2.2 provides detailed evidence that this bifurcation occurred because of idiosyncratic political circumstances rather than economic, cultural, or political differences across the boundary.

Hence, my treatment group comprises of villages immediately to the north of a then-newly formed Dutch colonial border (the historical Cirebon–Priangan border, highlighted in green in Figure 1a) which, by virtue of being placed within a larger administrative unit where *bengkok* was deemed to be native, continued to pay chiefs largely in terms of *bengkok*. In contrast, my control group comprises of villages to the south where *bengkok* was not deemed to be native, and hence, chiefs are instead, today, largely paid through a small percentage of village-level informal taxes. It is important to note, however, that these informal taxes are non-compulsory and most villagers choose not to pay these taxes. Hence, chief remuneration in treated villages continues to be much higher than in control villages. Average chief remuneration in treated villages is 34.4 million IDR ($2,293) per year, nearly 3 times more than that of control villages (12.2 million IDR or $813).[6]

[FIGURE 1a ABOUT HERE]

The cross-village differences in pay schemes introduced by the Dutch create a unique setting to learn about the effects of changes in political pay. Identification as described above, however, involves one key challenge. Chiefly, the *bengkok* institution is a bundle. Across most of Java, alongside *bengkok* the Dutch strengthened the chief position by introducing elections and rights to collecting informal taxes. Hence, to identify the effects of *bengkok* pay, I focus exclusively on a previously homogenous region, described above, whereby Dutch border creation that had little to do with pre-existing differences, led to villages in the north receiving *bengkok* land rents, elections and informal taxation rights, whereas those to the south only received elections and informal taxation rights.

Today, however, our survey data reveals that some villages in the control group have adopted *bengkok* land in the more recent decades (Figure 2). Reassuringly, however, qualitative fieldwork

[5] On the Dutch Cultivation System in general: It is well documented that the largest and worst incidences of famine in colonial Java occurred during this time period, as farmers were forced to give up land and labor for the cultivation of lucrative cash crops for Dutch export. See, among others, Van Niel (1972) for an overview of the impact of the Cultivation System on Java. Notably, however, Dell and Olken (2020) document positive modern-day development outcomes from persistent effects of Dutch infrastructure constructed during the Cultivation System. In contrast, historical evidence suggests that the Cultivation System in my study areas focused largely on extraction, rather than investments in infrastructure. This allows me to better isolate the effects of higher land rents from *bengkok*, on my outcomes of interest (Michalopoulos and Papaioannou, 2020). Specifically, effects on the bottom-up provision of public goods by chiefs, vis-a-vis top-down infrastructure provision.

[6] The monetary-equivalent amount from these sources, however, was and continues to be much lower in comparison to *bengkok* (Breman, 2016). Section 2.6 describes persistent differences in remuneration using contemporary survey data.

suggest that these increases came about only after the end of Dutch colonial rule, during the 1980s — 1990s in a largely ad-hoc manner. A key difference, moreover, is in the system of cultivation whereby it appears that *bengkok* chiefs in these late-adopter villages have fewer villagers working on their land. Regardless, I account for non-zero *bengkok* land on both sides of the border, using a spatial fuzzy regression discontinuity design (discussed in detail in Section 3.2).

Using a spatial fuzzy regression discontinuity design, I first show that villages on both sides of my study border are largely balanced on geographical and ethnic group characteristics. I do so using the most disaggregated set of predetermined agro-climatic and geographical variables available.[7] Importantly, as a proxy for pre-treatment economic prosperity (Acemoglu et al., 2002), I test and show that villages are balanced on pre-treatment population density (1819). I digitize these from handwritten village-level records from the National Archives of Indonesia. I find a positive effect of *bengkok* land rents on long-run development: chiefs raise more funds and provide higher levels of public goods. This translates into higher villager education and lower agricultural employment.

My results are largely robust to a variety of analyses, including alternative RD specifications and bandwidths. To address possible cross-border differences in colonial policy that evolved after the imposition of *bengkok*, I digitize 1853 and 1945 Dutch Colonial maps and find little evidence that this explains my observed results. Lastly, I provide evidence that my results are unlikely to be due to downstream differences in (i) multi-tasking; (ii) land inequality; nor (iii) more secure land rights.

Next, I examine four possible contemporary mechanisms driving positive *bengkok* effects: First, higher *bengkok* rents may attract better quality chiefs *(political selection)*. Second, higher rents might incentivize chiefs seeking re-election to put in greater effort *(re-election incentives)* (Ferraz and Finan, 2009; Gagliarducci and Nannicini, 2013). Third, higher rents might lead to greater *political competition* which could, in turn, lead to more pro-growth policies (Besley et al., 2010). Last, I test if *bengkok* might have led to greater *economic embedded-ness* and/or *pro-sociality* (Baldwin and Raffler, 2019; Bowles and Polania-Reyes, 2012).

To test these mechanisms, I implement a novel primary survey data collection exercise across both sides of my study border drawn from thousands of hours of in-person, mixed-methods interviews with (ex-)village chiefs and elites. I find evidence that *bengkok* leads to positive effects on political selection. Chiefs are around 22p.p. more likely to hail from an ex-civil servant background and have marginally higher years of education. I find relatively little evidence for re-election incentives and political competition. Taken together, my results suggest that *bengkok* played a key role in attracting better chiefs who shaped stronger bottom-up interactions between chiefs and villagers. These chiefs were better at raising funds for the construction of public goods, resulting

[7] For studying villages on Java, measures such as rainfall and temperature are not available at a suitable level of disaggregation (Dell and Olken, 2020). Specifically, disaggregated data for rainfall, temperature in the early 19th century are unavailable and, for the earliest available periods (1945 onwards) are aggregated at a much larger geographical-level than village-level polygons on Java. Javanese villages are, on average, much smaller than those in the Outer Islands studied in e.g. Bazzi et al. (2019).

in better educational and economic outcomes for *all* villagers.

I close by investigating two additional channels in line with the extant literature on the selection and incentives of (political) leaders — economic embedded-ness (Baldwin and Raffler, 2019) and pro-sociality (Deserranno, 2019; Fehr and Schmidt, 1999; Boudreau et al., 2025).[8] I present a conceptual framework based on two premises. First, the *in-kind* nature of *bengkok* rents, conditional on successful harvests, might have led to a higher propensity for chiefs to invest in public goods that reduce the variance of rice production and/or the risk of crop failures (*economic embedded-ness*).

Second, traditional norms requiring chiefs to rent out *bengkok* at discounted rents to poor villagers might have (i) attracted *more pro-social* individuals to run for office (Bénabou and Tirole, 2006; Bowles and Polania-Reyes, 2012); and/or (ii) might have led to greater *pro-sociality or social embedded-ness* of chiefs. First, these institutional features might have appropriately framed the *bengkok* chief's position as that of a pro-social mission and increased the probability that more public-spirited types run for office in *bengkok* villages. Second, the obligation to rent out *bengkok* to poor villagers might have led to the formation of stronger social ties between *bengkok* chiefs and a broader slice of the village population.

First, I provide suggestive evidence that *bengkok* chiefs are more likely to channel investments towards dams and irrigation. Second, they are more likely to say that they ran for office due to pro-social reasons such as to "give back to the community" and "to contribute towards village development". Third, *bengkok* chiefs are able to mobilize a larger number of villagers for the construction of these public goods. Taken together, these differences are consistent with the hypothesis that the persistently positive effects of *bengkok* might be traced to the *form* of *bengkok* rents.

Much of the existing literature on indirect rule emphasizes the extractive nature of traditional local governance (Mamdani, 1997). Why did indirect colonial rule through *bengkok* chiefs not lead to worse outcomes? The reason is that across Java, the Dutch ruled entirely through local leaders. Hence, the counterfactual to *bengkok* chiefs was not direct governance by colonial administrators. Instead, as shown, the counterfactual was non-*bengkok* leaders of lower quality.[9]

This paper makes four novel contributions. First, it contributes to the literature on the role of local elites in growth and development (Martinez-Bravo, 2014, 2017; Balán et al., 2022; Mamdani, 1997). Negative effects are often traced to colonial intervention and differences between direct and indirect rule (Gennaioli and Rainer, 2007; Banerjee and Iyer, 2005; Baldwin et al., 2016). Yet, these differences are often bundled with potentially confounding factors such as colonizer identity. Here, I study within-variation in indirect rule *within* Dutch-colonial Indonesia. This allows me to circumvent such confounding factors and focus on effects arising solely from differences in systems of political remuneration. In addition, through an extensive, novel, primary data collection exercise, I can provide suggestive evidence on key mechanisms of interest. Specifically, I show

[8] In particular, Baldwin (2016) argues that the economic and social well-being of local chiefs who live full-time in their communities, might be more closely tied to that of their communities.

[9] Antlöv (1994) provides qualitative accounts consistent with this.

how economic embeddedness and pro-sociality might have enabled relatively small differences in land rents to generate disproportionately large positive effects on development.

Second, this paper ties together the literature on the personnel economics of the state (Finan et al., 2017; Deserranno, 2019; Colonnelli et al., 2020) and how (non-)monetary and social incentives affects political selection and performance (Ferraz and Finan, 2009; Kotakorpi and Poutvaara, 2011; Deserranno, 2019).[10] In particular, Heldring et al. (2026) show that unpaid bureaucrats in 19th century England outperformed paid bureaucrats, possibly due to greater social prestige and career incentives associated with the former. My findings highlight an alternative tool—the use of asset-based compensation. I provide one of the first pieces of empirical evidence for the positive effects of asset-based compensation for local political leaders in a pre-industrial setting and show, suggestively, that effects might run through greater pro-sociality and embedded-ness.

Third, this paper contributes to the literature on the persistent effects of colonial institutions (see e.g. Dell and Olken, 2020). In particular, Lowes and Montero (2021) shows that weak political accountability and poor development in Africa can be traced to persistently negative effects stemming from historically coercive features of indirect colonial rule. In Indonesia, much of the qualitative, anthropological literature argued that *bengkok* had negative effects on village development and chief performance (Antlöv, 1994; Antlöv et al., 1995). In contrast, I provide novel evidence of the *positive* effects of *bengkok*, a remuneration system institutionalized during one of the most extractive periods of Dutch rule. I show that *bengkok* land rents outlived initially extractive motives, and continues to have positive effects on local governance and development today.

These findings have broader policy implications. *Bengkok* today is widely practiced throughout most villages on Java, Indonesia's most populous island (see Figure A.1).[11] My study potentially provides a partial explanation for Indonesia's rapid growth over the past half decade – much of this growth could, perhaps, be attributed to higher village leader quality and state capacity stemming from *bengkok*. More broadly, my results underscore the potential effectiveness of land remuneration schemes— particularly when the leader's private return is tied to public goods with broad village benefits—relative to other development interventions. They do not, however, imply that asset-based compensation will generally promote structural transformation.

Last, this paper provides novel evidence of the positive effects of a high-powered incentive scheme that implicitly ties political pay to local development; most existing studies are largely theoretical in nature (see e.g. Besley, 2004; Alchian and Demsetz, 1972). Importantly, Hanna and Wang (2017) finds the opposite: financial incentives crowd out social preferences for lucrative public sector jobs in India. How do we reconcile these results? I argue that *bengkok* is possibly an example of a well-designed remuneration scheme that crowds in social preferences (Bowles and Polania-Reyes, 2012). First, it frames the decision situation in a broad enough manner that minimizes incentives to game the system. Second, it increases pro-sociality by transmitting a

[10] My results are broadly in line with theory that underscores the importance of other-regarding preferences in motivating individual behavior (Fehr and Schmidt, 1999).

[11] In fact, the Indonesian government has made some attempts at introducing policies to expand *bengkok* practices to the Outer Islands.

message of civic duty through an explicit social obligation of collecting below-market, in-kind rents from poor villagers.[12]

The remainder of the paper is organized as follows. Section 2 provides an overview of the historical context of *bengkok* and its expansion. Section 3 discusses my empirical specification. Section 4 tests whether *bengkok* continues to have an impact on village chief performance and downstream development outcomes. Section 5 examines mechanisms by presenting a conceptual framework, and describing fieldwork data and results. Section 6 concludes.

2 The History of *Tanah Bengkok*

This section presents the historical natural experiment illustrating how Dutch expansion of indirect rule and *bengkok* along the Priangan-Cirebon border in West Java allows me to identify the causal effects of higher land rents. Throughout, I highlight key features of the historical episode suggesting the lack of differences across my study area during the pre-colonial, colonial, and post-colonial period. The lack of these differences supports my use of a spatial RDD. In addition, I describe relevant changes in the electoral and remuneration system of village chiefs.

2.1 Pre-colonial Roots and Determinants of *Tanah Bengkok* Across Central and East Java

The practice of *tanah bengkok* refers to cultivation rights over within-village rice land. These rights are granted to village leaders for their services and in lieu of formal remuneration. This practice dates back to the Mataram kingdom — the last native kingdom to rule Java before the expansion of Dutch colonial rule — which granted similar rights to elites.

The pre-colonial roots of *bengkok* poses two potential identification challenges for studying the causal effects of political land rents. First, the incidence and size of *bengkok* could be correlated with the strength of pre-colonial institutions linked to Mataram rule (Maurer, 1994; Moertono, 1963). Areas with stronger pre-colonial institutions could have developed different local governance structures. The strength of these institutions themselves, could also have a direct impact on contemporary development outcomes (Gennaioli and Rainer, 2007). This concern is borne out in village data. Figure A.1 shows that the biggest areas of *bengkok* land in 2000 were located in Central and East Java, where the Mataram kingdom was centered.

A second potential source of bias is pre-existing wet rice suitability and geographical elevation. *Bengkok* takes the form of village wet rice land, and hence, villages with more fertile wet rice land typically award chiefs larger plots of *bengkok* land (Maurer, 1994). Given that wet rice agriculture continues to be the main form of rice cultivation on most of Java and rice is a staple food crop, higher wet rice suitability could lead to better development outcomes.

[12] A modern-day analogue exists: Cabinet ministers in Singapore, one of the richest countries in the world, receive annual bonuses tied to four broad indicators of local development and salary is pegged to the top 1,000 Singaporean earners, with a 40% discount (Ee et al., 2012).

2.2 The Cirebon-Priangan Boundary in West Java: Similarities in Pre-Colonial Institutions and (the lack of) Village Administration

To overcome these endogeneity concerns, I study a historical episode that led to persistent differences in *bengkok* that were largely unrelated to these pre-existing differences. Specifically, my treatment of interest is the differences in *bengkok* land rents that arose in the eastern-most periphery of West Java in the early 19th century. Here, the expansion of Dutch indirect rule led to the creation of the Priangan-Cirebon border and the plausibly exogenous introduction of *bengkok* on one side of the border but not the other. Hence, elected chiefs immediately to the north (highlighted in green in Figure 1a) were compensated in terms of *bengkok*. In contrast, elected chiefs to the south were largely remunerated through informal taxes.

The relevant boundary is the southernmost one in Figure 1a, highlighted with a thick green line. In areas to the north of this boundary (the historical district of Galuh), the main source of chief remuneration was *bengkok*, whereas in areas to the south (the historical districts of Limbangan and Sukapura), the main source of chief remuneration was levies of money, produce or labor (Husken, 1994). The key identifying assumption is that differences in *bengkok* practices was a result of idiosyncratic historical factors rather than pre-existing differences in institutional or economic factors. Below, I highlight and summarize the historical evidence that supports this assumption. In Section 3.2, I formally test this assumption in a regression framework.

[FIGURE 1a ABOUT HERE]

Pre-border, pre-bengkok expansion similarities Three pre-treatment characteristics of regions around the Priangan-Cirebon border enable me to study the causal impact of *bengkok* land rents. First, prior to colonial rule, there were few institutional differences. Historians note that all three districts belonged to the same pre-colonial polity and shared a common political, religious and administrative history (Hoadley, 1994).

Second, the region was sparsely settled, lacked a village-based administration, and villagers did not grow wet rice. In particular, historians note that the area was "isolated and semi-autonomous, without any centralized ruler claiming taxes and loyalty.... settlements were small, dispersed and rarely integrated into larger villages. Isolated clusters of dry rice cultivating households lived mainly from what they themselves produced." (Antlöv et al., 1995). The lack of historical evidence for wet rice cultivation is particularly important. *Bengkok* land takes the form of wet rice. Hence, it is unlikely that *bengkok* practices existed in this region before Dutch intervention.

Third, prior to Dutch introduction of *bengkok*, households had been governed by a similar form of nascent, local village administration on both sides of the border for nearly a century. Specifically, beginning from the mid-18th century, the Dutch forced households to cultivate coffee alongside rice in both regions (Breman, 2016). In addition, the Dutch appointed village officials to supervise the production and collection of coffee. In return, village officials received income and authority from the collection of taxes from individual households.[13] The remuneration of these

[13] Antlöv et al. (1995): p. 19-20. It is important to note, however, that villages also had a Council of Elders who were

officials only diverged in the early 19th century, upon the introduction of the Cultivation System and *bengkok*. I describe this bifurcation in Section 2.6

2.3 Origins of the Study Boundary: Dutch Expansion of *Bengkok* and Indirect Rule in the Early 19th Century

Post 18th Century Dutch Expansion Two historical facts regarding Dutch expansion of *bengkok* and indirect rule further supports the idiosyncratic nature of *bengkok* assignment. First, the bifurcation in cross-border *bengkok* practices resulted from an idiosyncratic redrawing of boundaries in 1810, one amongst many purportedly done for administrative efficiency. Second, the introduction of the 1832 Dutch Cultivation System was based on these boundaries despite the fact that they did not demarcate any actual institutional nor cultural differences.

The redrawing of the 1810 Priangan-Cirebon boundary was not because of pre-existing differences between the districts. Instead, it was motivated by Dutch claims of enhancing administrative efficiency[14] and salient geographical characteristics. Pre-1810, all three districts had belonged to the same administrative unit. It was only in 1810, for the first time in one and a half centuries, that the three districts were placed under different administrative units. Why? Rees (1869) writes that this decision was made on the "logic of preserving ... (contiguous) borders." and "not (by virtue) of the product or yield (of coffee)".[15] In particular, the Dutch had limited information about rural Java, and just as it was for many interior borders, drew much of the Priangan-Cirebon border following mountains and rivers (Ricklefs, 2008). Hence, in 1810, Limbangan and Sukapura were, administratively, placed under the Residency of Priangan, and Galuh was placed under the Residency of Cirebon (See Figure 1b).

[FIGURE 1b ABOUT HERE]

1832 Dutch Cultivation System: Bifurcation across the newly established Dutch Residency borders In 1832, the Dutch introduced *bengkok* as a form of remuneration for village chiefs all throughout Cirebon but not in Priangan. This was done as part of the imposition of the Cultivation System across Java (1832-1870),[16] despite little to no pre-existing differences across the border regions of Galuh, Limbangan, and Sukapura. Instead, the introduction of *bengkok* was based on the Priangan-Cirebon borders drawn in 1810 and the Dutch perception of *bengkok* as an institution native only to villagers in Cirebon. In particular, the northern-most borders of Cirebon Residency included the seat of the Cirebon kingdom which had, historically, granted similar

oriented towards the needs of the village (Antlöv (1994): p. 75.)

[14] Hardjasaputra (2004): p.57

[15] Rees (1869): p. 110-111.

[16] The Dutch Cultivation System led to the imposition and expansion of cash crop cultivation all across Java. Due to a lack of manpower, however, the Dutch turned towards village chiefs as key local intermediaries. There were, however, no uniform set of rules for the Cultivation System – the Dutch worked with local intermediaries in ways that differed depending on pre-existing local institutions and constraints (Van Niel, 1972) (p.93) In particular, in many parts of Java, given the abundance of land and lack of labor, the Dutch sanctioned the conversion of village rice fields into *tanah bengkok* to shoulder the heavy financial costs of paying the salaries of tens of thousands of chiefs (Breman, 1983).

cultivation rights to princes (Figure 1b).[17] Prior to 1832, these rights had almost certainly never been extended to the villages in my study area around the newly re-drawn Priangan-Cirebon border (Hoadley, 1994). In short, the historiography strongly suggests that *bengkok* was introduced in Galuh, but not Limbangan nor Sukapura, by virtue of it being under the administrative jurisdiction of the Residency of Cirebon in 1832. This was a top-down decision that did not take into account the fact that both areas did not have a history of *bengkok* practices.

Why did the Dutch not take into account the lack of pre-existing *bengkok* practices in Galuh? The historical evidence suggests that nearly all measures related to the Cultivation System were hastily introduced due to an urgent need for revenue following the end of the Belgian War in 1831 (Tarling, 1992). Van Vollenhoven (1931): "To get free land for forced cultivation, the whole set of cultivated fields was flung together in great confusion. ... In some places inheritance rights were abolished because they were inconvenient. The lands occupied by neighbouring villages were mixed wholesale and so badly was the Administration smitten... that it brought these measures into play in villages in no way connected with the Cultivation System."

In summary, the introduction of the Cultivation System in 1832, together with the happenstance that Galuh, had been placed under the jurisdiction of Cirebon in 1810, led to the expansion of *bengkok* practices into Galuh but not across the Cirebon-Priangan border into Limbangan and Sukapura. Figure 1a illustrates the Cirebon–Priangan border in black and green and the extent of *bengkok* land at the subdistrict level using 1867 Dutch archival data.[18] The expansion of *bengkok* between Pre-1830 Cirebon (Figure 1b) to 1867 (Figure 1a) appears to align almost exactly with the extent of the border, and despite the possible imprecision of colonial statistics at that time, there is a marked discontinuity in *bengkok* across the border.

2.4 Dutch Policy During the Intermediate Colonial Period: 1832 – 1949

Intermediate Dutch colonial policy can be divided into two periods (Tarling, 1992; Booth et al., 1990): the Cultivation System (1832 – 1870) and the "Liberal Period and Ethical Years" (1870 – 1930). Notably, throughout both periods, the differences between Galuh and it's southern neighbors were so few that the administration of Galuh was transferred multiple times between Cirebon and Priangan Residency, up till the end of the colonial period (Gooszen, 1985).

Furthermore, there were largely few differences in fiscal capacity and investments across Dutch Residencies. The Dutch made few, if any, investments that were directly beneficial for "Native" interests. Moreover, Dutch Residencies often had limited fiscal capacity and investments

[17] Historians widely believe that these rights were a precursor to *bengkok* (Moertono, 1963).

[18] The 1867 Eindresume is a historical land cadastre of 808 villages in Indonesian Java compiled by the Dutch colonial government in 1867 and contains the earliest records of *bengkok* land. The purpose of the survey was to determine the direction of colonial policy due to liberal Dutch opposition to the continued exploitation of natives through the Cultivation System (Eindresume Vol I, 1867 pp 3–6). All land under private estates was excluded. This refers to land sold by the colonial government to Europeans and Chinese. Most of this land was centered on the North Coast of West Java (present-day Cirebon) and Surabaya in East Java (Kano, 1904). Surveyors were advised to select at least 2 villages in each district (approximately equivalent to present-day subdistricts) with a preference for those that were as distinct from each other as possible.

were largely undertaken directly by central Dutch offices following overarching colonial interests (Furnivall and Furnivall, 2010).

Throughout the Cultivation System Period (1832 – 1870), Dutch colonial policy in my study regions was largely limited to infrastructural investments for the transportation of coffee from villages and highland coffee areas to warehouses and harbors (Breman, 2016). In Section 4.3, I test for differences in proxies for 1853 Dutch Colonial Policy.

From the 1920s ("Liberal Period and Ethical Years"), the Dutch Colonial State began state-building in earnest, largely in the form of broader public goods provision. These efforts at exercising greater administrative powers, especially in terms of education, public health, and sanitation, however, rarely reached down into rural villages (Tarling, 1992). Nonetheless, in Section 4.3, I test for differences in other potential proxies for 1945 Dutch Colonial Policy including (rail-)road density. Differences, if any, in such investments were more likely, Dutch colonial extraction continued up until Indonesian independence in 1949.

2.5 Chief Elections and the Introduction of Term Limits in 1979

Along with the expansion of *bengkok* in areas north of my study border, chief elections were introduced throughout Java and on both sides of my study border starting from the early 19th century (Raffles, 1830). This was, however, never accompanied by a commensurate increase in formal remuneration. Chiefs were never formally incorporated into the bureaucratic state but were instead paid in terms of *bengkok* land and a variety of informal taxes (Husken, 1994). Hence, elections were held in all villages on both sides of my study border, but remuneration practices, as described above, differed.

Crucially, term limits were amended in 1979. Between 1830 – 1979, chiefs were elected for life. Post-1979, however, chiefs became term-limited and were to be elected to a maximum of two terms of 6–8 years each.[19]

2.6 Differences in the Level and Nature of *Bengkok* Remuneration

Colonial Period: Differences in components of remuneration As described in Section 2, Dutch intervention in 1830 led to a bifurcation in chief remuneration across my study border. In areas to the north, chief remuneration had four components: *bengkok*; a 8% commission from the collection of village land rent; a piece-rate tax on the delivery of coffee beans;[20] and traditional labor services from villagers.[21] In areas to the south, chief remuneration was identical except for the absence of *bengkok*. Unfortunately, quantitative data on remuneration during the colonial period is largely unavailable. In 1870, the compulsory cultivation and collection of coffee was abolished but the role of village chiefs and differences in *bengkok* practices have persisted.

[19] I describe this, in further detail, in Section 5.2.
[20] 24 duit per picul of coffee delivered.
[21] Fernando (1982): pp165.

Today: Persistence in *bengkok* and differences in levels of remuneration Traditional levies on produce and labor have been largely abolished and *bengkok* serves as the main component of chief remuneration.[22] Based on primary survey data, chiefs in treated villages earn an average of 34.4 million IDR ($2,293) per year, about 3 times more than chiefs in control villages, who earn 12.2 million IDR ($813) per year. The bulk of this comes from *bengkok* land, with a negligible fraction from intra-village (rice) taxes levied on the population.

Outside options Hence, in the absence of *bengkok* rights, chiefs are barely paid a living wage: the average annual salary of an Indonesian civil servant is 23.4 million IDR ($1,560),[23] and the average annual wage of a day laborer is 18 million IDR ($1,180) (BPS 2019).[24]

3 *Bengkok* and Long-Run Development

To examine the effects of higher land rents on long-run development, I collect original survey data and combine this with various rounds of the Indonesian Village and Population Census data. Here, I provide details on core regressors and outcomes. I introduce other outcomes of interest as they arise. Appendix Table A.1 provides a summary of data sources for all variables.

3.1 Data: Measuring Contemporary Chief Performance and Village Development (1986-2000

I examine *bengkok*'s long-run impact by testing whether it affects contemporary chief performance and development outcomes such as measures of education and the probability of having a non-agricultural job. I do so using various village and population censuses. My main measures of chief performance are public goods. Chiefs bear a heavy responsibility as both agents of the state and bottom-up, elected representatives (Antlöv, 1994) and one of their major responsibilities is to construct and maintain local infrastructure. I provide further details on data construction in Section A.1.

Throughout, to better interpret outcomes as a measure of chief effort, I focus on outcomes in Indonesia's pre-2000 decentralization period.[25] Post-decentralization, the increase in mandatory fund transfers to village governments (Sjahrir et al., 2014), makes it harder to interpret village-level outcomes as a measure of chief effort.

[22] Traditional levies of produce or labor were officially abolished on Java in 1916. See (Hup, 2021) for more details. Separately, a fixed salary for chiefs was introduced starting from 2014 but this period is outside the scope of this paper's analysis.

[23] Author's calculation from the 2010 Indonesian Work Force Labor Survey.

[24] Such levels of low compensation for local leaders are not unique to my setting. 98% of municipal legislators hold a second job in Brazil (Ferraz and Finan, 2011), and the president of a *panchayat*, the equivalent of village chiefs in the Indian village government, is paid less than the minimum wage, at 50-60 dollars per month (Munshi and Rosenzweig, 2015).

[25] I further exclude village-level infrastructure outcomes in 2000, given the fall of Suharto and the Asian Financial Crisis in 1998. "Big-bang" political, administrative, and fiscal decentralization took place in 1999 after the fall of Suharto in 1998.

3.2 Estimation Framework: Spatial Fuzzy Regression Discontinuity Design

As discussed in Section 2, *bengkok* practices were expanded up to, and stopping at the Cirebon-Priangan border. We might thus be worried about the plausibly endogeneity of these borders. What then, were these borders based on? Like other interior Javanese boundaries, these borders largely followed mountain ranges and rivers as the Dutch had limited information about rural Java (Ricklefs, 2008). Hence, given the extremely mountainous terrain across both sides of the border, I further limit my sample to two segments of the southern Cirebon–Priangan border where areas on both sides are largely balanced on ruggedness and elevation. Specifically, I limit my sample to the two border segments that are largely demarcated by rivers and not mountains. Figure 2 plots the two segments of my study border. As can be seen, I exclude the left-most, black-lined district border segment and the bottom-right border segment due to the presence of mountains (shaded in white) to, respectively, the north-east and north/south of each segment.

Figure 2 plots the two segments of my study border and the contemporary size of *bengkok* across the Cirebon–Priangan border. Moving across the border, there is a marked discontinuity in *bengkok* size. There have, however, been increases in *bengkok* in villages to the south of the border. This can be seen in the northwestern corner of Figure 2, where villages to the left of the border have positive amounts of *bengkok* land today. Fieldwork suggests, however, that these increases in *bengkok* came about after the end of Dutch colonial rule, during the 80s and 90s in an ad-hoc fashion.[26] Nonetheless, I take into account positive amounts of *bengkok* land across both sides of my study border by using a spatial fuzzy regression discontinuity design.

[FIGURE 2 ABOUT HERE]

To isolate the effects of *bengkok* from a composite *border* treatment effect, I use a spatial fuzzy regression discontinuity (RD), analogous to Basten and Betz (2013), to assess differences in outcomes for villages located just to the south and to the north of the study boundary. Specifically, the fuzzy RD leverages three characteristics of (changes in) *bengkok* across the Cirebon–Priangan border. First, that the incidence of *bengkok* does not jump from zero to one at the border. Second, that the institution of *bengkok* still exists today and third, that we are able to measure, at the village level, the *size* of *bengkok* awarded to chiefs from primary survey data.[27]

[26] Typically, this adoption of *bengkok* land occurred when a rich villager passed on and pledged his rice land toward payment of village government officials. It could also take place if village elites or officials came together to purchase rice land for the same purpose. In sum, these increases in *bengkok* were largely ad-hoc and, even when they did take place, rapidly eroded due to the lack of (i) sufficient local governance capacity; (ii) bottom-up monitoring by villagers; (iii) the general scarcity and high costs of purchasing large plots of wet rice land during later periods of high population density and land scarcity (as opposed to the land abundant early 19th century colonial period). These factors provide suggestive evidence that Dutch introduction of *bengkok* in treated regions at a time of relatively greater land-abundance was likely a *critical juncture* that overcame the lack of initial state capacity in treated villages.

[27] Specifically, we collect and construct a panel dataset on the size of *bengkok* awarded to each and every village chief that won office between 1979–2014. There exists, however, little variation across time and hence, we use the *average* size of *bengkok* awarded to chiefs, at the village-level as our key regressor of interest. The lack of variation across time is consistent with our qualitative fieldwork. When asked why there were few, if any, changes in sharecropping, leasing arrangements, and size of *bengkok* across time, nearly all respondents replied that this was because (the practice of) *bengkok* was *turun temurun*, an ancient practice that had been passed down from one generation to the next.

Formally, let $\text{Bengkok}_{fuzzy,v}$ be the size of chief *bengkok* land in each village v. I obtain the fuzzy RD estimate of *bengkok* on the outcomes of interest by jointly estimating:

$$y_{ivtb} = \alpha^f + \gamma^f \, \text{Bengkok}_{fuzzy,v} + f(\text{location}_v) + X_v' \, \beta^f + \phi_b + \epsilon_{ivbt}, \tag{1}$$

$$\text{Bengkok}_{fuzzy,v} = \delta + \tau \, \text{Cirebon}_v + g(\text{location}_v) + X_v' \, \beta + \phi_b + \nu_{ivbt}, \tag{2}$$

where y_{ivtb} is the outcome of interest for individual i in village v at time t located along segment b of my study border. Cirebon_v is an indicator equal to 1 if village v falls to the north of the Cirebon-Priangan border, in Cirebon Residency; X_v is a vector of time-invariant covariates for village v; ϕ_b is a set of border segment fixed effects that denote each of the north and south segments of the study border. $f(\text{location}_v)$ and $g(\text{location}_v)$ are the RD polynomials which controls for smooth functions of geographic location for v. I let both polynomials have the same order in both equations (Lee and Lemieux, 2010). For all regressions, X_v includes an indicator for whether a village had ever split.[28] For all regressions at the chief(-electoral term) level, I additionally control for whether a chief's term of office included 1998, the year marking the end of Suharto's rule.[29] I describe additional, regression-specific control variables in the footnotes of each regression table. I further exclude 5 outliers from my study sample: two villages with one of the largest religious schools in West Java, and three villages where village boundaries include large areas of inhospitable, volcanic land. Following Calonico et al. (2014); Cattaneo et al. (2019), my baseline specification is a a local linear polynomial in distance to my study border estimated separately on each side of the border. I use a triangular weighting kernel and calculate the optimal bandwidth using the MSE-minimizing procedure suggested by Cattaneo et al. (2019). I also present results with a wider fixed bandwidth of 30km from the border. I check robustness to using various other forms of RD polynomials and bandwidths in Section 4.3.

I identify the causal effect of present-day *bengkok* by instrumenting the size of *bengkok*, $\text{bengkok}_{fuzzy,v}$, with an indicator, Cirebon_v, for whether a village had been assigned *bengkok* in the early nineteenth century. My coefficient of interest is γ^f: the effect of an increase of 1 hectare in the amount of *bengkok* on my outcome of interest. Under the assumption that Dutch Cirebon rule affected outcomes only via its effect on *bengkok*, the IV estimate of γ^f identifies the causal effect of *bengkok* land on downstream outcomes.

Lack of Policy Differences: Dutch Cirebon vs Dutch Priangan rule I have argued, qualitatively, that it is highly unlikely that were are any substantive policy differences in Dutch Cirebon

[28] Most splits occurred in the early 1980s where a single village was typically split into 2 or 3 villages. The probability of a split occurring, however, is largely balanced across my study boundary and appears to have been driven mostly by idiosyncratic factors.

[29] Kammen (2003) further describes how village life was severely disrupted even in the years prior, between 1997-1998 due to widespread protests by village chiefs in response to a Central Government announcement to postpone village chief elections.

vs Dutch Priangan rule, given (i) later-day fluidity of the border and (ii) the relatively weak fiscal capacity of Dutch administrative units (Section 2.4). Furthermore, it is important to note that the presence of any other unobserved differences in Dutch Cirebon rule would not invalidate the fuzzy RD design, it would simply change the interpretation of γ^f. Nonetheless, to assuage any possible concerns, I quantitatively test for the validity of this assumption by showing balance on measures of (i) 1853 Dutch Colonial policy; (ii) 1945 Dutch Colonial policy (Section 4.3)

3.3 Validity of RD Design

The RD approach presented in equations (1) and (2) requires two identifying assumptions. The first assumption is that all relevant factors before *bengkok* was assigned varied smoothly at the Cirebon–Priangan Residency border. This assumption is needed to ensure that villages located just north of the border are an appropriate counterfactual for those located just south of them. In other words, to identify the effect of *bengkok*, villages should have had similar economic development, geography, history, and institutions prior to the assignment of *bengkok*

A key concern for identification is that villages to the north might have been strategically chosen for certain characteristics that could affect our outcomes of interest. For example, these villages might have been more suitable for growing certain crops or might have been more densely populated. However, whether a village was assigned *bengkok* is a deterministic and discontinuous function of whether a village fell to the north of the Priangan–Cirebon border. As described in Section 2.3, these borders were drawn when much of interior Java had not been explored. Hence, they were largely defined by salient geographic characteristics of rivers and mountains. Thus, *bengkok* villages were unlikely to have been selected based on local characteristics that also vary discontinuously at the Cirebon–Priangan border.

To assess the plausibility of this first assumption, Table 1 presents summary statistics and estimates using equation (2) and replacing $\text{Bengkok}_{fuzzy,v}$ with important geographic characteristics, share of village population that is ethnically Sunda (the main ethnic group in West Java), and a measure of pre-*bengkok* economic prosperity.[30] Geographic characteristics include elevation, ruggedness, slope, crop suitability, and river characteristics.[31] I present these results with standard errors clustered at the subdistrict level. Sub-districts continue to enjoy some small, albeit diminished, influence on funding allocations to villages located within the same subdistrict.[32]

[TABLE 1 ABOUT HERE]

Consistent with the first identification assumption, I find balance on all variables except for ruggedness and wet rice potential yield. Estimates in Table 1 suggest that *bengkok* was introduced

[30] Note that measures of pre-treatment ethnic shares do not exist. As a proxy, I measure ethnic shares from the 2000 Population Census.

[31] Unfortunately, data on other predetermined agrocclimatic variables such as rainfall, and various measures of soil quality and texture, are too aggregated to be useful when exploiting village-level variation in my sample.

[32] Results are largely similar and, in some cases, even stronger when accounting for arbitrary spatial autocorrelation (Conley, 1999) in my reduced form specifications. I present these results in Online Appendix C.4.

in villages that were *more* rugged and had *lower* potential wet rice yield. These differences, however, are unlikely to explain the entirety of any positive, downstream, long-run differences in development. First, differences in wet rice potential yield are economically small. *Bengkok* villages have a 6.43kg lower potential wet rice yield relative to a mean of 2150 kg, a 0.2% difference. Second, the direction of the estimates suggest that *bengkok* was introduced in villages that were *less* suitable for development. A rich literature shows that higher ruggedness typically leads to worse development (Nunn and Puga, 2012). Similarly, wetland rice continues to be the main staple crop on Java. Hence, lower potential yield is likely to lead to worse outcomes. Importantly, wetland rice was never part of the forced Cultivation System.[33] If anything, taken together, the direction of these estimates suggests that later results should be interpreted as a lower bound estimate of the *bengkok* effect.[34]

Nonetheless, concerns might remain that differences in potential wet rice yield or ruggedness could be driving my estimates. In Section 4.3, I test and show that results are robust to controlling for ruggedness, potential wet rice yield, a wide range of proxies for (historical) intensity of agriculture, and structural transformation.

Importantly, I show that villages are balanced on pre-treatment economic prosperity. Data on per capita income are difficult to come by and many studies use, as a proxy, data on population density (Acemoglu et al., 2002). To this end, I hand-collect and digitize 1819 population records from Dutch colonial archives. Table 1 shows that there are no significant differences between villages on both sides of the border in terms of pre-treatment population density and suggest that, if anything, villages where *bengkok* was assigned, were more sparsely populated before Dutch intervention.

The second identifying assumption is that there was no selective sorting across the RD threshold when the Cirebon–Priangan border was established. If the imposition of *bengkok* led to selective out-migration of individuals from *bengkok* villages to non-*bengkok* villages or vice versa, γ^f would be picking up this indirect effect of migration. The rigid social structure and closed nature of rural Javanese villages (McNicoll, 1968) suggests that large waves of cross-village migration were unlikely. Unfortunately, no data exists to quantify the potential magnitude of historical migration during the Dutch colonial era. Given the policy's 200-year history, this is a concern as any differences in in-migration rates might have led to strong aggregate selection effects over time. As a proxy, I conduct two tests using 2000 Indonesian Census data to show that selective in- nor out-migration is unlikely to fully explain *bengkok* effects. Specifically, in Online Appendix F., I show that results are robust to excluding in-migrants. Furthermore, I examine heterogeneity of results

[33] This suggests that, in contrast to the potentially deleterious effects of other cash crop cultivation (e.g. Uribe-Castro (2019)), it is unlikely that, in the absence of Dutch expansion of *bengkok* land, lower potential wet rice yield would have had a positive long-run impact on development outcomes. Furthermore, in contrast to coffee or other cash crops, rice was grown only for subsistence and the Dutch had very little incentive to intervene.

[34] That *bengkok* was introduced in places that were *less* suitable for wetland rice cultivation underscores the idiosyncratic nature of *bengkok* assignment in my study region. Across the rest of Java (Central and Eastern Java), there is a robust positive correlation between the incidence of *bengkok* and potential wet rice yield. See Figure A.1. Additional maps and tables available upon request.

by ease of out-migration from the Priangan region to the RD border (i.e. to the Cirebon region) and find little evidence of differential effects.

A related concern is selective sorting at the chief-level: high-ability villagers from non-*bengkok* villages could possibly have migrated to *bengkok* villages to run for chief. This was highly unlikely. Dutch archives suggest that, as early as 1819, it was mandatory for chief candidates to be residents of villages in which they run for office (Raffles, 1830). Today, this regulation continues to be adhered to both in regulation and in practice. The earliest post-independence village law of 1945, largely based on Dutch law, explicitly states that chiefs have to be legal residents of their village. In practice, it is also difficult for outsiders to garner votes without strong ties to the village (Maurer, 1994). Primary survey data corroborates this: 90% of village chiefs we surveyed were born in the village in which they held office.

4 Results

This section presents my main empirical results in three steps. First, I present first-stage results linking historical Dutch intervention to modern-day differences in *bengkok* prevalence across the border. Second, I estimate downstream effects on chief performance in terms of fund-raising, public goods provision and individual-level outcomes. Third, using the complete 100% sample microdata from the 2000 Census, I test and show that the persistent effects of *bengkok* chiefs can be traced back to cohorts that were educated as early as the 1920s. In each sub-section, I present core robustness checks, deferring alternative explanations and other robustness checks to Section 4.3.

4.1 First Stage

Table B.1 presents first-stage results where the dependent variable is the size of chief *bengkok* land, measured from primary survey data.[35][36] Column (1) of Table B.1 shows results for the optimal Calonico et al. (2014) bandwidth. Column (2) shows results under the fixed, wide bandwidth of 30km. *Bengkok* land awarded to chiefs in villages to the north of my study border are 1.9 – 2.4ha larger than those to the south – a more than two-fold increase relative to the sample mean. These estimates attest to the persistently large differences in *bengkok* across the study border. To allay any potential concerns about instrument strength, I report Kleibergen-Paap F-statistics and other relevant weak-instrument robust test statistics in all subsequent tables. I also report wild restricted efficient bootstrap p-values for the t-statistic (Davidson and MacKinnon, 2010) and Finlay and Magnusson (2019) residual bootstrap AR p-values.

[35] To the best of my knowledge, it is not possible to estimate the effects of chief remuneration from *bengkok* land using existing administrative data. The only administrative dataset that reports village-level *bengkok* land holdings is the village census (PODES) rounds of 1983, 1986, 2000, and 2003. These rounds, however, do not report the size of *bengkok* land awarded solely to chiefs.

[36] Figure B.1 and B.2 presents, respectively, 2D and 3D spatial RD plots of raw and predicted values of chief *bengkok* land.

4.2 *Bengkok*, Village Chief Performance and Long-Run Economic Development

To examine the long-run effects of *bengkok* on chief performance and economic development, I proceed in three steps. First, I show that *bengkok* villages consistently perform better in terms of public goods provision, and this appears to be a result of chiefs being better able at raising funds. Second, I provide evidence that these effects translate into higher contemporary education and economic prosperity at the individual-level. Third, I investigate intermediate political economy trade-offs of stronger ties between chiefs and the Central State.

1. Village Revenue Table B.2 presents results on the amount of funds that village chiefs raised. Panel A shows that *bengkok* chiefs are more effective at raising funds from villagers, both in terms of levels (Columns (1) and (2)) and as a percentage of informal taxes that they successfully collect (Columns (3) and (4)). At the same time, *bengkok* chiefs appear to be equally effective at top-down lobbying (Columns (1) and (2), Panel B) and, as a result, more effective at combining both bottom-up and top-down funds for the construction of development projects (Columns (3) and (4), Panel B). Together, these results suggest that bengkok chiefs are effective at raising funds from both top-down and bottom-up sources. Section B.1 discusses these results in more detail.

2. Public goods I examine effects on (non-)INPRES primary schools and infrastructural public goods for which chiefs play an important role. INPRES schools were constructed under large-scale central government efforts between 1973 and 1978 (Duflo, 2001). Hence, I interpret the number of INPRES schools as a measure of top-down government intervention. In contrast, I interpret the number of non-INPRES schools as a measure of chief effort and ability to mobilize villagers.[37] Columns (1) and (2) in Table 2, Panel A show that *bengkok* villages have significantly higher levels of non-INPRES schools.[38] Reassuringly, Columns (3) and (4) find small and statistically insignificant differences in the number of INPRES schools.

Columns (1) and (2) in Panel B reports estimates for a normalized index (Kling et al., 2007) of infrastructure public goods,[39] and suggests a positive effect. Figure B.4 further plots the estimated index coefficient and the coefficients for each public good: The point estimates are positive and effects are concentrated on asphalt roads and access to safe garbage disposal.[40] Taken together, these results suggest that greater fund-raising efforts by *bengkok* chiefs resulted in higher public goods provision.

[37] Pre-INPRES, in the immediate post-colonial period (1945-1973), school construction was largely funded through local efforts. The Dutch and early post-Colonial governments constructed few, if any, primary schools (Djajadiningrat, 1940; Aritonang, 1994). Hence, (i) timing-wise, it is the sole measure of chief effort during the immediate post-colonial period; (ii) I can trace effects to as far back as the 1920s using cohort-level data on villager education.

[38] To reduce the influence of outliers, I winsorize the top 95th percentile of village schools. Results remain qualitatively similar without this adjustment.

[39] These are access to safe water sources, presence of aspalt roads, and safe garbage disposal. I follow Martinez-Bravo (2017) in the construction of these variables.

[40] I view these results on infrastructure, however, as suggestive. Figure C.2 tests for robustness to alternative RD bandwidths and finds that, though the index coefficient remains positive, the difference is not always significant in the middle bandwidths. This result may be indicative of general equilibrium effects. Villages in the middle bandwidths on the non-*bengkok* side are slightly closer to a small city and more public goods constructed in these villages might be indicative of higher villager demand for connectivity to the city.

[TABLE 2 ABOUT HERE]

3. Villager outcomes Table 2, Panel C reports effects on education (2000 Indonesian Population Census) and, as a proxy for economic prosperity, the probability that an individual has an agricultural job. In line with the literature on structural transformation, I interpret a lower probability of an agricultural job as an indicator of higher economic prosperity. I augment this with the share of households working in the agricultural sector between 1986-1996 (Panel B).

Columns (1) and (2) in Table 2, Panel C estimate that *bengkok* villagers have, suggestively, more years of education. Columns (3) and (4) estimate that *bengkok* villagers are somewhat less likely to hold an agricultural job, though this is less precisely estimated in the wide bandwidth. Turning back to Panel B, Columns (3)-(4) estimates that *bengkok* villages report a 2.5–5.1p.p. lower share of households engaged in agriculture.[41] Figure 3 (and Figure B.6) presents a standard RD plot, with distance to border as the running variable and a local linear trend to each side of the discontinuity. For all relevant outcomes, we observe a clear discontinuity at the border.

[FIGURE 3 ABOUT HERE]

Intermediate Effects on Education: 1920-1980 When did positive effects on villager education begin? Figure B.5 plots cohort-level coefficient estimates on historical villager education using the 100% count sample of the 2000 Population Census. Across all cohorts, impacts on years of education are large, positive, and observed as early as the 1920s (See Section B.2 for details). Given the lack of term limits up until 1979, these results suggest that *bengkok* might have led to positive development outcomes through giving chiefs a stake in village development (Olson, 1993).

Overall, *bengkok* chiefs appear to be more effective at both bottom-up fund-raising and top-down lobbying. In turn, these funds were used for the construction of schools and infrastructure which has translated into better outcomes for villages as a whole. Next, I discuss leading alternative explanations and additional robustness checks.

4.3 Alternative Explanations and Robustness Checks

This section provides additional evidence to support my interpretation of the main results. First, I consider several leading alternative explanations. Second, I present robustness checks.

Alternative explanations. First, one possibility is that *bengkok* might have reshaped the overall, within-village land distribution. To examine effects, I use data from the 1980 Population Census to construct various measures of land inequality. Table E.3 shows that *bengkok* did not substantially affect the average size of private farmland nor the gini coefficient of farmland size. Second, given that non-*bengkok* chiefs do not earn a living wage from holding office, they might perform worse due to the need to *moonlight* (Gagliarducci and Nannicini, 2013). I find no evidence for this:

[41] These patterns are further supported by additional analysis based on Manufacturing Census data (*Statistik Industri*) (1995-1997). Table E.2 shows that an increase in 1ha of *bengkok* leads to an increase in both the number and presence of manufacturing firms. Results are robust to excluding 1997, the year in which the Asian Financial Crisis occurred.

Table E.5 shows that *bengkok* chiefs are, if anything, slightly more likely to hold a second job while in office. Lastly, *bengkok* might have strengthened chiefs' incentives to invest in agricultural land akin to Goldstein and Udry (2008). This does not appear to be the case. Individual land rights over private farmland in Java are highly secure with 87–90% of households in rural Java reporting having a legal document that proves their land ownership.[42]

Robustness of Main Results. There are four main empirical concerns: robustness to controlling for differences in ruggedness and potential wet rice yield; robustness to alternative RD specifications; the overlap between the study boundary and historical Dutch administrative borders; and the overlap between the study boundary and modern-day district borders.

First, Section 3.3 documents potentially important baseline differences in ruggedness and potential wet rice yield. Tables C.9 and C.10 shows that results are robust to controlling for these differences. Importantly, Columns (3) & (4) of Panels B and C, Table C.10, show that results on non-agricultural employment remain statistically and economically significant. Tables C.11—C.16 further show that these results are robust to controlling for polynomials of differences in potential wet rice yield.[43]

Second, Tables C.17 and C.18 test robustness to a linear polynomial in latitude and longitude where $f(\text{location}_v)$ and $g(\text{location}_v)$ in Equations (1) and (2) are modified to be a function of latitude and longitude and results are robust. In Figures C.1 and C.2, I show that the results are robust to alternative bandwidths, with the only exceptions, as described earlier, being that on *Infrastructure Index* and *Agricultural Job*.

Third, the study border overlaps with the historical Dutch administrative border of Cirebon–Priangan. Dutch administrative borders are defunct. My results may, however, reflect differences from the persistent effects of historical differences in Dutch extraction or infrastructure investment across my study border. To assess this, Table E.1 examines proxies for differences in colonial extraction and infrastructure across my study border in 1853, at the height of the colonial-period Cultivation System, and in 1945, just before the end of Dutch colonial rule, and shows that differences are minimal.[44]

The only statistically significant differences are in terms of the percentage of village land used to grow coffee in 1853 (Columns (3) - (4)). Reassuringly, coffee has not been grown in my sample villages, nor any part of Java, since the 1870s (Breman, 2016). Nonetheless, given recent evidence that historical coffee cultivation could exert negative effects on long-run development (Uribe-Castro, 2019), Table C.1 and C.2 tests and shows that results are robust to controlling for 1853 coffee cultivation.[45] Similarly, for completeness, Table C.3 and C.4 test and shows that results are robust to controlling for levels of infrastructure in 1945.

[42] Appendix E.3 and E.5 describes these results in further detail.

[43] Unfortunately, I am unable to implement the procedure of Casey and Klemp (2021) due to the lack of historical, village-level data on the size of *bengkok* land awarded to chiefs in the early 19th-century.

[44] I digitize both 1853 and 1945 measures from historical maps. Figure B.3 provides an example.

[45] In addition, I could control for additional proxies for historical intensity of agriculture and structural transformation between the mid 19th-mid 20th century. Unfortunately, pre-20th century measures of individual-level education or employment measures do not exist.

Fourth, the study boundary overlaps with a modern-day district border. This would be a concern if differences in contemporary outcomes are a result of differences in the differential top-down disbursement of funds to districts. To address this, I present three pieces of evidence. First, fieldwork suggests that the unilateral disbursement of public goods and funds from upper levels of government was extremely uncommon.[46] Second, given that the institution of *bengkok* preceded the formation of modern-day district boundaries (largely established post-independence in 1945), any observed differences could be interpreted as a downstream effect of *bengkok* chiefs on district government behavior. Third, I present a falsification test in Figure D.1 (described in Section B.1 and D.1). The estimated *bengkok* effect is located slightly below the 90th percentile of estimated effects across all modern-day district pairs. Magnitude-wise, the *bengkok* effect remains larger and more negative than that of most district pairs.

Finally, in Online Appendix C., I show that my results are robust to the following additional robustness tests. I analyze results: controlling for ruggedness (Tables C.5 and C.6) ; coffee suitability (Tables C.7 and C.8); and dropping one cluster at a time (Appendix Section C.5).

4.4 Intermediate Political Economy Trade-offs from Central State Ties

Bengkok chiefs appear to be better able at raising funds from the state and are more likely to be ex-civil servants (Section 5). Did the potential presence of stronger chief ties to the central state have dynamic implications for villager welfare during key historical episodes? First, Panel A of Table E.4 tests and finds little evidence of potential differences in demographic composition arising from the 1965-1966 mass violence events across Indonesia. Second, the Green Revolution introduced new rice varieties and technological inputs across rural Indonesia and chiefs played a central role in channeling inputs from the state to farmers. Panel B of Table E.4 tests and finds little differences in the number of tractors and water pumps in 1983. I discuss these results in detail in Section E.4.

In sum, the long-run benefits associated with *bengkok* does not appear to have occurred at the cost of worse villager outcomes nor greater regime-aligned modernization during the intermediate period. Of course, these results reduce but do not entirely rule out the role of the central state in driving observed positive effects. More broadly, they point to the potentially important role of other bottom-up mechanisms—we explore these in Sections 5.4 and 5.5.

5 Testing Mechanisms with Fieldwork

I find a positive *bengkok* effect on contemporary chief performance and long-run development outcomes tracing as far back as the 1920s. Given *bengkok* still exists, this section uses rich, original survey data to disentangle, as best as possible, four contemporary mechanisms behind this

[46] Respondents frequently cited the need for chiefs to visit external village government offices to lobby for funds and public goods, without which "there would be no village development." This is reflected in my survey data, where 75% of all development projects constructed by chiefs were reported to have been secured through chiefs' lobbying efforts.

relationship. Higher land rents may attract better quality chiefs *(political selection)*; incentivize chiefs seeking re-election to put in greater effort *(re-election incentives)* (Ferraz and Finan, 2009; Gagliarducci and Nannicini, 2013); lead to greater *political competition* (Besley et al., 2010); or lead to greater *embedded-ness* (Baldwin and Raffler, 2019) and *pro-sociality* of chiefs (Deserranno, 2019; Fehr and Schmidt, 1999). I find that *bengkok* led to positive political selection and, suggestively, greater embedded-ness and pro-sociality. In contrast, I find little evidence for re-election incentives or political competition.

5.1 Original Survey Data

Between January and May 2019, we conducted original village chief surveys to record the oral and written history for all post-1979 elections in 193 villages within 30 km of my study border. 1979 marked the implementation of the 1979 Village Law, which introduced regular, term-limited elections for chiefs of between 6 – 8 years each. The final dataset comprises detailed biographical information on all chiefs who ever ran for village office, including details on their education, occupation, land ownership, vote shares, term length, and completion.[47] For each regression table, Figure A.3 details if a variable is obtained from primary survey data or administrative data and describes the survey question from which each variable was constructed from.[48]

5.2 The Political Economy of Chief Elections: Term Length and Barriers to Entry

The practice of democratically electing village chiefs was a direct result of the low managerial capacity of the Dutch colonial state (Breman, 2016).[49] The key difference between chief elections during the (early post-)colonial period, and today lies in term length. Under colonial rule, chiefs were elected for life. The 1979 Village Law amended this, stipulating that chiefs were to be elected to fixed terms of 6–8 years for a maximum of two terms.[50]

Ethnographic evidence suggests that villagers had relative autonomy in both who to vote for and choosing to run for elections (Antlöv, 1994). Running for the chief position, however, is one of the most expensive ventures in village society. Respondents report a mean campaign cost of 22 million Indonesian rupiah (IDR) ($1,466), and campaign costs as high as 400 million IDR ($26,667) in particularly fierce contests.[51] Husken (1994) describes village elections as "festivals of

[47] Existing data is limited to the education and age of chiefs starting from the 1986 Indonesian Village Census and the number of years that a chief had been in office in the 1992, 2000 and 2003 rounds.

[48] Survey design, enumerator protocol, data validation and further details on variable construction, are described in Online Appendix A.1.

[49] Note that I study *desas* or rural villages where village heads are elected by popular vote and not *kelurahans* or urban villages in which village heads are appointed. In contrast, Martinez-Bravo (2014) studies the effects of differences in political leanings between *desa* and *kelurahan* chiefs.

[50] This changed again in 2017. Today, chiefs are technically allowed to run for a third time as long as they step down a year before the third election is scheduled to take place.

[51] In the 1980s, Husken (1994) documents campaign costs ranging from 15 - 90 million rupiah ($8,000 - $50,000). A back-of-the-envelope calculation suggests that such high campaign costs would have made financial sense. The average *bengkok* chief in my sample earns $2,293 per year. Even without taking into account non-pecuniary returns (e.g. ego rents), total monetary earnings across a 8-year term would be $18,344.

democracy": the entire election process takes less than thirty hours, during which the selection of candidates is announced, campaigning begins, and ballots are cast and counted in the village hall.

5.3 Political Selection, Re-Election Incentives, and Political Competition

For consistency with my results on chief performance and development, I focus on chief outcomes for all elections between 1979 and 1996.

1. Political Selection: Education and Occupation Table 3, Panel A estimates the *bengkok* effect on two measures of chief quality: years of education and an indicator variable that takes the value of 1 if a leader was a civil servant before running for office. Columns (1) and (2) estimate that a 1 hectare increase in *bengkok* is associated with an increase of 0.5–0.7 years of education. These effects, however, are not significant in the optimal bandwidth.

[TABLE 3 ABOUT HERE]

Columns (3) and (4) examines the effects of *bengkok* on occupational selection. Since the likelihood of running for office is likely determined by outside options, it is useful to understand how formal compensation from the village chief position compares with that from the next-best outside options. The average annual remuneration of a *bengkok* chief is 34.4 million IDR ($2,293), approximately three times more than that of a non-*bengkok* chief, who earns 12.2 million IDR ($813). In comparison, the average annual salary of an Indonesian civil servant is 23.4 million IDR ($1,560),[52]

Given these differentials, I expect that a civil servant is more likely to run for office in a *bengkok* village. Indeed, I find evidence for this. An increase of 1 ha in *bengkok* land leads to a 12.1 to 27.8pp increase in the share of chiefs from a civil service background. Overall, these results suggest that *bengkok* remuneration is sufficiently high such that it attracts individuals who are more familiar with government bureaucracy and are hence, better able to leverage their knowledge and connections to provide village public goods.[53] Of course, given that *bengkok* rents are tied to a community asset, the higher share of ex-civil servants in office might also reflect the greater appeal of the *bengkok* chief position to individuals with a prior orientation towards public service or, more generally, greater pro-sociality. I discuss this possibility in Section 5.4.

2. Re-election Incentives To what extent could better chief performance be driven by stronger re-election incentives from higher *bengkok* rents? Columns (1) and (2) in Panel B uses, as the dependent variable, an indicator that takes the value of one if an incumbent chief ran in the next election, immediately following from the end of his first term. The effects of *bengkok* are statistically insignificant and, if anything, are somewhat negative. This is unsurprising given the low

[52] Author's calculation from the 2010 Indonesian Work Force Labor Survey.

[53] An alternative interpretation: the election of higher quality chiefs is driven by either (i) a more educated electorate (voter-demand effects) and/or (ii) a higher quality pool of candidates (supply effects). In relation to (i), given that schools were constructed in chief-led efforts *after* the award of *bengkok* rights, I view a more educated electorate, as shown in Section 4.2 as an intermediate outcome and a direct effect of *bengkok*. Nonetheless, I could also control, respectively, for contemporaneous voter education and the quality of the candidate pool but I view these regressions as outside the scope of the current paper.

mean: on average, only 22–28% of incumbent chiefs choose to run again for office.[54] Furthermore, the lack of re-election incentives is consistent with fieldwork. Respondents frequently cited long term lengths and low chief remuneration (in relation to heavy responsibilities) as to why they were reluctant to run for a second term.[55]

3. Political Competition Having ruled out re-election incentives, I next test if *bengkok* had effects on political competition for the chief position. Higher political competition could have, in turn, disciplined *bengkok* chiefs into providing public goods more focused on growth and development (Besley et al., 2010). Table 4 presents and finds no evidence of this mechanism across a range of outcomes. Panels A and B shows that there are no statistically significant differences in the number of candidates running for chief elections (Panel A, Columns (1) and (2)) nor vote margins (Panel B, Columns (1) and (2)),[56] although there is a somewhat lower probability of *bengkok* elections being contested by a single candidate (Panel A, Columns (3) and (4)).

The lack of differences in observed political competition could, however, simply be a perverse result of *bengkok* leading to the entrenchment of traditional ruling families and the elite capture of elections (Acemoglu et al., 2014). This is unlikely given positive outcomes. Panel B, Columns (3) and (4) further tests for this by using an indicator variable that equals 1 if villagers believe that a chief should belong to a traditional ruling family. Estimates are imprecise but suggest that *bengkok* villages are, if anything, somewhat less likely to hold this belief, suggesting that the lack of political competition is unlikely to be a result of elite capture. Nevertheless, I acknowledge that many other forms of elite entrenchment or capture could plausibly exist and this result alone does not rule out all such alternatives.

[TABLE 4 ABOUT HERE]

Figures B.7 and B.8 present standard RD plots. Consistent with the results in Tables 3 and 4, we observe, in Panel (b) of Figure B.7, a clear border discontinuity for whether a chief was a previous civil servant. In contrast, we do not observe a discontinuity for any other outcome. Results on whether a chief was a previous civil servant are robust to alternative RD specifications such as alternative bandwidths (Figure C.3) and a linear polynomial in latitude and longitude (Table C.19).

[54] On average, 66% of Italian mayors run for a second term, and 78% are re-elected (Gagliarducci and Nannicini, 2013). In Brazil, 75% of municipal legislators ran for a second term, and 40% were re-elected (Ferraz and Finan, 2009).

[55] *Bengkok* chiefs are not more likely to win re-election conditional on re-running. This pattern is potentially consistent with *bengkok* remuneration creating higher expectations from villagers, leading *bengkok* chiefs to face greater on-the-job pressure and thus being less willing to seek re-election. Hence, one possibility is a lack of incentive alignment between *bengkok* chiefs that chose to rerun for elections and their villagers. I.e. Lower re-election rates might reflect a compositional effect of negative selection: chiefs who were less connected with villagers and performed more poorly, might have been more likely to seek re-election.

[56] Estimates on vote margins are slightly noisier given the inherent difficulty in asking respondents to recall precise vote margins in historical elections.

5.4 Conceptual Framework: Embedded-ness & Pro-Sociality

In terms of mechanisms, my analysis so far has documented positive effects of *bengkok* on political selection. An important question remains: why do *bengkok* chiefs continue to perform better, given that they were historically elected for life and there continues to be weak re-election incentives? Three institutional features of *bengkok* rents, that it is tied to rice production (the primary economic sector in my study region); mandates below-market rental rates; and the renting out of *bengkok* land to poor villagers suggests two possibilities: greater economic embededd-ness and pro-sociality/social embedded-ness.

These two premises are informed by the literature on embedded-ness (Baldwin, 2016; Baldwin and Raffler, 2019) and prosocial behavior (Bénabou and Tirole, 2006; Bowles and Polania-Reyes, 2012). The latter posits a non-separability of (economic) incentives and social preferences in many instances of pro-social behavior. This non-separability suggests that the appropriate design of (non-monetary) compensation schemes can *crowd in* social preferences and pro-social behavior.[57] To that end, I first distinguish between three objects: the expected value of office, the type of potential candidates, and the form in which chiefs are paid. Candidates differ in ability—e.g. education, occupation—and in pro-social motivation—the weight they place on the office's purpose over and above its pecuniary return.[58]

A wage-differential account says that *bengkok* mainly raises the expected value of office, which improves selection on ability. Under this account the form of payment is incidental: a salary of equal value would do the same. An asset-based account says that the *form* of compensation matters, independently, in two ways (holding the expected value of office and selection on ability fixed). First, it makes the chief's returns and investment payoffs covary with local output. This potentially operates mainly when the chief is in office. Second, it changes the meaning, social framing, and relational structure through which (conditional) compensation is realized. This potentially operates both on selection into office and on behavior once in office. I describe the institutional details behind each of these predictions below.

The first premise is that of greater *economic embedded-ness*, or the extent to which chief remuneration is directly tied to the economic well-being of (poorer) villagers—in particular, through their agricultural production. This premise draws on Baldwin and Raffler (2019)'s hypothesis on the greater economic embedded-ness of traditional leaders who derive income from economic activities within their village. This might be especially salient in the case of *bengkok*, given that *bengkok* rents are typically paid out in-kind and *conditional only* on successful rice harvests.[59] Con-

[57] There is rich experimental evidence for this. See e.g. Angrist and Lavy 2009; Holmas 2010; Bevan & Burchardi 2009; Fehr et al 2001. In contrast, explicit monetary incentives often backfire due to the familiar multi-tasking problem (in politics) (Besley, 2004; Holmstrom and Milgrom, 1991). Empirically, high-powered incentives have been shown to lead to the crowding out of pro-social motivation among Indian bureaucrats (Hanna and Wang, 2017).

[58] This maps onto the distinction between vertical and horizontal matching in Besley and Ghatak (2005). Vertical matching refers to settings in which "some principals and agents are more productive regardless of whom they match with"; horizontal matching to settings in which what matters is the fit between an agent's preferences and the organization's mission (fn. 7, p. 618).

[59] Crucially this is in contrast to typical fixed rental contracts on Java where landlords typically require upfront rental

versely, below-average and/or failed harvests would result in chiefs receiving reduced (or no) rents due to the difficulties of enforcing crop payments in times of bad harvests (Scott, 1985) (pp.104). Thus, I examine if the share of village dams constructed—for storing water and irrigating wet rice land, especially during the dry season—differed across the border. I also examine effects on the share of irrigated rice land.

The second premise is that traditional norms requiring chiefs to rent out *bengkok* at discounted rents to poor villagers might have (i) attracted *more pro-social* individuals to run for office (Bénabou and Tirole, 2006; Bowles and Polania-Reyes, 2012); and/or (ii) might have led to greater *pro-sociality or social embedded-ness* of chiefs. I.e. *bengkok* potentially changes the meaning and social framing of (conditional) compensation. First, these institutional features might have appropriately framed the chief's position as that of a pro-social mission by transmitting a clear message about it's social obligations. This might have increased the probability that more public-spirited types run for office in *bengkok* villages.[60] Second, the obligation to rent out *bengkok* land to poor villagers might have led to the formation of stronger social ties between *bengkok* chiefs and a broader slice of the village population. Chiefs who are connected with a broader slice of the population might be more effective in mobilizing villagers to contribute labor towards the construction of village development projects (Antlöv, 1994). Therefore, I examine if *bengkok* chiefs are more likely to report pro-social reasons for running for office and their ability to mobilize villagers for development projects (*collective action*).

The social(-ly enforced) obligations of *bengkok* rental appear to be relatively salient: primary survey data shows that nearly all chiefs rent *bengkok* land to villagers on fixed rental contracts (conditional on successful harvests) at below-market rates (Table A.2) and most chiefs cite village traditions and policies (to help villagers) as the reason for choosing these contracts (Table A.3). Crucially, villagers are typically allowed to make in-kind rental payments (of un-husked rice). This possibly serves a welfare motive by reducing the need for up-front cash payments before the rice harvest begins (Scott, 1985).[61]

Bengkok plots also appear to be extensively subdivided. On average, a plot of 2.9ha is rented out to 25 villagers for a per-tenant average of 0.12ha. This is far below subsistence level (Booth et al., 1990) and corroborates our qualitative fieldwork which finds that *bengkok* tenants tend to be poorer, land-less households. In turn, these tenancy contracts might have helped form more numerous economic and social ties between chiefs and villagers (Scott, 1985; Geertz, 1970; Hart et al., 1989). A descriptive comparison of the *bengkok* system in control villages that endogenously adopted *bengkok* during the 1980s–1990s (Figure 2) is instructive. In "late-adopter" villages, chiefs

payments from tenants before the start of the cropping season (Hart et al., 1989)

[60] In practice, selection on ability vis-a-vis pro-social motivation might not be strictly separable: former civil servants might be selected partly on a prior orientation toward public service rather than on ability alone, in which case the results in Table 3 might also be partially due to the form that *bengkok* compensation takes.

[61] Though in the Malaysian context, Horii (1972) documents that up to 71% of villagers paid fixed rent *in-kind* (as opposed to in cash) in a Malaysian village. Horii (1972) (pp.60) further writes that "practice of rent reduction and exemption (*sewa hidup*, or "flexible" rent)... (is) very often (used) when a tenant cannot pay the rent because of a poor harvest, ... the landowner will remain silent and not inflict such cruel measures as taking the rice used for the tenant's sustenance ..."

have nearly half as many villagers working *bengkok* land (12 vs. 25) and are more likely to share-crop or self-cultivate (86%). This is despite chiefs in "late-adopter" villages holding *bengkok* plots of comparable size (2.5ha vs 2.9ha) and reporting similar net earnings (US$2,673 vs US$2,492). That these villages do not appear to have achieved similar development outcomes underscores the potential role of chief–villager ties.

To be clear: with my data, I am unable to rule out the possibility that *selection* alone might be driving the entirety of observed, positive *bengkok* effects: Table 3 is itself evidence that *bengkok* led to positive selection. Similarly, I am unable to cleanly distinguish between embedded-ness and pro-sociality. The evidence I present below is potentially consistent with both selection and incentives driving greater embedded-ness and pro-sociality. Given pro-social individuals might perform better at local governance and jobs with an inherently pro-social component (Gulzar and Khan, 2025; Deserranno, 2019; Finan et al., 2017), these mechanisms might jointly explain observed positive effects.

I discuss four scope conditions. First, the provision of repeated, direct remuneration. This helps ensure that leaders perform throughout their entire tenure and reduces leakage. Second, design should minimize individual discretion for additional extraction. Having fixed levels of rents (conditional on successful crop harvests) minimizes the probability that chiefs exert effort to extract additional rents. This stands in contrast to Indian landlords who were free to set land revenue collection rates and penalize those who did not pay (Banerjee and Iyer, 2005). Third, remuneration should be broadly tied to easily observable development outcomes that are tied to chief effort. This minimizes the incentives for local leaders to "game the system" (Besley, 2004; Holmstrom and Milgrom, 1991), and maximizes potential benefits to constituents.

Fourth, how broad and encompassing the leader's stake in local development is (Olson, 1993). A narrow stake—e.g. remuneration from a single plantation or mine—possibly gives a leader a vested interest in investments which complement particular assets (but not others) and could lead to worse development outcomes. *Bengkok* rents likely approximates a broader stake in village prosperity given that rice was the dominant economic sector throughout my study period. Consistent with this, *bengkok* villages today have more manufacturing firms (Table E.2) and fewer households engaged in agriculture (Table 2).

5.5 Discussion of Results: Economic Embedded-ness & Pro-Sociality

Economic Embedded-ness: Dam Construction and Irrigation I turn to the first premise in the conceptual framework: *bengkok* chiefs might be more likely to channel investments towards village infrastructure that stabilizes their private returns from *bengkok* remuneration.

Table 5, Panel A presents results. An increase in 1 ha of *bengkok* leads to, suggestively, a 3.8 - 4.6p.p. higher share of dams constructed (relative to a mean of 6-7%) and a 12.2p.p. higher share of irrigated rice land. Table B.3 suggests that this possibly reflects a disproportionate increase in agricultural public goods relative to other public goods—*bengkok* leads to an increase the share of dams constructed while leaving the total count of constructed public goods projects unchanged.

[TABLE 5 ABOUT HERE]

Pro-Sociality and Social Embedded-ness The second premise is that *bengkok* led to greater pro-sociality and/or social embedded-ness. I test for this in two ways. First, I examine if *bengkok* chiefs are more likely to report pro-social reasons for running for office in Table 5, Panel B (Columns (1) & (2)). I construct an indicator variable that takes the value of 1 if, in response to the question of "What was your (main) motivation for running for office?",[62] a chief's qualitative answer includes reasons such as "giving back to the community"; "contributing towards village construction"; and "(my) villagers asked me to run".[63] I combine all three into a single indicator—the first two being self-reported measures of pro-sociality and the last potentially reflecting (villagers' perceptions of) a chief's level of pro-sociality and social embedded-ness.[64] An increase in 1 ha of *bengkok* leads to a 18.4 to 27.2p.p. higher probability of a chief reporting pro-social reasons for running for office.

Second, to test for differences in chiefs' ability to mobilize villagers, I focus on villagers' participation in a key institution of rural labor for the construction and maintenance of local public goods in the rural Southeast Asian context: *Gotong Royong*. The key feature of this system is the central role of village chiefs in coordinating villager contributions and motivating individuals to provide in-kind labor towards the construction of public goods (Baldwin, 2016; Rao, 2005; Sullivan, 1992). Importantly, qualitative fieldwork suggests that the strength of villager-chief social ties is possibly a key determinant of the extent to which villagers participate in *Gotong Royong*.[65]

I use the number of villagers involved in *Gotong Royong* for each development project. Table 5, Panel B, Columns (3)-(4) reports that an additional ha of *bengkok* land leads to, suggestively, an increase of 8 - 24 more villagers per development project. Given each project, on average, mobilizes 85 - 99 villagers, these effects represent an increase of 10-25% in villager mobilization rates. Figure B.9 presents standard RD plots; Figure C.4 and Table C.20 show robustness to alternative bandwidths and a linear polynomial in latitude and longitude. Taken together, *bengkok* chiefs appear to be, suggestively, both more pro-social and socially embedded within their communities.

Importantly, our priors before data collection had been that *bengkok* may have led to worse

[62] I do not have sufficient observations to run an RD analysis on chiefs who took office only in the pre-decentralization period as my sample size is limited compared to other outcomes. The reason being that we were unable to interview deceased or extremely old chiefs. Hence, for this outcome, I expand my analysis to include all current and ex-village chiefs that ever took office, both pre- and post-decentralization.

[63] This measure is possibly subject to social desirability bias but is the best I could obtain given logistical and funding constraints. A possible concern: *bengkok* chiefs simply exhibit differentially higher social desirability bias. Prima facie, there is no clear reason why this should be the case. All political leaders are possibly driven by an innate sense of social desirability and therefore, it is entirely possible that *bengkok* chiefs perform better precisely because of their having greater social desirability bias. To that end, I interpret positive effects here as reflecting both *bengkok* chiefs' higher pro-social motivation *and* greater social desirability.

[64] Analogously, Budde et al. (2024) measured pro-sociality of union leaders using the first principal component of "general trust"; "caring for others"; and "positive reciprocity". Similarly, Gulzar and Khan (2025) finds that pro-social messaging/framing to encourage villagers to run for village leader positions in Pakistan: (i) encourages more pro-social individuals to run for office *(selection)*; (ii) increases the probability that candidates report being nominated by the community to run *(demand-side community response)*.

[65] In qualitative interviews, a number of respondents emphasized that the number of villagers involved in *Gotong Royong* often measures the degree of "close-ness" between villagers and chiefs: "The (willing-ness) of villagers to participate in *Gotong Royong* depends largely on *how close a village chief is with (his) villagers*."

development outcomes. These priors were informed by anthropological studies in other parts of Java, arguing that *bengkok* chiefs (i) often enrich themselves and their followers through channeling funds to projects that benefit parochial interests; (ii) and were often corrupt with some even selling off *bengkok* land to pay off campaign expenses (Antlöv, 1994).[66] Hence, while potentially surprising, our results suggest that compensation can be structured so as to attract more pro-socially motivated individuals to run for office by *crowding in* social preferences (Bénabou and Tirole, 2006; Bowles and Polania-Reyes, 2012) and generating embedded-ness through the formation of (broader) social ties (Scott, 1972). Greater pro-sociality and embedded-ness, in the presence of elections—notably absent in the context of Banerjee and Iyer (2005)—might have helped *bengkok* villages converge towards a high-development equilibrium.

6 Conclusion

In this paper, I provide novel micro-level empirical evidence for the efficacy of paying chiefs higher land rents based on cultivation rights over a stable, community-owned asset. Chiefs construct more public goods and villagers writ large experience more positive development outcomes. I document a rare case where the strengthening of local chief authority did not lead to worse outcomes. In fact, nearly 200 years later, *bengkok* continues to have a positive effect on chief performance and economic development. This is striking given that the award of *bengkok* land took place during one of the most extractive colonial enterprises in history.

Using original survey data, I document three likely mechanisms: political selection, embedded-ness, and pro-sociality. *Bengkok* chiefs are more likely to be ex-civil servants; and by a wide range of measures, appear to be more embedded in their communities. The form of compensation, together with traditional norms, likely plays an important role: nearly all chiefs rent out *bengkok* land to poor, local villagers at discounted, in-kind rents conditional on successful crop harvests. Taken together, the evidence supports land-based compensation when the leader's private return is tied to public goods with broad village benefits. This does not, however, imply that asset-based compensation will generally promote structural transformation.

My findings have direct implications for the institutional design of compensation structures. In Indonesia, under the 2014 Village Fund Law, villages receive direct transfers of US$70,000 per village for development. My findings suggest that concomitant increases in chief remuneration would be a step in the right direction. Crucially, it might be worthwhile to introduce compensation schemes that explicitly tie leaders to the welfare of their constituents.[67]

[66] Note that these studies took place outside of my study area and largely discussed *bengkok* effects without comparison to a control group, since nearly *all* villages in these regions have *bengkok* land (As discussed in Section 2.1). In fact, at various times the Indonesian government tried to abolish *bengkok* rights, partially owing to these perceptions.

[67] A case in point: An entry-level minister in Singapore is paid (i) an annual "National Bonus" tied to four indicators including the real growth rate of the lowest 20th percentile income of citizens and their unemployment rate; (ii) a salary based on the median income of the top 1,000 income earners, with a 40% discount applied to reflect the "ethos of public service" (Ee et al., 2012). Singapore has had one of the highest economic growth rates over the past half-century.

References

Acemoglu, Daron, Simon Johnson, and James A Robinson, "Reversal of fortune: Geography and institutions in the making of the modern world income distribution," *The Quarterly journal of economics*, 2002, *117* (4), 1231–1294.

_____ **, Tristan Reed, and James A Robinson**, "Chiefs: Economic development, elite control of civil society in Sierra Leone," *Journal of Political Economy*, 2014, *122* (2), 319–368.

Alchian, Armen A and Harold Demsetz, "Production, information costs, and economic organization," *The American economic review*, 1972, *62* (5), 777–795.

Antlöv, Hans, "Village leaders and the New Order," *Leadership on Java: Gentle Hints, Authoritarian Rule. Richmond, Surrey, UK: Curzon Press. Nordic Institute of Asian Studies, Studies in Asian Topics*, 1994, (16), 73–96.

_____ **et al.**, *Exemplary centre, administrative periphery: rural leadership and the new order in Java.*, Curzon Press Ltd, 1995.

Aritonang, Jan S, *Mission Schools in Batakland (Indonesia): 1861-1940*, Vol. 10, Brill, 1994.

Balán, Pablo, Augustin Bergeron, Gabriel Tourek, and Jonathan L Weigel, "Local elites as state capacity: How city chiefs use local information to increase tax compliance in the democratic republic of the Congo," *American Economic Review*, 2022, *112* (3), 762–797.

Baldwin, Kate, *The paradox of traditional chiefs in democratic Africa*, Cambridge University Press, 2016.

_____ **and Pia Raffler**, "Traditional leaders, service delivery, and electoral accountability," *Decentralized governance and accountability*, 2019, pp. 61–90.

_____ **, Dean Karlan, Christopher Udry, and Ernest Appiah**, "Does Community-Based Development Empower Citizens? Evidence from a Randomized Evaluation in Ghana," 2016.

Bandiera, Oriana, Michael Callen, Katherine Casey, Eliana La, Camille Landais Ferrara, and Matthieu Teachout, "State effectiveness," *International Growth Centre Evidence Paper*, 2019.

Banerjee, Abhijit and Lakshmi Iyer, "History, institutions, and economic performance: The legacy of colonial land tenure systems in India," *American economic review*, 2005, *95* (4), 1190–1213.

Basten, Christoph and Frank Betz, "Beyond work ethic: Religion, individual, and political preferences," *American Economic Journal: Economic Policy*, 2013, *5* (3), 67–91.

Bazzi, Samuel, Arya Gaduh, Alexander D Rothenberg, and Maisy Wong, "Unity in diversity? How intergroup contact can foster nation building," *American Economic Review*, 2019, *109* (11), 3978–4025.

Bénabou, Roland and Jean Tirole, "Incentives and prosocial behavior," *American economic review*, 2006, *96* (5), 1652–1678.

Besley, Timothy, "Paying politicians: theory and evidence," *Journal of the European Economic Association*, 2004, *2* (2-3), 193–215.

_____ **, Torsten Persson, and Daniel M Sturm**, "Political competition, policy and growth: theory and evidence from the US," *The Review of Economic Studies*, 2010, *77* (4), 1329–1352.

Bó, Ernesto Dal and Frederico Finan, "Progress and perspectives in the study of political selection," *Annual Review of Economics*, 2018, *10*, 541–575.

Booth, Anne, William J O'Malley, and Anna Weidemann, "Indonesian economic history in the Dutch colonial era," *Yale Southeast Asia Studies Monographs*, 1990.

Boudreau, Laura, Rocco Macchiavello, Virginia Minni, and Mari Tanaka, "Leaders in social movements: Evidence from unions in Myanmar," *American Economic Review*, 2025, *115*

(6), 1975–2000.

Bowles, Samuel and Sandra Polania-Reyes, "Economic incentives and social preferences: substitutes or complements?," *Journal of economic literature*, 2012, *50* (2), 368–425.

Breman, Jan, "Control of land and labour in colonial Java," in "Control of Land and Labour in Colonial Java," BRILL, 1983.

_____ , *Mobilizing labour for the global coffee market: profits from an unfree work regime in colonial Java*, Amsterdam University Press, 2016.

Budde, Julian, Thomas Dohmen, Simon Jäger, and Simon Trenkle, "Worker representatives," Technical Report, National Bureau of Economic Research 2024.

Calonico, Sebastian, Matias D. Cattaneo, and Rocio Titiunik, "Robust data-driven inference in the regression-discontinuity design," *The Stata Journal*, 2014, *14* (4), 909–946.

Casey, Gregory and Marc Klemp, "Historical instruments and contemporary endogenous regressors," *Journal of Development Economics*, 2021, *149*, 102586.

Cattaneo, Matias D., Nicolas Idrobo, and Rocio Titiunik, *A Practical Introduction to Regression Discontinuity Designs: Foundations* November 2019. arXiv:1911.09511 [econ, stat].

Colonnelli, Emanuele, Mounu Prem, and Edoardo Teso, "Patronage and selection in public sector organizations," *American Economic Review*, 2020, *110* (10), 3071–3099.

Conley, Timothy G, "GMM estimation with cross sectional dependence," *Journal of econometrics*, 1999, *92* (1), 1–45.

Davidson, Russell and James G MacKinnon, "Wild bootstrap tests for IV regression," *Journal of Business & Economic Statistics*, 2010, *28* (1), 128–144.

Dell, Melissa and Benjamin A Olken, "The development effects of the extractive colonial economy: The dutch cultivation system in java," *The Review of Economic Studies*, 2020, *87* (1), 164–203.

Deserranno, Erika, "Financial incentives as signals: experimental evidence from the recruitment of village promoters in Uganda," *American Economic Journal: Applied Economics*, 2019, *11* (1), 277–317.

Djajadiningrat, Raden Lockman, *From Illiteracy to University*, Netherlands and Netherlands Council of the Institute of Pacific Relations, 1940.

Duflo, Esther, "Schooling and labor market consequences of school construction in Indonesia: Evidence from an unusual policy experiment," *American economic review*, 2001, *91* (4), 795–813.

Ee, Gerard, Committee to Review Salaries of the President, Prime Minister and political appointment holders, and Prime Minister's Office, "Salaries for a Capable and Committed Government," White Paper Cmd. 1, Government of Singapore 2012.

Fehr, Ernst and Klaus M Schmidt, "A theory of fairness, competition, and cooperation," *The quarterly journal of economics*, 1999, *114* (3), 817–868.

Fernando, Merennage Radin, "Peasant and Plantation Economy: The Social Impact of the European Plantation Economy in Cirebon Residency from the Cultivation System to the End of First Decade of the Twentieth Century." PhD dissertation, Department of History, Monash University 1982.

Ferraz, Claudio and Frederico Finan, "Motivating politicians: The impacts of monetary incentives on quality and performance," Technical Report, National Bureau of Economic Research 2009.

_____ **and** _____ , "Electoral accountability and corruption: Evidence from the audits of local governments," *The American Economic Review*, 2011, *101* (4), 1274–1311.

Finan, Frederico, Benjamin A Olken, and Rohini Pande, "The personnel economics of the developing state," *Handbook of economic field experiments*, 2017, *2*, 467–514.

Finlay, Keith and Leandro M Magnusson, "Two applications of wild bootstrap methods to improve inference in cluster-IV models," *Journal of Applied Econometrics*, 2019, *34* (6), 911–933.

Furnivall, John Sydenham and John Sydenham Furnivall, *Netherlands India: A study of plural economy*, Cambridge University Press, 2010.

Gagliarducci, Stefano and Tommaso Nannicini, "Do better paid politicians perform better? Disentangling incentives from selection," *Journal of the European Economic Association*, 2013, *11* (2), 369–398.

Geertz, Clifford, *Agricultural involution: the process of ecological change in Indonesia*, Vol. 11, Univ of California Press, 1970.

Gennaioli, Nicola and Ilia Rainer, "The modern impact of precolonial centralization in Africa," *Journal of Economic Growth*, September 2007, *12* (3), 185–234.

Goldstein, Markus and Christopher Udry, "The profits of power: Land rights and agricultural investment in Ghana," *Journal of political Economy*, 2008, *116* (6), 981–1022.

Gooszen, AJ, "Administrative division and redivision on Java and Madura, 1880–1912," *Indonesia Circle*, 1985, *13* (36), 23–53.

Gulzar, Saad and Muhammad Yasir Khan, "Good politicians: Experimental evidence on motivations for political candidacy and government performance," *Review of Economic Studies*, 2025, *92* (1), 339–364.

Hanna, Rema and Shing-Yi Wang, "Dishonesty and selection into public service: Evidence from India," *American Economic Journal: Economic Policy*, 2017, *9* (3), 262–90.

Hardjasaputra, A Sobana, "Bupati di Priangan; Kedudukan dan Peranannya pada Abad Ke-17-Abad Ke-19," *dalam Seri Sundalana*, 2004, *3*.

Hart, Gillian, Andrew Turton, Benjamin White, Brian Fegan, and Teck Ghee Lim, *Agrarian transformations: local processes and the state in Southeast Asia*. 1989.

Heldring, Leander, Davis Kedrosky, James A Robinson, and Matthias Weigand, "The Success of the Embedded State in England," Technical Report, National Bureau of Economic Research 2026.

Hoadley, Mason C, *Selective judicial competence: the Cirebon-Priangan legal administration, 1680-1792*, SEAP Publications, 1994.

Holmstrom, Bengt and Paul Milgrom, "Multitask principal–agent analyses: Incentive contracts, asset ownership, and job design," *The Journal of Law, Economics, and Organization*, 1991, *7* (special_issue), 24–52.

Horii, Kenzo, "The land tenure system of Malay padi farmers.," *The Developing Economies*, 1972, *10* (1), 45–73.

Hup, Mark, *Essays on fiscal modernization, labor coercion, state capacity and trade*, University of California, Irvine, 2021.

Husken, Frans, "Village Elections in Central Java," *Leadership on Java: Gentle Hints, Authoritarian Rule*, 1994, *16*, 119.

Kammen, Doug, "Pilkades: Democracy, village elections, and protest in Indonesia," in James T. Siegel and Audrey R. Kahin, eds., *Southeast Asia over Three Generations: Essays Presented to Benedict R. O'G. Anderson*, Ithaca, NY: Cornell University Press, 2003.

Kling, Jeffrey R, Jeffrey B Liebman, and Lawrence F Katz, "Experimental analysis of neighborhood effects," *Econometrica*, 2007, *75* (1), 83–119.

Kotakorpi, Kaisa and Panu Poutvaara, "Pay for politicians and candidate selection: An empirical analysis," *Journal of Public Economics*, 2011, *95* (7-8), 877–885.

Lee, David S and Thomas Lemieux, "Regression discontinuity designs in economics," *Journal of economic literature*, 2010, *48* (2), 281–355.

Lowes, Sara and Eduardo Montero, "Concessions, violence, and indirect rule: evidence from the Congo Free State," *The quarterly journal of economics*, 2021, *136* (4), 2047–2091.

Mamdani, Mahmood, "Citizen and Subject: contemporary Africa and the legacy of late colonialism," *Perspectives on Political Science*, 1997, *26*, 120–120.

Mansuri, Ghazala and Vijayendra Rao, "Can participation be induced? Some evidence from developing countries," *Critical Review of International Social and Political Philosophy*, 2013, *16* (2), 284–304.

Martinez-Bravo, Monica, "The role of local officials in new democracies: Evidence from Indonesia," *The American Economic Review*, 2014, *104* (4), 1244–1287.

_____ , "The local political economy effects of school construction in Indonesia," *American Economic Journal: Applied Economics*, 2017, *9* (2), 256–89.

Maurer, Jean-Luc, *Pamong Desa or Raja Desa?: wealth, status and power of village officials* 1994.

McNicoll, Geoffrey, "Internal migration in Indonesia: Descriptive notes," *Indonesia*, 1968, (5), 29–92.

Michalopoulos, Stelios and Elias Papaioannou, "Pre-colonial ethnic institutions and contemporary African development," *Econometrica*, 2013, *81* (1), 113–152.

_____ **and** _____ , "Historical legacies and African development," *Journal of Economic Literature*, 2020, *58* (1), 53–128.

Moertono, Soemarsaid, *State and statecraft in Old Java*, Modern Indonesia Project, Cornell University, 1963.

Munshi, Kaivan and Mark Rosenzweig, "Insiders and outsiders: local ethnic politics and public goods provision," Technical Report, National Bureau of Economic Research 2015.

Niel, Robert Van, "Measurement of change under the cultivation system in Java, 1837-1851," *Indonesia*, 1972, (14), 89–109.

Nunn, Nathan and Diego Puga, "Ruggedness: The blessing of bad geography in Africa," *Review of Economics and Statistics*, 2012, *94* (1), 20–36.

Olson, Mancur, "Dictatorship, democracy, and development," *American political science review*, 1993, *87* (3), 567–576.

Raffles, Thomas Stamford, *The history of Java*, Vol. 2, J. Murray, 1830.

Rao, Vijayendra, *Symbolic public goods and the coordination of collective action: a comparison of local development in India and Indonesia*, Vol. 3685, World Bank Publications, 2005.

Ricklefs, Merle Calvin, *A History of Modern Indonesia since c. 1200*, Macmillan International Higher Education, 2008.

Scott, James C, "Patron-client politics and political change in Southeast Asia," *American political science review*, 1972, *66* (1), 91–113.

_____ , *Weapons of the Weak: Everyday Forms of Peasant Resistance*, Yale University Press, 1985.

Sjahrir, Bambang Suharnoko, Krisztina Kis-Katos, and Günther G Schulze, "Administrative overspending in Indonesian districts: The role of local politics," *World Development*, 2014, *59*, 166–183.

Sullivan, John, "Local government and community in Java: An urban case-study," *(No Title)*, 1992.

Tarling, Nicholas, *The Cambridge history of Southeast Asia. Vol. 2. The nineteenth and twentieth centuries*, Vol. 1, Cambridge University Press, 1992.

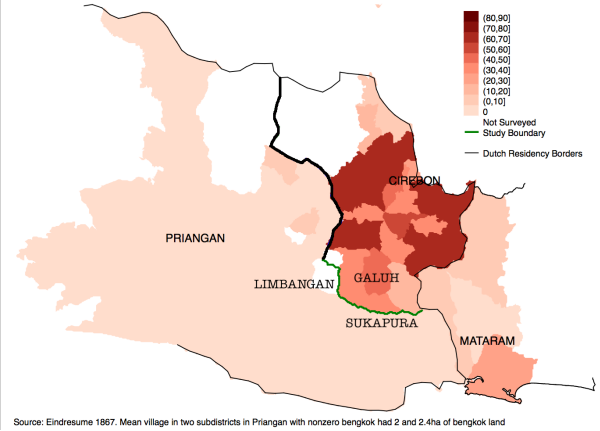
Uribe-Castro, Mateo, "Caffeinated development: exports, human capital, and structural transformation in Colombia," Technical Report, Working Paper 2019.

van Rees, Otto, "Overzigt van de Geschiedenid der Preanger Regentschappen," 1869.

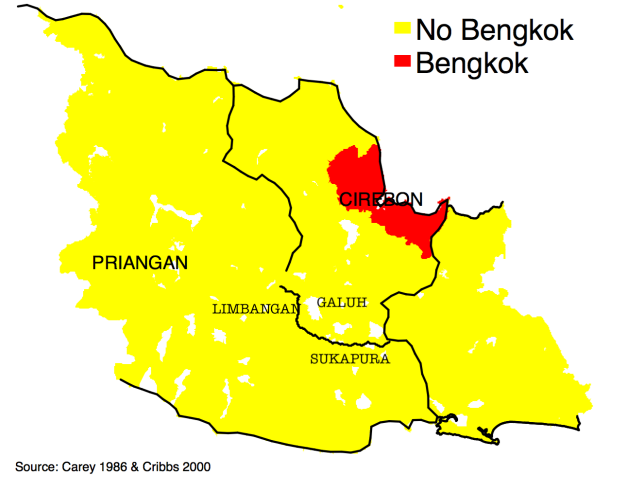
Vollenhoven, Cornelis Van, *Het adatrecht van Nederlandsch-Indië*, Boekhandel en drukkerij voorheen EJ Brill, 1931.

Figure 1: The Spread of *Bengkok* Land in West Java (Early to Mid-19th Century)

(a) Average *Bengkok* Land in each Village, Aggregated at the Sub-District Level 1867 (ha)



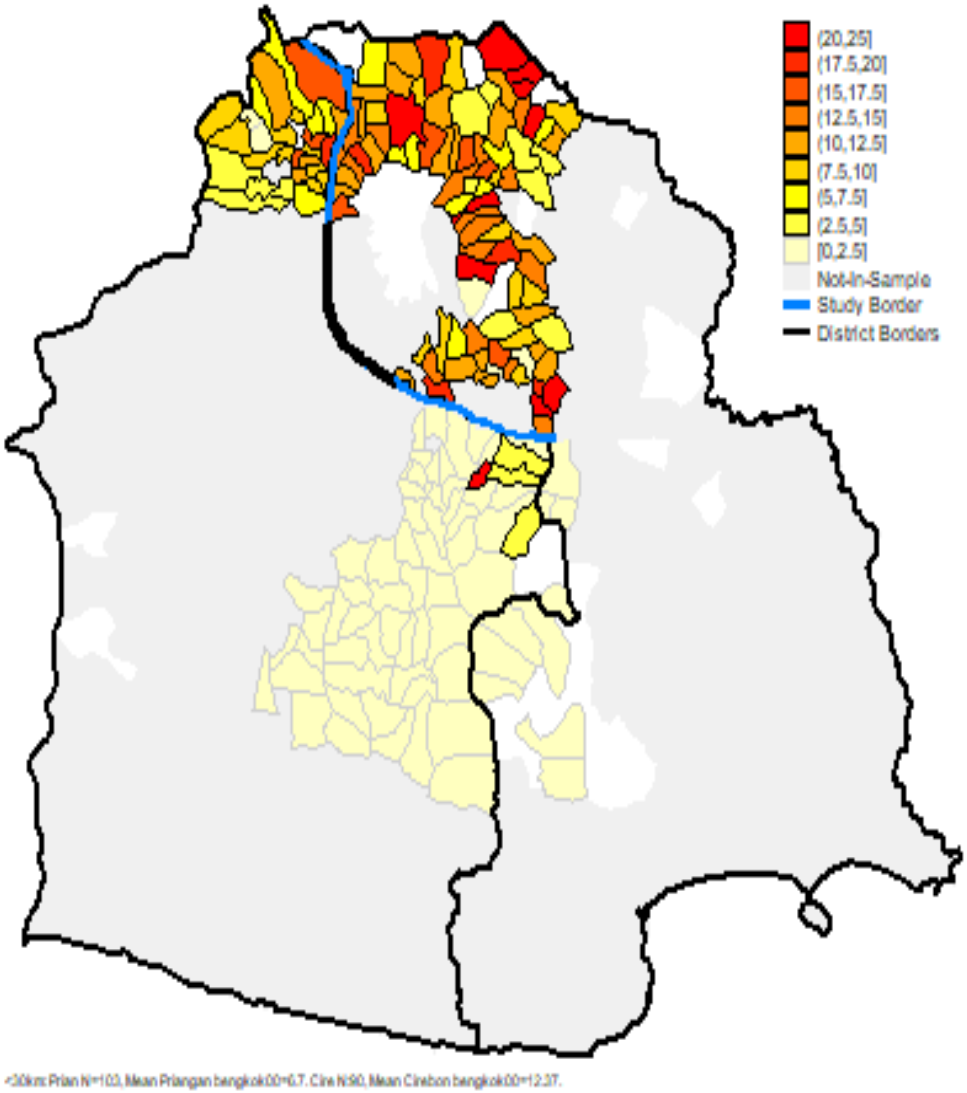
(b) Incidence of *Bengkok* Land in Cirebon–Priangan, Pre-1830



Notes: Secondary data on pre-2000 village-level *bengkok* land and breakdowns of *bengkok* land awarded to (non-)chiefs does not exist. Hence, this map plots the average, total size of *tanah bengkok* land at the village-level, across 1867 sub-districts. My study borders, along the southern-most portion of the Cirebon–Priangan boundary, are highlighted in green. I zoom in on these borders in Figure 2. *Source:* 1867 Dutch Eindresume archival data.

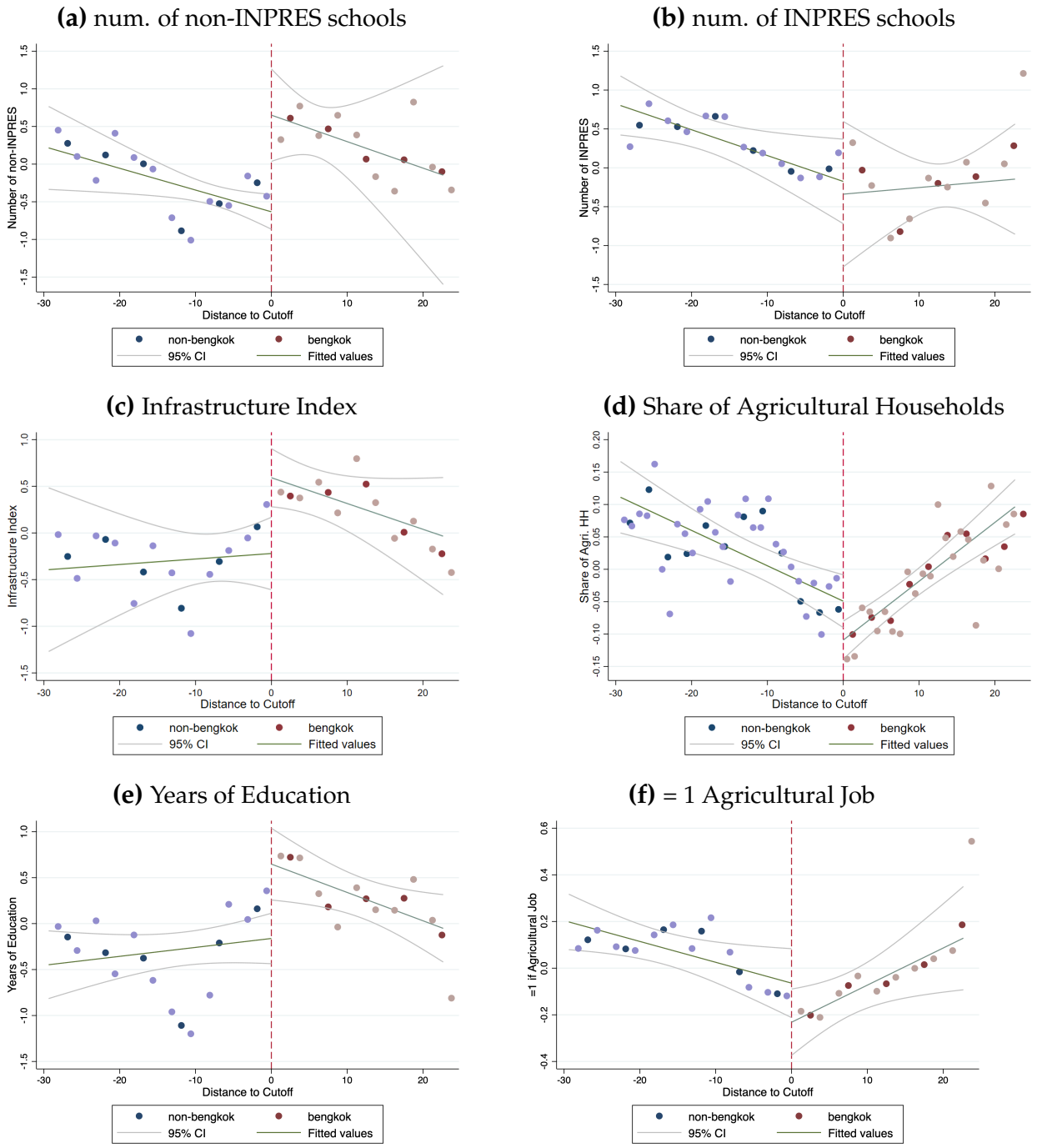
Notes: This map zooms in on the administrative units adjacent to the Cirebon–Priangan Residency border, highlighted in blue, in Figure A.1. The shaded colors in the background plot the geographical incidence of *tanah bengkok* prior to Dutch expansion of *bengkok* throughout Cirebon Residency in 1830. Areas shaded in red are those where *bengkok* was known to have been practised. Areas shaded in yellow are those where *bengkok* was not known to have practised nor existed. Hence, this map provides historical, graphical, evidence that prior to Dutch intervention in 1830, *bengkok* was known to have been practised only in and around the port city of Cirebon, the capital of Cirebon Residency (the areas shaded in red). Conversely, in the greater Cirebon Residency area, practice of *bengkok* was virtually unknown to both the Dutch administration and the local population (in areas away from the capital city of Cirebon, including those near my study border, highlighted in Figure 2). Similarly, it was virtually unknown throughout the entire Priangan Residency.

Figure 2: *Bengkok* Land in Sample Villages, 2000 (ha)



Notes: This map zooms in on the regions bordering my green study border in Figure 1a. All villages to the north of the study border lie in the historical region of Galuh. All villages to the west and south of the study border lie in the historical regions of, respectively, Limbangan and Sukapura. This map plots the total size of *tanah bengkok* land awarded to both chiefs and non-chiefs, at the village-level, across my study borders. Given the mountainous geography of this region, I restrict my study sample to villages across two segments of this border where there are no discontinuities in elevation. Hence, in grey, are villages not included in my study. In white, are mountains where no village settlement exists. Urbanized towns and cities are omitted given that settlements in these areas are organized under a different system of village administration.

Figure 3: RD Plots: *Bengkok* Villages and Contemporary Development



Notes: Darker (lighter)-shaded dots give the average value of the specified outcome variable for villages falling within 2.5km (1km) distance bins. Distance to cutoff refers to the distance between a village centroid and the closest point on the Cirebon–Priangan border, in kilometers. The dotted vertical line represents the Cirebon–Priangan border. Negative (positive) values of distance give the distance of villages South (North) of the Cirebon–Priangan border with villages to the North having had persistently larger plots of *bengkok* land. Solid line trends are predicted values from a regression of the specified variable on a linear polynomial in distance to the border that allows for a local linear trend estimated separately on each side of the discontinuity, uses a triangular kernel and a bandwidth of 30km. Each regression is jointly estimated following equations (1) and (2). All regressions control for whether a village had ever split and include a nearest-border segment fixed effect. In addition, regressions in Panel (c) and (d) control for survey year; regressions in Panel (e) and (f) controls for cohort-year and gender. Standard errors clustered at the sub-district (*kecamatan*) level and figures show 95% confidence intervals. The order of these plots correspond to the order of outcomes in Table 2.

Table 1: Balance on Geographic and Pre-Treatment Characteristics

	Within 30 km			Within 10 km			RD Estimates	
	North	South	Std. err.	North	South	Std. err.	RD coefficient	Std. err.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Geographic Characteristics:								
Elevation	497.36	432.04	(47.24)	452.88	442.36	(55.55)	10.14	(33.21)
Slope	25.36	28.48	(6.79)	19.99	18.74	(6.66)	0.34	(8.51)
Ruggedness	0.15	0.21	(0.04)	0.14	0.13	(0.03)	0.10	(0.06)*
Wet Rice Potential Yield (kg)	2161.30	2145.92	(5.84)*	2159.09	2151.89	(5.92)	-5.02	(2.01)**
Coffee Potential Yield (kg)	623.54	624.40	(3.32)	619.29	620.31	(3.91)	-3.06	(2.39)
> 0 *rivers*	0.45	0.60	(0.08)	0.51	0.60	(0.13)	0.07	(0.15)
Obs.	86	101		45	52		62	
Population Characteristics:								
Ethnic Sunda Share (%)	0.97	0.95	(0.01)**	0.97	0.95	(0.01)*	0.01	(0.02)
Obs.	54	65		36	52		59	
Population Density (1819)	0.22	0.27	(0.14)	0.24	0.31	(0.22)	-0.04	(0.28)
Obs.	14	10		11	6		24	

Note: For 1819 population density, unit of observation is at the sub-district level measured in terms of persons per hectare and RD estimates refer to entire 30 km bandwidth, given the small sample size in 1819. Source: 1819 Dutch archival records. Details of other variable sources are described in Appendix Table A.1. The unit of observation is at the village polygon level. Columns (1), (2), (4), and (5) present the mean of the variable. Columns (3) and (6) present clustered standard errors for difference in means clustered at the subdistrict level. North and South indicate whether a village is located north of my study boundary, i.e. a *bengkok* village, or south of my study boundary, i.e. a *non-bengkok* village. Columns (7) and (8) present the estimated RD coefficient and standard error using the corresponding variable as its outcome using a local linear specification estimated separately on each side of the study boundary and a triangular kernel. The RD MSE optimal bandwidth is determined using the procedure by Calonico et al. (2014). Column (7) uses the average of all optimal bandwidths (5.56 km). Controls include a border-segment fixed effect and whether a village had ever split. The number of clusters within 30km, 10km, and 5.56km is 24, 13, and 11 respectively, except for the regression of *Ethnic Sunda Share (%)*, where the number of clusters is 14, 12, and 10, due to missing ethnic counts in census data

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 2: *Bengkok* Villages and Contemporary Development

	(1)	(2)	(3)	(4)
Panel A: Schools (1983)	num. of non-INPRES		num. of INPRES	
bengkok	0.323**	0.600***	0.272	0.061
	(0.136)	(0.176)	(0.190)	(0.192)
weak-instrument-robust p-value	[0.010]	[0.000]	[0.109]	[0.756]
wild-cluster bootstrap t-test	0.039	0.014	0.288	0.818
FM SE-MD bootstrap AR p-value	0.016	0.003	0.341	0.833
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	76	181	85	181
Clusters	11	22	11	22
Bandwidth	7.66	30.00	8.65	30.00
Mean Dep. Var.	2.55	2.47	1.16	1.38
Std. Dev. Var.	1.290	1.143	0.843	0.951
First Stage Effective F-stat	6.86	10.83	6.77	10.83
Underidentification Test, p-value	0.019	0.018	0.017	0.018

	(1)	(2)	(3)	(4)
Panel B: Infra. & Structural Change	Infrastructure Index		Share of Agri. HH	
bengkok (ha)	0.279**	0.308***	−0.051***	−0.025**
	(0.127)	(0.107)	(0.020)	(0.012)
weak-instrument-robust p-value	[0.004]	[0.003]	[0.002]	[0.007]
wild-cluster bootstrap t-test	0.195	0.029	0.084	0.042
FM SE-MD bootstrap AR p-value	0.248	0.057	0.042	0.033
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	132	537	196	546
Clusters	10	22	11	22
Bandwidth	4.78	30.00	6.07	30.00
Mean Dep. Var.	-0.06	-0.02	0.67	0.74
Std. Dev. Var.	0.781	0.955	0.184	0.164
First Stage Effective F-stat	8.56	11.95	7.96	11.44
Underidentification Test, p-value	0.060	0.018	0.032	0.017

	(1)	(2)	(3)	(4)
Panel C: Education & Prosperity	Years of Education		=1 if Agricultural Job	
bengkok	0.421***	0.302**	−0.080***	−0.052
	(0.078)	(0.125)	(0.029)	(0.035)
weak-instrument-robust p-value	[0.001]	[0.048]	[0.010]	[0.130]
wild-cluster bootstrap t-test	0.048	0.175	0.052	0.216
FM SE-MD bootstrap AR p-value	0.037	0.200	0.057	0.224
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	60822	246734	40165	181635
Clusters	10	22	10	22
Bandwidth	4.81	30.00	4.86	30.00
Mean Dep. Var.	7.17	6.77	0.23	0.40
Std. Dev. Var.	3.165	2.860	0.423	0.489
First Stage Effective F-stat	12.19	11.37	14.94	14.34

Note: Standard errors clustered at the subdistrict level. All regressions include a local linear specification estimated separately on each side of the study boundary and use a triangular kernel. Each regression is jointly estimated following equations (1) and (2). Optimal bandwidths are chosen following Calonico et al. (2014) and are reported in kilometers. Unit of observation in Panels A, B and C (Columns (3) & (4)) is at the village level. Unit of observation in Panel C, Columns (1) & (2) is at the individual, villager-level. All regressions control for an indicator that equals 1 if a village had ever split and a border segment fixed effect. In addition, regressions in Panel B and Panel C, Columns (3) & (4), control for survey year. Regressions in Panel C, Columns (1) & (2) control for cohort-year and gender. *num. of non-INPRES* measures the number of bottom-up village schools. *num. of INPRES* measures the number of top-down, Central government-constructed schools. *Infrastructure Index* is comprised of three variables indicating the presence of safe water sources, aspalt road, and safe garbage disposal between 1986-1996. I construct this index following (Kling et al., 2007) by standardising each variable, averaging across all three standardised variables, and standardising the average. *Years of Education* measures the number of years of education for all individuals aged 21-40 years old. *Share of Agri. HH* measures the village-level share of households working in the agricultural sector between 1986-1996. *=1 if Agricultural Job* is an indicator variable that takes the value of 1 if an individual has an agricultural job and 0 otherwise, for all individuals aged 21-40 years old. in 2000.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 3: *Bengkok* Villages, Political Selection and Re-election Incentives

	(1)	(2)	(3)	(4)
Panel A: Chiefs	Years of Education		=1 if Civil Servant	
bengkok	0.504	0.698**	0.278***	0.121**
	(0.355)	(0.349)	(0.036)	(0.054)
weak-instrument-robust p-value	[0.163]	[0.020]	[0.000]	[0.000]
wild-cluster bootstrap t-test	0.420	0.081	0.049	0.057
FM SE-MD bootstrap AR p-value	0.488	0.141	0.004	0.033
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	78	247	60	247
Clusters	11	22	9	22
Bandwidth	5.46	30.00	4.31	30.00
Mean Dep. Var.	9.56	9.53	0.13	0.13
Std. Dev. Var.	3.022	2.914	0.343	0.336
First Stage Effective F-stat	12.31	7.86	19.48	8.33
Underidentification Test, p-value	0.039	0.030	0.050	0.027

	(1)	(2)
Panel B: Re-Election Incentives	=1 if incumbent ran	
bengkok	−0.025	−0.091*
	(0.066)	(0.048)
weak-instrument-robust p-value	[0.722]	[0.058]
wild-cluster bootstrap t-test	0.762	0.067
FM SE-MD bootstrap AR p-value	0.780	0.043
Bandwidth choice	Optimal	Wide
Observations	101	290
Clusters	11	22
Bandwidth	5.92	30.00
Mean Dep. Var.	0.22	0.28
Std. Dev. Var.	0.415	0.448
First Stage Effective F-stat	9.13	9.26
Underidentification Test, p-value	0.029	0.018

Note: Standard errors clustered at the subdistrict level. All regressions include a local linear specification estimated separately on each side of the study boundary and use a triangular kernel. Each regression is jointly estimated following equations (1) and (2). Optimal bandwidths are chosen following Calonico et al. (2014) and are reported in kilometers. Unit of observation is at the village chief level. All regressions control for an indicator that equals 1 if a village had ever split, whether a chief's electoral term coincided with the end of Suharto rule, and a border segment fixed effect. *Years of Education* measures the number of years of education of a village chief. *=1 if Civil Servant* takes the value of 1 if a chief worked in the civil service before becoming a chief, and 0 otherwise. *=1 if incumbent ran* takes the value of 1 if a chief re-ran for elections in the subsequent term.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 4: *Bengkok* Villages and Political Competition

	(1)	(2)	(3)	(4)
Panel A: Political Competition I	Num. of Candidates		=1 if sole candidate	
bengkok	0.016	−0.030	−0.064*	−0.048
	(0.136)	(0.065)	(0.036)	(0.055)
weak-instrument-robust p-value	[0.92]	[0.65]	[0.07]	[0.36]
wild-cluster bootstrap t-test	0.927	0.651	0.209	0.581
FM SE-MD bootstrap AR p-value	0.915	0.614	0.233	0.567
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	78	247	91	247
Clusters	11	22	11	22
Bandwidth	5.31	30.00	6.15	30.00
Mean Dep. Var.	2.14	2.20	0.18	0.17
Std. Dev. Var.	0.908	0.839	0.383	0.373
First Stage Effective F-stat	12.71	8.27	8.69	8.27
Underidentification Test, p-value	0.042	0.027	0.026	0.027

	(1)	(2)	(3)	(4)
Panel B: Political Competition II	Difference in Vote Shares		Trad. Belief in Chief Ancestry	
bengkok	−0.582	1.026	0.012	−0.169*
	(0.999)	(1.868)	(0.066)	(0.099)
weak-instrument-robust p-value	[0.602]	[0.587]	[0.866]	[0.010]
wild-cluster bootstrap t-test	0.602	0.597	0.904	0.192
FM SE-MD bootstrap AR p-value	0.605	0.621	0.927	0.035
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	40	155	71	181
Clusters	9	20	11	21
Bandwidth	4.56	30.00	5.83	30.00
Mean Dep. Var.	22.13	26.60	0.21	0.18
Std. Dev. Var.	15.902	16.492	0.411	0.387
First Stage Effective F-stat	5.17	13.15	6.63	6.06
Underidentification Test, p-value	0.046	0.020	0.029	0.042

Note: Standard errors clustered at the subdistrict level. All regressions include a local linear specification estimated separately on each side of the study boundary and use a triangular kernel. Each regression is jointly estimated following equations (1) and (2). Optimal bandwidths are chosen following Calonico et al. (2014) and are reported in kilometers. Unit of observation for regression of *Trad. Belief in Chief Ancestry* is at the village-level. Unit of observation for all other regressions is at the village-chief election level. All regressions control for an indicator that equals 1 if a village had ever split, whether a chief's electoral term coincided with the end of Suharto rule, and a border segment fixed effect. *Num. of Candidates* measures the number of candidates that ran for election. *=1 if sole candidate* takes the value of 1 if an election was uncontested. *Difference in Vote Shares* measures the vote margin between the winning chief and the runner-up. *Trad. Belief in Chief Ancestry* takes value of 1 if villagers typically believe that a chief should belong to a traditional ruling family.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 5: *Bengkok* Villages, Embeddedness & Pro-Sociality

	(1)	(2)	(3)	(4)
Panel A: Economic Embeddedness	=1 if project is a dam (Project Level)		% irrigated riceland (Village Level)	
bengkok	0.046*	0.038**	0.122***	0.122***
	(0.028)	(0.015)	(0.045)	(0.042)
weak-instrument-robust p-value	[0.028]	[0.003]	[0.000]	[0.001]
wild-cluster bootstrap t-test	0.288	0.063	0.037	0.030
FM SE-MD bootstrap AR p-value	0.358	0.068	0.011	0.075
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	370	1142	126	331
Clusters	11	22	11	22
Bandwidth	5.67	30.00	6.46	30.00
Mean Dep. Var.	0.07	0.06	0.78	0.75
Std. Dev. Var.	0.251	0.240	0.287	0.290
First Stage Effective F-stat	9	13	7	11
Underidentification Test, p-value	0.05	0.01	0.03	0.02

	(1)	(2)	(3)	(4)
Panel B: Pro-Sociality & Social Embeddedness	=1 if pro-social reason		# of villagers (*Gotong Royong*)	
bengkok (ha)	0.272**	0.184***	8.444*	24.422***
	(0.132)	(0.053)	(4.590)	(8.998)
weak-instrument-robust p-value	[0.047]	[0.001]	[0.044]	[0.007]
wild-cluster bootstrap t-test	0.107	0.016	0.096	0.172
FM SE-MD bootstrap AR p-value	0.025	0.016	0.133	0.079
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	147	406	101	337
Clusters	11	22	9	19
Bandwidth	6.05	30.00	6.03	30.00
Mean Dep. Var.	0.52	0.50	85.08	99.69
Std. Dev. Var.	0.501	0.501	102.322	95.878
First Stage Effective F-stat	3.15	9.30	23.87	8.13
Underidentification Test, p-value	0.082	0.017	0.033	0.075

Note: Standard errors clustered at the subdistrict level. All regressions include a local linear specification estimated separately on each side of the study boundary and use a triangular kernel. Each regression is jointly estimated following equations (1) and (2). Optimal bandwidths are chosen following Calonico et al. (2014) and are reported in kilometers. All regressions control for an indicator that equals 1 if a village had ever split, and a border segment fixed effect. Regressions in Panel A control for survey year. Unit of observation in Columns (1) & (2), Panel A, is at the village-project level. Unit of observation in Columns (3) & (4), Panel A, is at the village level. In addition, regressions in Columns (1) & (2), Panel A control for whether the project had been completed and whether the project was primarily managed by the village (administration). $= 1$ *if project is a dam* takes the value of 1 if a development project was a village dam. *% irrigated riceland* measures the percentage share of wetrice land (within the village) that was irrigated. In addition, $= 1$ *if pro-social reason* controls for chief-cohort fixed effects. Wherever relevant, regressions control for whether a chief's electoral term coincided with the end of Suharto rule. Regressions in Columns (3) and (4) of Panel B control for whether a project was a road and whether it employed paid laborers. $= 1$ *if pro-social reason* takes the value of 1 if a chief reported running for office due to pro-social reasons. # *of villages* measures the number of villagers mobilized.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Online Appendix: Tables and Figures

Appendix A. Data and Contextual Background . . . 45
A.1 Data Construction & Survey Design . . . 46
Appendix B. Additional Maps, Figures, and Tables . . . 52
B.1 *Bengkok* Villages and Village Funds: Bottom-Up and Top-Down Sources . . . 56
B.2 Intermediate Effects: Cohort-Level Educational Outcomes (1920-1980) . . . 60
B.3 RD Plots . . . 64
B.4 *Bengkok* Villages, Dam Share, and Total Project Count . . . 68
Appendix C. Robustness Tables and Figures . . . 69
C.1 Robustness to RD Bandwidth . . . 69
C.2 Robustness to Additional Controls . . . 74
C.3 Alternative RD Specification . . . 90
C.4 Main Results - Reduced Form (Sharp RD) and Conley Spatial Standard Errors . . . 94
C.5 Main Results – Robustness to Dropping One Cluster At a Time . . . 101
Appendix D. District Falsification Exercise . . . 103
D.1 Description of Falsification Test Across Adjacent District Border-Pairs in Figure D.1 . . . 103
Appendix E. Alternative Explanations . . . 105
E.1 Colonial Policy . . . 105
E.2 Structural Change—Manufacturing Firms . . . 106
E.3 Land Inequality and Land Rights . . . 108
E.4 Intermediate Political Economy Tradeoffs . . . 110
E.5 Multi-tasking (Moonlighting) . . . 112
Appendix F. Migration . . . 113
F.1 Selective Migration . . . 113
F.2 Heterogeneity by Ease of Out-Migration Based on the Colonial Road Network . . . 115
Appendix G. Additional References . . . 119

List of Tables

A.1 Data Sources . . . 48
A.2 Choice of Contract over *Bengkok* Land . . . 51
A.3 *Bengkok* Chiefs and Reason for Contract Choice over *Bengkok* Land . . . 51
A.4 Uses of Informal Taxes (Villager Contributions) . . . 51
B.1 First Stage Results: Jumps in Size of Chief *Bengkok* Across Historical Border . . . 53
B.2 *Bengkok* Villages and Village Funds . . . 58
B.3 *Bengkok* Villages, Share of Dams, and Total Projects Constructed (1983-1986) . . . 68
C.1 *Bengkok* Villages and Village Funds: Robustness to Controlling for Historical Coffee Cultivation (1853) . . . 74
C.2 *Bengkok* Villages and Contemporary Development: Robustness to Controlling for Historical Coffee Cultivation (1853) . . . 75
C.3 *Bengkok* Villages and Village Funds: Robustness to Controlling for Colonial Roads and Railways (1945) . . . 76
C.4 *Bengkok* Villages and Contemporary Development: Robustness to Controlling for Colonial Roads and Railways (1945) . . . 77
C.5 *Bengkok* Villages and Village Funds: Robustness to Controlling for Ruggedness . . . 78
C.6 *Bengkok* Villages and Contemporary Development: Robustness to Controlling for Ruggedness . . . 79
C.7 *Bengkok* Villages and Village Funds: Robustness to Controlling for Coffee Suitability 80
C.8 *Bengkok* Villages and Contemporary Development: Robustness to Controlling for Coffee Suitability . . . 81
C.9 *Bengkok* Villages and Village Funds: Robustness to Controlling for Ruggedness and Rice Suitability . . . 82
C.10 *Bengkok* Villages and Contemporary Development: Robustness to Controlling for Ruggedness and Rice Suitability . . . 83
C.11 *Bengkok* Villages and Village Funds: Robustness to Controlling for Rice Suitability . 84
C.12 *Bengkok* Villages and Contemporary Development: Robustness to Controlling for Rice Suitability . . . 85
C.13 *Bengkok* Villages and Village Funds: Robustness to Controlling for Rice Suitability (Squared) . . . 86
C.14 *Bengkok* Villages and Contemporary Development: Robustness to Controlling for Rice Suitability (Squared) . . . 87
C.15 *Bengkok* Villages and Village Funds: Robustness to Controlling for Rice Suitability (Cubed) . . . 88
C.16 *Bengkok* Villages and Contemporary Development: Robustness to Controlling for Rice Suitability (Cubed) . . . 89
C.17 *Bengkok* Villages and Village Funds: Alternative RD Specification: Linear Polynomial in Latitude and Longitude . . . 90
C.18 *Bengkok* Villages and Contemporary Development: Alternative RD Specification: Linear Polynomial in Latitude and Longitude . . . 91
C.19 *Bengkok* Villages, Political Selection and Re-election Incentives: Alternative RD Specification: Linear Polynomial in Latitude and Longitude . . . 92
C.20 *Bengkok* Villages, Pro-Sociality and Embedded-ness Alternative RD Specification: Linear Polynomial in Latitude and Longitude . . . 93
C.21 *Bengkok* Villages and Village Funds: Robustness to Conley Spatial SE (Cut-off = 30 km) . . . 95

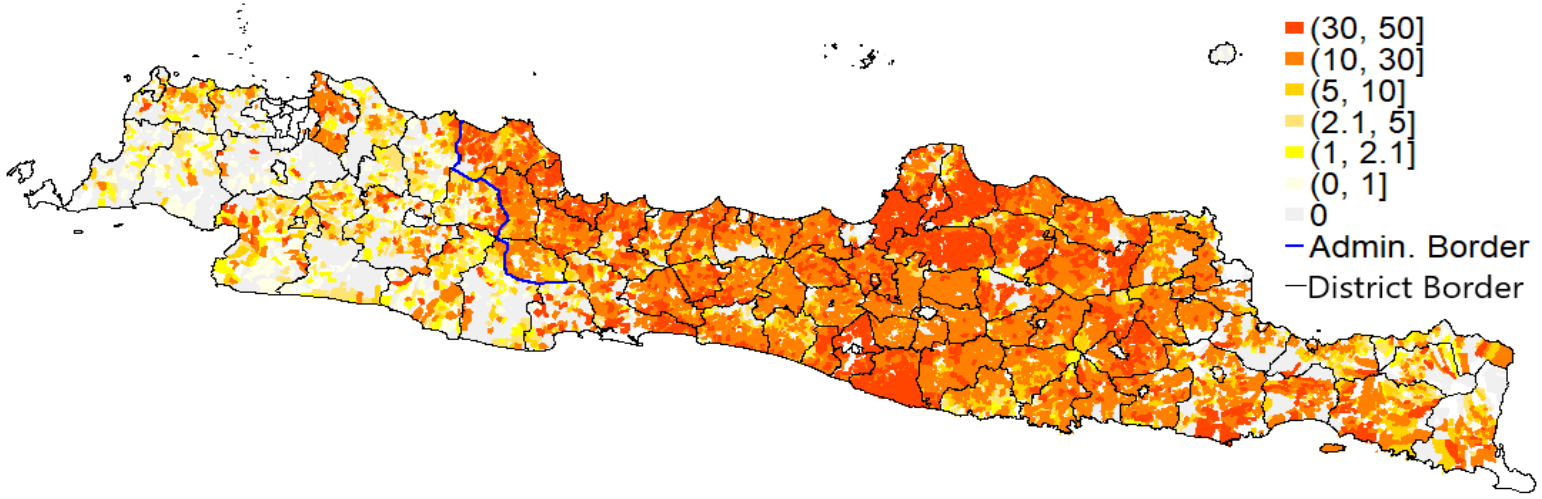
C.22 *Bengkok* Villages and Contemporary Development: Robustness to Conley Spatial SE (Cut-off = 30 km) . . . 96
C.23 *Bengkok* Villages and Village Funds: Robustness to Conley Spatial SE (Cut-off = 20 km) . . . 97
C.24 *Bengkok* Villages and Contemporary Development: Robustness to Conley Spatial SE (Cut-off = 20 km) . . . 98
C.25 *Bengkok* Villages and Village Funds: Robustness to Conley Spatial SE (Cut-off = 10 km) . . . 99
C.26 *Bengkok* Villages and Contemporary Development: Robustness to Conley Spatial SE (Cut-off = 10 km) . . . 100
E.1 *Bengkok* Villages and Colonial Policy . . . 105
E.2 *Bengkok* Villages and Manufacturing Firms (SI) . . . 107
E.3 *Bengkok* Villages and Land Distribution . . . 109
E.4 Alternative Explanations: Demographic Change and Patronage During the Green Revolution . . . 111
E.5 *Bengkok* Villages and Multi-tasking . . . 112
F.1 *Bengkok* Villages and Contemporary Development: Excluding In-Migrants . . . 114
F.2 Ease of Out-Migration and Contemporary Development: Colonial Road Network . . . 118

List of Figures

A.1 Bengkok Land in each village, 2000 (ha) . . . 45
A.2 Map of Agricultural Cultivation in Cirebon Residency, 1853 . . . 49
A.3 Data Appendix . . . 50
B.1 First-stage 2D RD Graph: Size of *Bengkok* Land Awarded to Chiefs, conditional on distance to the border (Bandwidth 30km) . . . 52
B.2 First-stage Spatial RD Graph: Actual vs Predicted Y Values of Size of *Bengkok* Land Awarded to Chiefs . . . 54
B.3 1853 Dutch Maps . . . 55
B.4 *Bengkok* Villages and Infrastructure Public Goods Provision . . . 59
B.5 Cohort-Level Differences in Years of Education of Villagers Across the *Bengkok* Boundary . . . 62
B.6 RD Plots: *Bengkok* Villages and Village Funds . . . 64
B.7 RD Plots: *Bengkok* Villages, Political Selection and Re-election Incentives . . . 65
B.8 RD Plots for Political Competition Outcomes . . . 66
B.9 RD Plots: *Bengkok* Villages, Embeddedness, and Pro-Sociality . . . 67
C.1 *Bengkok* Villages and Village Funds: Robustness to RD Bandwidth . . . 69
C.2 *Bengkok* Villages and Contemporary Development: Robustness to RD Bandwidth . . . 70
C.3 *Bengkok* Villages, Political Selection and Re-election Incentives: Robustness to RD Bandwidth . . . 71
C.4 *Bengkok* Villages, Share of Dams Constructed, and % Irrigated Riceland Robustness to RD Bandwidth . . . 72
C.5 Leave-One-Out Plot I: Optimal RD Bandwidth . . . 101
C.6 Leave-One-Out Plot II: Wide RD BW of 30km . . . 102
D.1 Differences in District Funds, IHS 1996: Neighboring District-Pairs on Java . . . 104
F.1 Road Networks and Road Distance to RD Border: Examples . . . 116
F.2 Road Networks and Road Distance to RD Border: All Routes . . . 117

Appendix A. Data and Contextual Background

Figure A.1: Bengkok Land in each village, 2000 (ha)



Notes: This map plots the size of *tanah bengkok* land, at the village-level, across the entire island of Java, the most populous island in Indonesia. The full Cirebon–Priangan Residency border is highlighted in dark blue. Residencies are deprecated Dutch administrative units and hence, these borders no longer demarcate separate Dutch Residencies. Parts of this deprecated border, however, continues to overlap with modern-day district borders. I address this issue in Section 4.3. In addition, for identification in a fuzzy regression discontinuity setting, I compare areas to the North (Cirebon) and South (Priangan) of the southernmost third of the Cirebon–Priangan border, a frontier region where historical evidence suggests that areas to the North and South were largely similar on pre-treatment characteristics. I provide quantitative evidence in support of this in Section 3.3. I zoom in on my study border and sample villages, progressively from more distant time periods to the present, in Figures 1b, 1a, and 2.

A.1 Data Construction & Survey Design

Balance: 1819 population density I obtain population records from the Dutch Colonial Archives in Jakarta. These records are aggregated and reported only for the largest village located within each Indonesian subdistrict, a larger administrative unit. Hence, to construct measures consistent with present-day administrative boundaries, I match 1819 village names to contemporary village locations. I then divide the population by the size of subdistricts and in this way calculate measures of population density for 24 contemporary subdistricts.

Main Outcomes: Administrative Data I examine *bengkok*'s long-run impact by testing whether it affects contemporary chief performance and development outcomes. I do so using various rounds of the Indonesian Village Census and the 100% count Indonesian Population Census 2000 geo-referenced at the village level. For individual-level development, the 100% count Population Census 2000 provides measures of education and, my main measure of economic prosperity – having a non-agricultural job – in all sample villages.[68] However, given that this outcome is measured just after the Asian Financial Crisis in 1997, one might be concerned that it might not accurately reflect long-run development. Hence, I augment this with the share of households working in the agricultural sector between 1986-1996.

To measure village revenue and public goods provision, I merge six waves of the triennial Indonesian Village Census (*Potensi Desa, PODES*) collected between 1980 and 1996.[69] The Village Census comprises a large number of measures of public goods in villages, such as infrastructure, health and educational facilities.[70] I focus on outcomes that are consistently reported across different waves and where there is a clear role of chiefs in providing these public goods.

In addition, I measure the provision of village primary schools from the 1983 Village Census. The 1983 Village Census is the only round that reports the number of bottom-up (non-INPRES) vis-a-vis top-down (INPRES) primary schools. Where relevant, I supplement these measures using primary survey data. I describe survey data measures as they arise in Section 5.

With regards to village revenue, the major responsibilities of village government are to construct and maintain local infrastructure. Funds for doing so are typically raised from villagers (bottom-up), or by lobbying district line offices (top-down) (MacAndrews, 1986). Indonesia has four main administrative tiers: Central, Provincial, District, and Villages.[71] District governments, however, are the closest tier through which village chiefs directly obtain funds and projects, hence, we would expect that chiefs who are better at lobbying would obtain greater funds from district governments. Section 4.2 further describes the role of chiefs in village development.

[68] The rural, geographical concentration of my sample limits usage of other data sources like the Indonesian Family Life Survey or the Indonesian Socioeconomic Census.

[69] In particular, there are six waves of the village census conducted during this time period: 1980, 1983, 1986, 1990, 1993, 1996

[70] As discussed in Martinez-Bravo (2016), survey enumerators collect answers from members of the village administration and are expected to check these answers against village administrative records and through physical, on-the-ground surveys. Since measures of public goods such as the number of schools and health facilities are easily verifiable, this survey provides an accurate representation of public goods in all villages.

[71] Both historically and today, sub-district governments, the tier between districts and villages, have played a negligible role in administration and funding.

Mechanisms: Survey Design Prior to implementation, I conducted qualitative fieldwork and pretesting of questionnaires, jointly with AKATIGA.[72] All our enumerators were well-trained locals who resided in each survey village and, throughout all interviews, consistently simulated a "conversation about village oral history." We interviewed 5 respondents per village and, to the best of our ability, interviewed all past and present village chiefs with quantitative, retrospective questionnaires embedded in qualitative interviews. If a chief had passed on or was no longer able to communicate, we interviewed village elders or officials who had lived under that chief's rule. This yielded a sample in which 33.5% of the respondents are past or present village chiefs.

There are two potential issues with retrospective data — recall bias and the possibility that an individual's response to questions varies systematically with local sociopolitical conditions. While it is impossible to rule these out, we control for them by collecting village administrative and archival records from village offices and village elders. We then cross-validated survey responses with both these records and the village census. Furthermore, survey responses were largely consistent across all 5 respondents in each village and almost all respondents seemed very open to our interviews. This is possibly because of the historical framing of our study and the conduct of conversational interviews within private residences.

Economic Embeddedness To examine this, I construct two variables. First, as a proxy for the share of investment directed towards dams, I use project-level data, available only in two waves of the Indonesian Village Census (PODES) 1983 and 1986, to construct an indicator that takes the value of 1 if the project constructed was a dam. Second, using the same dataset, I construct the share of irrigated rice land within each village.

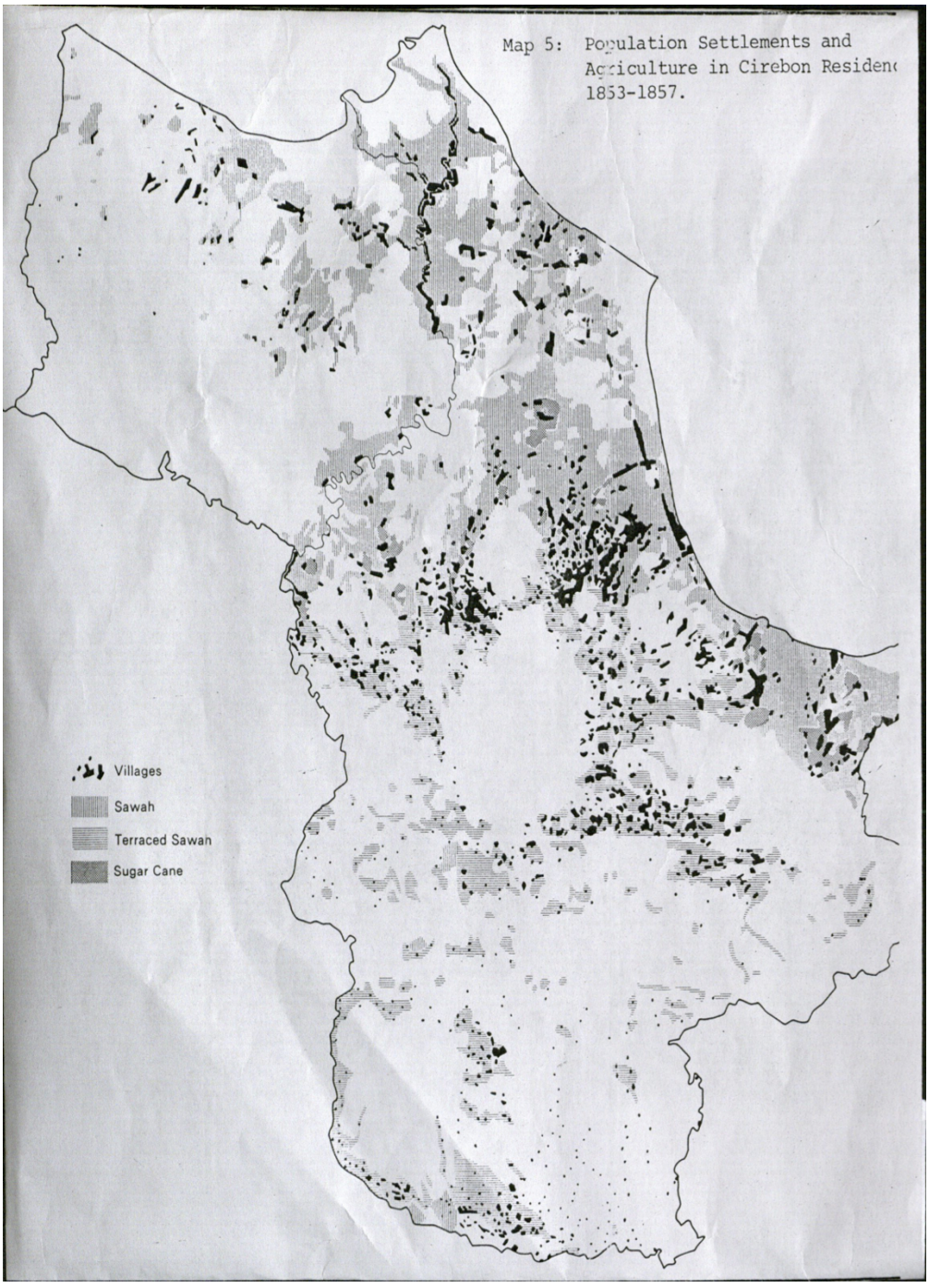
[72] AKATIGA is an Indonesian NGO with extensive experience in studying rural poverty. This was done to determine how best to elicit responses to sensitive questions.

Table A.1: Data Sources

Data	*Source*	*Content*	*Time Span*	*Variable*
1. Village Chiefs and Elections	Author's original survey	Universe of local village chiefs	1979 -1996	Size of *bengkok*, percentage of informal taxes collected, indicator for development projects using government and own village funds, years of education, ex-civil servant job indicator, re-ran in an election indicator, number of candidates, difference in vote shares, traditional belief in chief ancestry, indicator for farmland cultivation
2. Village Development	*Potensi Desa* (Village Potential)	Universe of local villages	1983-1996	Number of (non-)INPRES schools, infrastructure index, village funds
	Population Census	Universe of Individuals	2000	Ethnic Sunda share, villagers years of education, indicator for whether a villager had an agricultural job
3. Population Density	National Archives of Indonesia (ARSIP, Jakarta)	Historical population density data	1819	1819 Population density
4. Geospatial	SRTM	Village level geospatial measures	2000	Elevation, slope, ruggedness, rivers
	FAO-GAEZ	Village level geospatial measures	2000	Wet rice potential yield and coffee potential yield
5. Colonial Policy	Historical Dutch Maps	Universe of villages	1853, 1945	Percent of village land settled, percent of land with coffee cultivation, road density, railroad density

[H]

Figure A.2: Map of Agricultural Cultivation in Cirebon Residency, 1853



This map shows, shaded in dark grey, that there was no sugar cultivation along my study border in the south of Cirebon. The only pockets of sugar cane cultivation lay along the middle portion of the Cirebon–Priangan border and in Central Cirebon, away from my study border. Source: Fernando (1982).

Figure A.3: Data Appendix

Table	Panel	Column	Variable	Question/Section	Note
3		1	Bengkok Size (ha)	C9	How large is *bengkok* land alloted to the village chief in this village?
		2	Bengkok Size (ha)	C9	How large is *bengkok* land alloted to the village chief in this village?
4	A	1	Villagers Contributions, IHS 1993	PODES	Amount of community contributions
		2	Villagers Contributions, IHS 1993	PODES	Amount of community contributions
		3	% Informal Taxes collected	E13	What % of the total informal taxes were obtained from the expected target
		4	% Informal Taxes collected	E13	What % of the total informal taxes were obtained from the expected target
	B	1	District Funds, IHS 1996	PODES	Amount of funds
		2	District Funds, IHS 1996	PODES	Amount of funds
		3	Govt and Own Village Funds	D3.1	`=1 if project constructed from community contributions and government funds
		4	Govt and Own Village Funds	D3.1	`=1 if project constructed from community contributions and government funds
	C	1	Central Government, IHS 1996	PODES	Amount of funds
		2	Central Government, IHS 1996	PODES	Amount of funds
		3	Province Government, IHS 1996	PODES	Amount of funds
		4	Province Government, IHS 1996	PODES	Amount of funds
5	A	1	Num of non-INPRES	PODES	
		2	Num of non-INPRES	PODES	
		3	Num of INPRES	PODES	
		4	Num of INPRES	PODES	
	B	1	Infrastructure Index	PODES	
		2	Infrastructure Index	PODES	
	C	1	Years of Education	2000 Census	
		2	Years of Education	2000 Census	
		3	`=1 if Agricultural Job	2000 Census	
		4	`=1 if Agricultural Job	2000 Census	
6	A	1	Years of Education	D7	
		2	Years of Education	D7	
		3	`=1 if Civil Servant	D7	Chief Occupation (qualitative)
		4	`=1 if Civil Servant	D7	Chief Occupation (qualitative)
	B	1	`=1 if incumbent ran	D7	`=1 if a chief ran in the next immediate election
		2	`=1 if incumbent ran	D7	`=1 if a chief ran in the next immediate election
7	A	1	Num. of candidates	D7	Number of candidates that ran for elections
		2	Num. of candidates	D7	Number of candidates that ran for elections
		3	`=1 if sole candidate	D7	`=1 if there were no other chief candidates during that election
		4	`=1 if sole candidate	D7	`=1 if there were no other chief candidates during that election
	B	1	Difference in Vote Shares	D7	Vote margin between winner and runner-up
		2	Difference in Vote Shares	D7	Vote margin between winner and runner-up
		3	Trad. Belief in Chief Ancestry	D7	`=1 if respondent said yes to belief that chief has to hail from ruling family
		4	Trad. Belief in Chief Ancestry	D7	`=1 if respondent said yes to belief that chief has to hail from ruling family
8	A	1	`=1 if cultivated farmland	E17	`=1 if the chief derived income from rice-land after assuming office
		2	`=1 if cultivated farmland	E17	`=1 if the chief derived income from rice-land after assuming office
A.1.			Bengkok System	C14	How did you (the village chief) cultivate the *bengkok* land?
A.2.			Reason for Contract Choice	C17	Why did you (the village head) decide on this system

Table A.2: Choice of Contract over *Bengkok* Land

Which contract did you use?	Percent	Frequency
Sharecropping	12.9	11
Rented out	85.9	73
Self-cultivated	1.17	1
Total	100	85

Notes: Source: Primary survey data.

Table A.3: *Bengkok* Chiefs and Reason for Contract Choice over *Bengkok* Land

Why did you use this contract?	Percent	Frequency
Insufficient time/resources	7.32	6
Village tradition (to improve villager welfare)	64.6	53
Village policy or regulation	25.6	21
Others	2.44	2
Total	100	82

Notes: Number of responses are different from Table A.2 because of 3 missing responses.

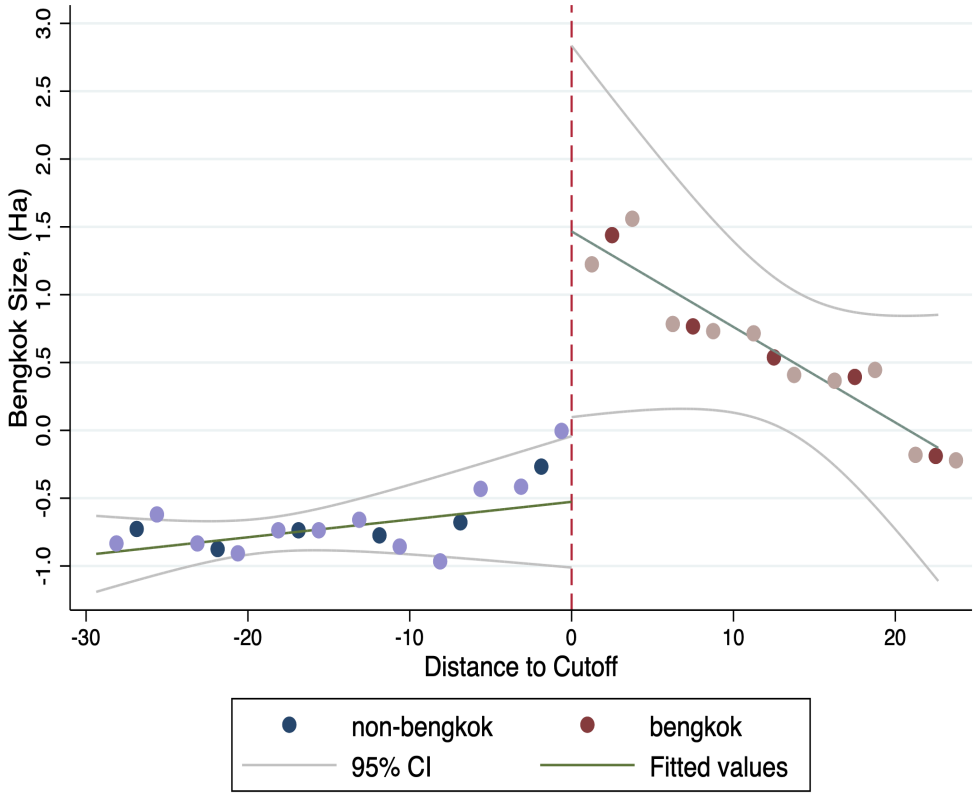
Table A.4: Uses of Informal Taxes (Villager Contributions)

	(1) No Bengkok	(2) Bengkok	(3) All
For village development projects	0.26	0.39	.64
For paying salary of village officials	0.20	0	0.20
For operational use	0.38	0.23	0.60

Notes: Source: Primary survey data. Percentages do not add up to 100% as respondents could report more than one purpose for villager contributions. "For operational use" refers to administrative expenses such as stationary, paper, gas, food, and accommodation costs incurred during official travel.

Appendix B. Additional Maps, Figures, and Tables

Figure B.1: First-stage 2D RD Graph: Size of *Bengkok* Land Awarded to Chiefs, conditional on distance to the border (Bandwidth 30km)



Notes: The figure presents RD plots for the size of *tanah bengkok* land (in hectares) awarded to chiefs (i.e. first-stage results). Darker (lighter)-shaded dots give the average value of the specified outcome variable for villages falling within 2.5km (1km) distance bins. Distance to cutoff refers to the distance between a village centroid and the closest point on the Cirebon–Priangan border in kilometers. The dotted vertical line represents the Cirebon—Priangan border. Negative (positive) values of distance give the distance of villages South (North) of the Cirebon–Priangan border with villages to the North having had persistently larger plots of *bengkok* land. Solid line trends are predicted values from a regression of the specified variable on a linear polynomial in distance to the border that allows for a local linear trend estimated separately on each side of the discontinuity, uses a triangular kernel and a bandwidth of 30km. Regressions control for whether a village had ever split and include a nearest-border segment fixed effect. Standard errors are clustered at the subdistrict level and the figures show 95% confidence intervals.

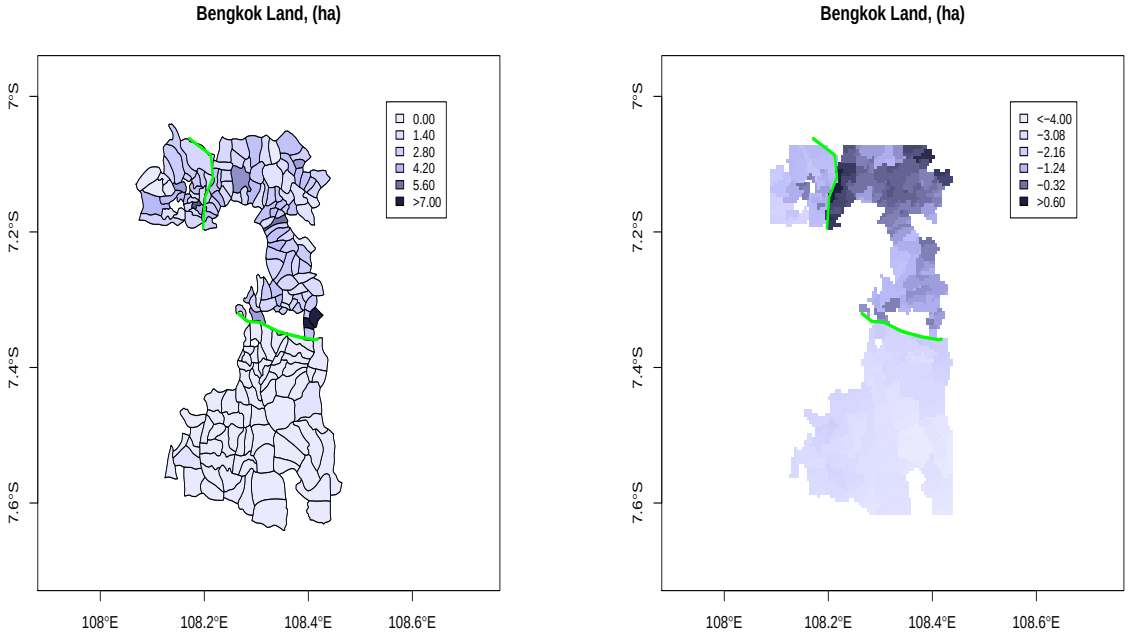
Table B.1: First Stage Results: Jumps in Size of Chief *Bengkok* Across Historical Border

	Bengkok Size (ha) (1)	*Bengkok* Size (ha) (2)
T	2.408**	1.932***
	(1.025)	(0.577)
Distance	−0.111	0.026
	(0.125)	(0.017)
T * Distance	0.149	−0.088**
	(0.181)	(0.038)
Observations	67	186
Clusters	11	23
Bandwidth	5.99	30.00
Mean Dep. Var.	2.16	1.59

Note: Standard errors clustered at the subdistrict level. All regressions include a local linear specification estimated separately on each side of the study boundary and use a triangular kernel. In Column (1), the narrow bandwidth of 5.99 is calculated by taking the average of all optimal Calonico et al. (2014) bandwidths across my main outcomes. Unit of observation is at the village level. Outcome in column (1) - (2) is the average size of *bengkok* land awarded to the elected chief as reported in our survey data. T is an indicator for whether a village is on the northern side of the historical Cirebon-Priangan border; "Distance" is distance to the closest border point in kilometers. Regressions control for an indicator that equals 1 if a village had ever split and a border segment fixed effect.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Figure B.2: First-stage Spatial RD Graph: Actual vs Predicted Y Values of Size of *Bengkok* Land Awarded to Chiefs



(a) Actual **(b)** Predicted

Notes: Longitude is on the x-axis, latitude is on the y-axis, and the data value is shown using an evenly-spaced monochromatic color scale. Figure A shows actual data values plotted at the village-level. Figure B shows predicted values, for a finely spaced grid of longitude-latitude coordinates, from a regression of the size of *bengkok* land awarded to chiefs, on latitude, longitude, an indicator for being on the Cirebon side of the border, whether a village had ever split and a nearest-border segment fixed effect.

Figure B.3: 1853 Dutch Maps



These maps were created by Dutch cartographers simultaneously with a village-level land use survey at a scale of 1:2 500 (1cm to 25m). Reproduction was allowed only after those in charge of statistical survey declared that land use was displayed correctly.

B.1 *Bengkok* Villages and Village Funds: Bottom-Up and Top-Down Sources

1. Bottom-Up Funds and Top-Down Lobbying[73] I provide two measures of bottom-up funding: the amount of funds collected from villagers (PODES 1993),[74] and the percentage of informal taxes, collected successfully by village chiefs, as a percentage of their annual target (primary survey data, 1979-1996). Importantly, the definition of informal taxes *always excludes bengkok* rents.

From qualitative fieldwork, *bengkok* rents are widely understood to be a form of recurring chief remuneration paid solely by renters of *bengkok* land. In contrast, informal taxes are paid by *all* villagers; and is largely voluntary in nature. I.e. villagers have considerable discretion and bargaining power over informal tax payments. To that end, measures of informal taxes are important for two reasons. First, primary survey data estimates that 64% of my sample villages use informal taxes for development projects (Table A.4).[75] Second, public goods constructed with greater bottom-up funds are typically of higher quality (Evers, 2000).

To measure top-down lobbying, I use data on the sources and levels of village funds from PODES 1996, the only pre-decentralization year which records the amount of funds a village obtained from each tier of upper-level government: Central, Provincial, and District. Where applicable, to account for possibly meaningful content of zeros, I apply an inverse hyperbolic sine transformation (Bellemare and Wichman, 2019).

Bottom-up fund-raising Columns (1) and (2) of Table B.2, Panel A present estimates for the amount of contributions, while columns (3) and (4) present estimates for the percentage of informal taxes. An additional 1ha of *tanah bengkok* leads to higher villager contributions and this is achieved through a 12.9 to 28.0pp increase in the percentage of informal taxes collected. The quantitative importance of bottom-up funding is underscored by comparing the mean of villager contributions vis-a-vis district funding (Panels A and B). Funds raised from villager contributions are, on average, 15 to 37 times larger than that from districts.

Top-down lobbying De jure, government funds are channeled from Central Government Ministries directly to district line offices (MacAndrews, 1986). De facto, the competence of village chiefs in informal lobbying heavily influences the amount of funds that villages receive. (Evers, 2000). Informal lobbying was especially important during the last decades of Suharto rule (1965-1998), when structured development grants were replaced by discretionary project funding (von Benda-Beckmann and von Benda-Beckmann, 2013). To that end, I measure the amount of district funds that each village receives in PODES 1996 and I interpret this as a measure of village chief competence and connections.

Relying solely on either top-down or bottom-up funds, however, can often be ineffective for large-scale development projects. For such projects, effective management often involves the com-

[73] The discussion here is based on Evers (2000) and Martinez-Bravo (2017). See Martinez-Bravo (2017) for a detailed discussion of the mechanisms behind public good provision at the village level.

[74] PODES 1993 is the only round which records the level of village funds collected from villagers, that are used for development purposes.

[75] This is consistent with surveys conducted by the Indonesian Statistical Office. These surveys found that, in the late 1970s, two-thirds of development expenditure undertaken by villages was self-financed.[76]

bination of government financial support with villager contributions (Raffles, 1830; Antlöv et al., 1995; Evers, 2000). For example, the INPRES school construction program is largely viewed as an example of top-down government intervention (Duflo, 2001). Yet, our qualitative interviews suggest that the Central Government largely only provided (funds for) construction materials, with bottom-up, villager community contributions playing a crucial role in providing labor and paying for teacher salaries. To that end, I construct a measure of co-production, *Govt and Own Village Funds* (primary survey data), which equals one if a development project was constructed using both top-down government and bottom-up villager contributions, and zero otherwise.

Columns (1) and (2) of Table B.2, Panel B present estimates on the amount of district funds, while columns (3) and (4) presents estimates for *Govt and Own Village Funds*. Columns (1) and (2) estimate that chiefs raise more funds from district offices. Columns (3) and (4) estimate that development projects in *bengkok* villages are 12.4 to 14.2pp more likely to have been funded by both district funds and villager contributions. Together, these results suggest that *bengkok* chiefs are effective at raising funds from both top-down and bottom-up sources. They are also more effective at combining both sources of funds for development projects a and the provision of public goods.[77]

Did informal lobbying efforts extend to levels of government above districts? Panel C of Table B.2 presents results on the level of Central and Provincial funds that a village obtained in 1996. There are small and statistically insignificant differences in these two sources of funding. This is in line with the political economy of this period, where the Provincial Government did not have large sources of discretionary funding and, as described above, Central Government funding was typically channeled through district offices.

Notably, the study boundary overlaps with a modern-day district border. This would be a concern if differences in contemporary outcomes are a result of differences in the differential top-down disbursement of funds to districts. Specifically, if modern-day district cross-border differences of the magnitude of my estimates are sufficiently common, this would raise concerns about the validity of my interpretation. To assess this, I conduct a falsification exercise where I run my main specification, using district funds in 1996 as the outcome variable, across all adjacent, modern-day district boundary pairs on Java.[78] Figure D.1 shows that the estimated *bengkok* effect is located slightly below the 90th percentile of estimated effects across all modern-day district pairs. Magnitude-wise, the *bengkok* effect remains larger and more negative than that of most district pairs.

[77] These results are consistent with studies in political science that emphasize the role of chiefs in the co-production of public goods (Baldwin, 2013, 2016)

[78] I describe this exercise in detail in Section D.1

Table B.2: *Bengkok* Villages and Village Funds

	(1)	(2)	(3)	(4)
Panel A: Informal Taxation	Villager Contributions, IHS 1993		% Informal Taxes Collected	
bengkok	0.387**	0.406**	28.001***	12.907***
	(0.156)	(0.198)	(10.728)	(4.816)
weak-instrument-robust p-value	[0.010]	[0.035]	[0.000]	[0.000]
wild-cluster bootstrap t-test	0.091	0.060	0.867	0.038
FM SE-MD bootstrap AR p-value	0.303	0.030	0.086	0.012
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	45	184	33	143
Clusters	10	22	8	20
Bandwidth	4.72	30.00	3.59	30.00
Mean Dep. Var.	10.92	11.17	58.79	67.13
Std. Dev. Var.	0.939	0.858	18.029	19.111
Mean Dep. Var. (RP)	40509	50694		
First Stage Effective F-stat	7.33	11.01	6.22	9.39
Underidentification Test, p-value	0.054	0.017	0.069	0.015

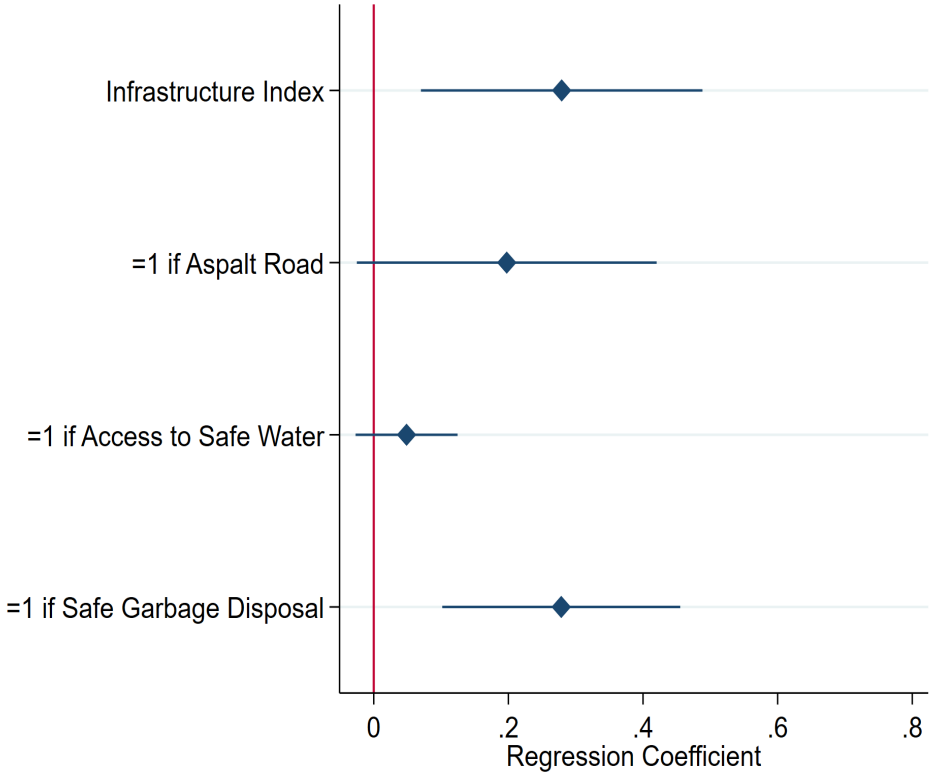
	(1)	(2)	(3)	(4)
Panel B: District-Level Funds	District Funds, IHS 1996		Govt and Own Village Funds	
bengkok	2.031**	1.990*	0.124	0.142**
	(0.977)	(1.057)	(0.077)	(0.067)
weak-instrument-robust p-value	[0.002]	[0.008]	[0.066]	[0.003]
wild-cluster bootstrap t-test	0.249	0.121	0.270	0.072
FM SE-MD bootstrap AR p-value	0.128	0.086	0.122	0.019
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	69	184	196	625
Clusters	11	22	11	22
Bandwidth	6.43	30.00	6.73	30.00
Mean Dep. Var.	4.77	5.26	0.21	0.26
Std. Dev. Var.	3.395	2.808	0.408	0.437
Mean Dep. Var. (RP)	2800	1363		
First Stage Effective F-stat	7.24	11.01	5.38	7.37
Underidentification Test, p-value	0.027	0.017	0.038	0.051

	(1)	(2)	(3)	(4)
Panel C: Central and Province	Central Government, IHS 1996		Province Government, IHS 1996	
bengkok	−0.018	0.007	0.033	0.159
	(0.015)	(0.049)	(0.297)	(0.510)
weak-instrument-robust p-value	[0.248]	[0.894]	[0.919]	[0.759]
wild-cluster bootstrap t-test	0.299	0.927	0.926	0.781
FM SE-MD bootstrap AR p-value	0.340	0.909	0.908	0.791
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	69	184	86	184
Clusters	11	22	11	22
Bandwidth	6.70	30.00	8.69	30.00
Mean Dep. Var.	9.45	9.48	1.06	1.04
Std. Dev. Var.	0.200	0.336	3.157	2.946
Mean Dep. Var. (RP)	6518	7179	2856	1570
First Stage Effective F-stat	7.24	11.01	7.16	11.01

Note: Standard errors clustered at the subdistrict level. All regressions include a local linear specification estimated separately on each side of the study boundary and use a triangular kernel. Each regression is jointly estimated following equations (1) and (2). Optimal bandwidths are chosen following Calonico et al. (2014) and are reported in kilometers. Unit of observation is at the village level except for *% Informal Taxes Collected* which is at the village-chief level, and *Govt and Own Village Funds* which is at the village-chief, development-project level. All regressions control for an indicator that equals 1 if a village had ever split and a border segment fixed effect. In addition, regression of *% Informal Taxes Collected* control for whether a chief's electoral term coincided with the end of Suharto rule and regression of *Govt and Own Village Funds* controls for both the former and whether a development project is a road project, the most common project in our survey data. *Villager Contributions* measures the amount of funds collected from villagers. *% Informal Taxes Collected* measures the percentage of informal taxes, collected successfully by village chiefs, as a percentage of their annual target. *District Funds* measures the amount of funds from district-level government sources. *Govt and Own Village Funds* equals one if a development project was constructed using both government and villager contributions, and zero otherwise. *Central Government* and *Province Government Funds* measures the amount of funds from Central and Provincial government sources, respectively.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Figure B.4: *Bengkok* Villages and Infrastructure Public Goods Provision



Notes: Infrastructure Index is constructed following Kling et al. (2007). Each public good outcome is standardized. Point estimates and 90% confidence interval shown in the figure are from a regression of the specified variable on a linear polynomial in distance to the border that allows for a local linear trend estimated separately on each side of the discontinuity, uses a triangular kernel, and the Calonico et al. (2014) optimal bandwidth. Each regression is jointly estimated following equations (1) and (2). Regressions control for whether a village had ever split, survey year, and include a nearest-border segment fixed effect. Standard errors are clustered at the subdistrict level.

B.2 Intermediate Effects: Cohort-Level Educational Outcomes (1920-1980)

Section 4 finds that *bengkok* villages have higher levels of historical (non-INPRES) schools and individuals living in these villages continue to have higher levels of education today. Here, I investigate if effects on years of education stretch back in time and, if so, how far back.

I dig deeper into the effects on historical villager education by using the 100% count sample of the 2000 Population Census to estimate cohort-level regressions. These are analogous to the cohort-level regressions on years of education estimated in Dell and Olken (2020). Specifically, I jointly estimate equation (1) and (2) beginning with the cohort born between 1920 and 1930, and ending with the cohort born between 1975 and 1980, the youngest cohort to have completed formal education by 2000. Figure B.5 plots cohort-level coefficient estimates. Across all cohorts, impacts on years of education are large and positive. Effects on earlier cohorts are slightly noisier due to the smaller sample size. In particular, cohorts born in 1920 – 1930, who completed their education in the complete absence of top-down school provision, have 0.6 more years of education relative to a mean of 3.6 years. These effects decrease somewhat across time but are still present in the most recent cohorts. Cohorts born in 1970 – 1975 have 0.3 more years of education relative to a mean of 6.9 years. This fall in relative magnitudes might reflect the more recent, greater construction of INPRES schools in non-*bengkok* villages starting from the 1970s discussed in Section 4.2.

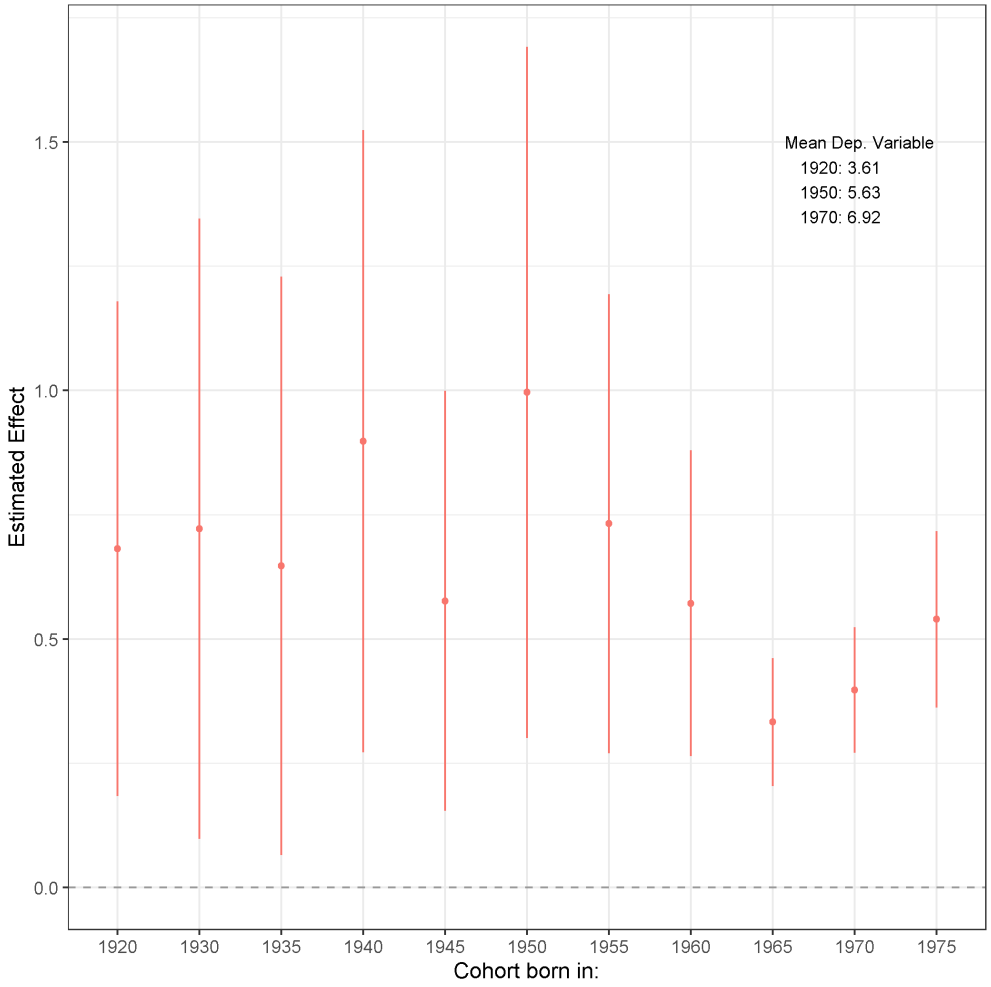
Historically positive effects on villager education are important for three reasons. First, given the absence of top-down intervention during this time period, higher villager education is a reflection of greater bottom-up village capacity and rules out differential top-down provision of educational public goods. Second, these results are suggestive of *bengkok* land rents exerting a historically positive effect on the selection and incentives of chiefs, as far back as late-Dutch colonial rule. Third, up until 1979, chiefs were elected for life.[79] That we see positive *bengkok* effects accrue even in the absence of periodic elections, further clarifies the conditions under which Olson (1993)'s theory of stationary bandits holds. A sufficiently long time horizon is necessary but not sufficient in ensuring long-term performance; the award of *bengkok* as explicitly giving chiefs a stake and encompassing interest in local development appears to be important.

The construction of schools might seem puzzling: why would local leaders construct schools that raise the marginal productivity and outside options of villagers (Bates, 2014; Acemoglu et al., 2007)? In particular, would *bengkok* chiefs not be worried that doing so would lead to out-migration or fewer villagers renting in *bengkok* land (depressing earnings)? There are possibly three reasons. First, as elected representatives, chiefs may have been responding to broader villager demand for education and the potential returns from delivering a visible public good (Rogoff, 1987). Alternatively, this might be consistent with pro-sociality (Gulzar and Khan, 2025). Second, *bengkok* rents are often largely fixed at below-market rates. Hence, *bengkok* chiefs, unlike traditional landlords, might be less likely to withhold investments in public goods. Third, *bengkok* land is overwhelmingly rented out to poorer villager-tenants—such a segment would always exist in sufficient numbers given perennial financial insecurities (e.g. from crop failures). Importantly,

[79] I discuss this further in Section 5.

this population might also be less likely to out-migrate given income and wealth constraints (See Section 5.4 for further details). Lastly, results on historical schools do not preclude the possibility that historical chiefs might have constructed other public goods—data limitations prevent me from probing such effects.

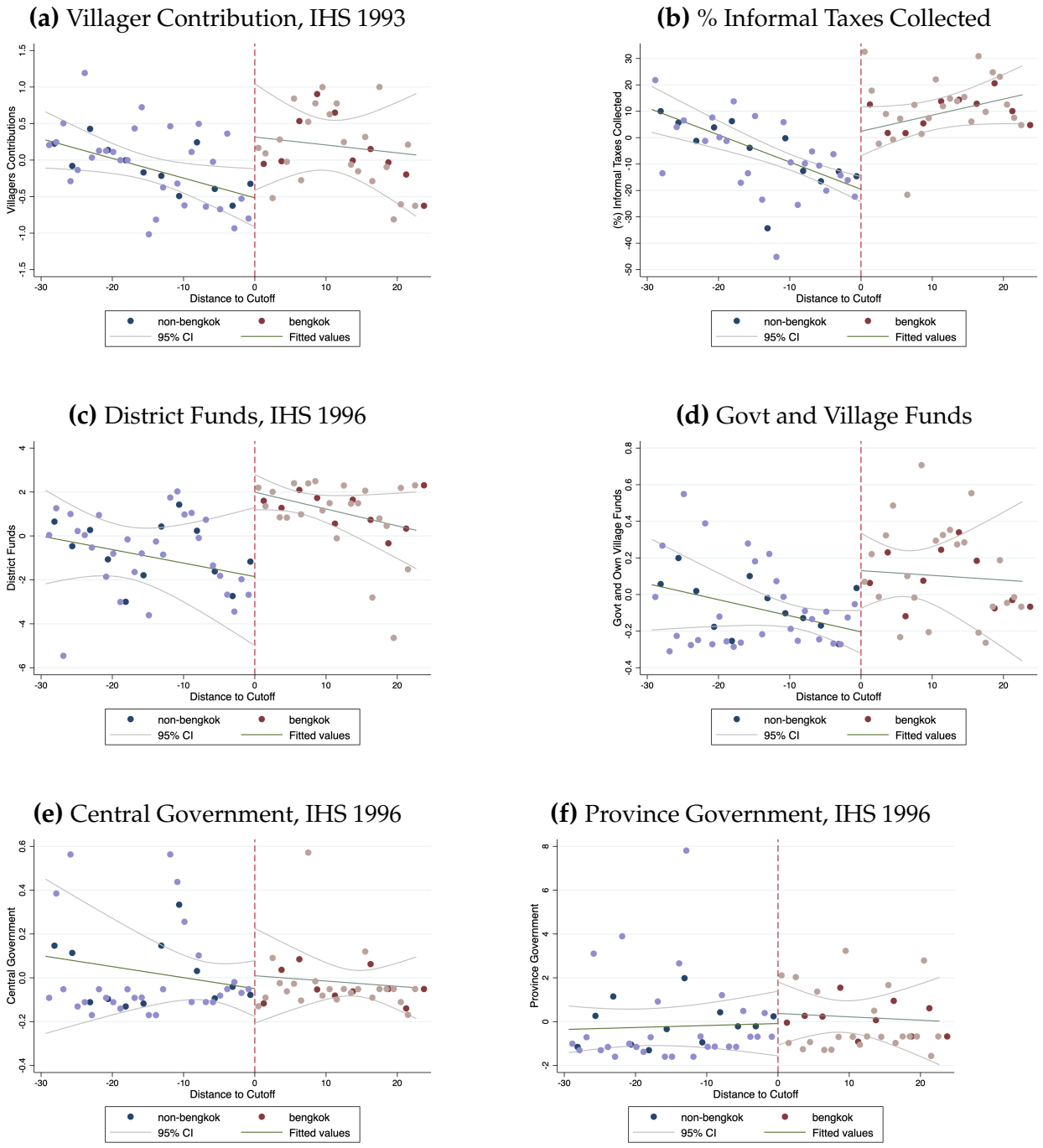
Figure B.5: Cohort-Level Differences in Years of Education of Villagers Across the *Bengkok* Boundary



Source: Census 2000 data. Each dot and solid line plots the point estimate and 90% confidence interval on Bengkok$_{fuzzy,v}$ from jointly estimating equations (1) and (2) at the individual-level and pooled at 5 year cohort-levels. First cohort pooled at 10-year level (1920-1930) due to the smaller cohort size. Each regression allows for a local linear trend estimated separately on each side of the discontinuity, uses a triangular kernel and the Calonico et al. (2014) optimal bandwidth. Each regression is jointly estimated following equations (1) and (2). All regressions control for whether a village had ever split, cohort-year, gender, and include a nearest-border segment fixed effect. Standard errors are clustered at the subdistrict level.

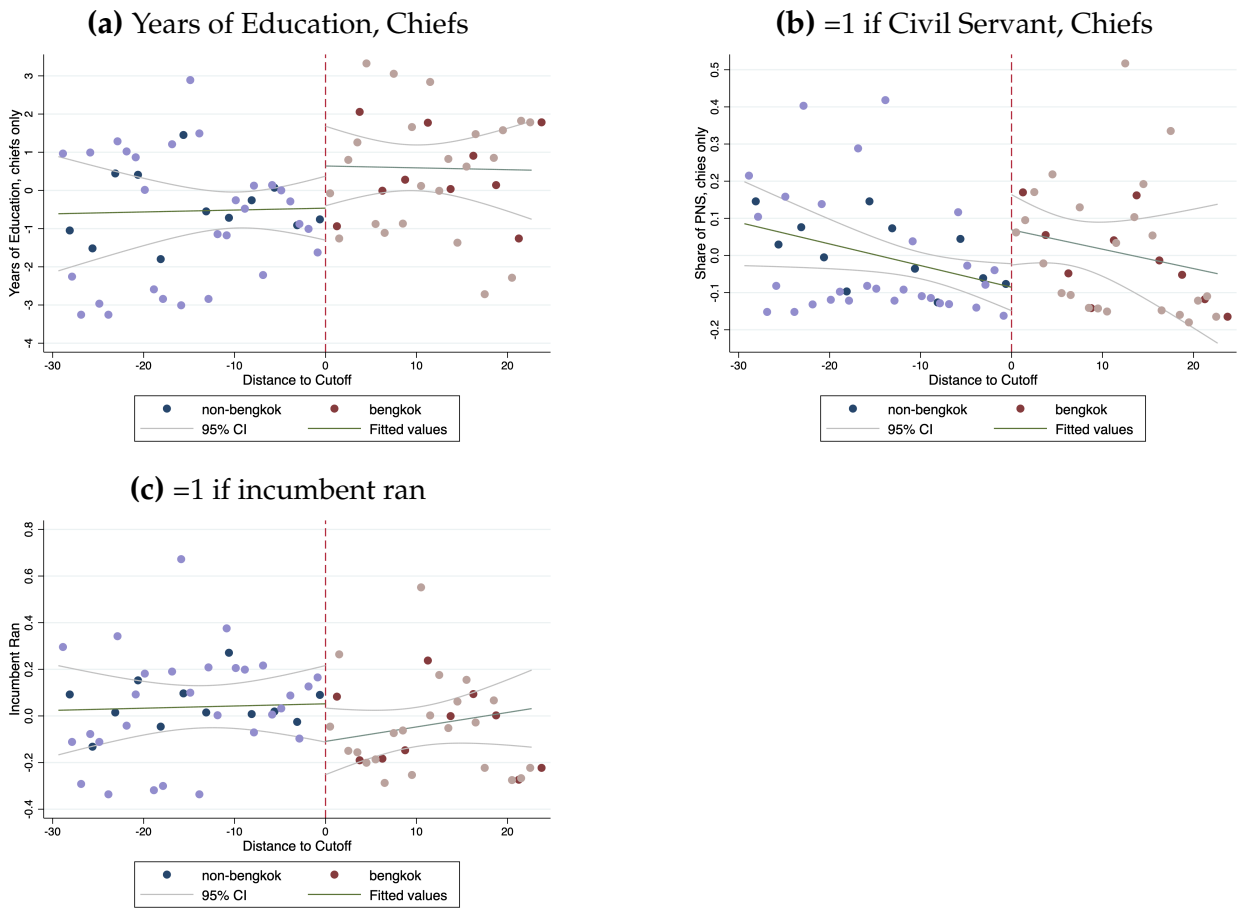
B.3 RD Plots

Figure B.6: RD Plots: *Bengkok* Villages and Village Funds



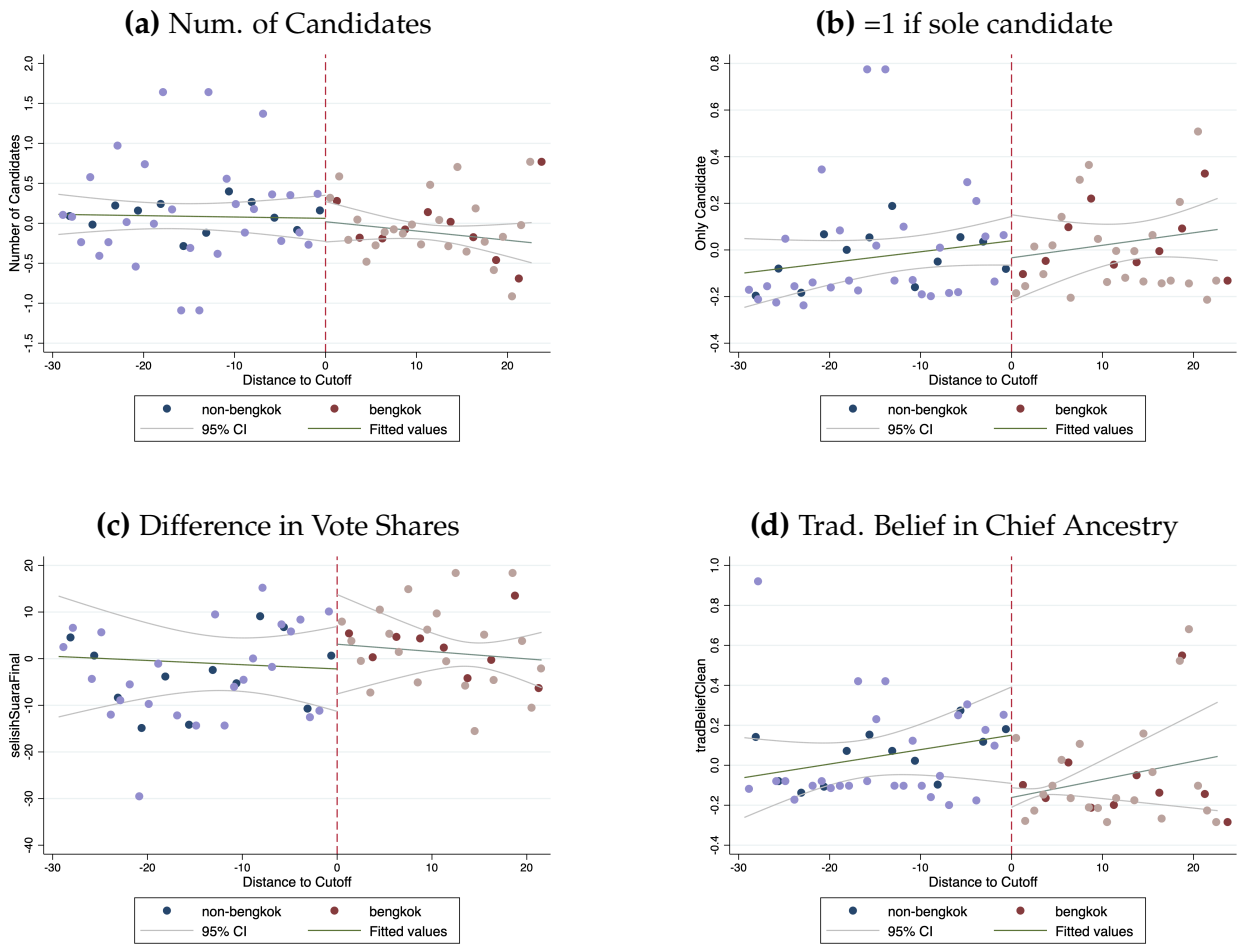
Notes: Darker (lighter)-shaded dots give the average value of the specified outcome variable for villages falling within 2.5km (1km) distance bins. Distance to cutoff refers to the distance between a village centroid and the closest point on the Cirebon–Priangan border, in kilometers. The dotted vertical line represents the Cirebon–Priangan border. Negative (positive) values of distance give the distance of villages South (North) of the Cirebon–Priangan border with villages to the North having had persistently larger plots of *bengkok* land. Solid line trends are predicted values from a regression of the specified variable on a linear polynomial in distance to the border that allows for a local linear trend estimated separately on each side of the discontinuity, uses a triangular kernel and a bandwidth of 30km. Each regression is jointly estimated following equations (1) and (2). All regressions control for whether a village had ever split, and include a nearest-border segment fixed effect. In addition both Panel (b) and (d) controls for whether a chief's electoral term coincided with the end of Suharto rule. Panel (d) additionally controls for whether the development project was a road project, the most common type of project in our survey data. Standard errors clustered at the sub-district (*kecamatan*) level and figures show 95% confidence intervals. The order of these plots correspond to the order of outcomes in Table B.2.

Figure B.7: RD Plots: *Bengkok* Villages, Political Selection and Re-election Incentives



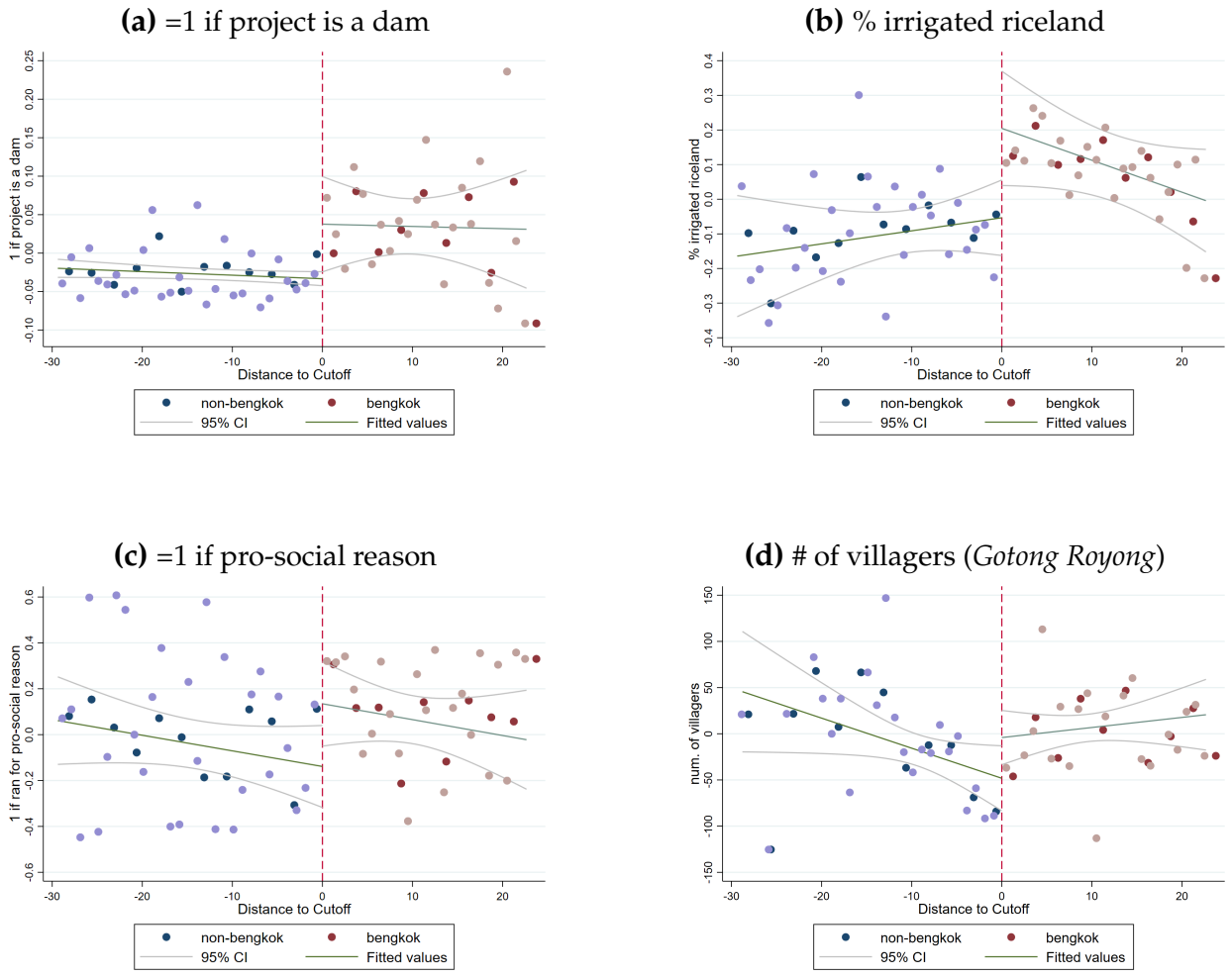
Notes: Darker (lighter)-shaded dots give the average value of the specified outcome variable for villages falling within 2.5km (1km) distance bins. Distance to cutoff refers to the distance between a village centroid and the closest point on the Cirebon–Priangan border, in kilometers. The dotted vertical line represents the Cirebon–Priangan border. Negative (positive) values of distance give the distance of villages South (North) of the Cirebon–Priangan border with villages to the North having had persistently larger plots of *bengkok* land. Solid line trends are predicted values from a regression of the specified variable on a linear polynomial in distance to the border that allows for a local linear trend estimated separately on each side of the discontinuity, uses a triangular kernel and a bandwidth of 30km. Each regression is jointly estimated following equations (1) and (2). All regressions control for whether a village had ever split, whether a chief's electoral term coincided with the end of Suharto rule, and include a nearest-border segment fixed effect. Standard errors clustered at the sub-district (*kecamatan*) level and figures show 95% confidence intervals. The order of these plots correspond to the order of outcomes in Table 3.

Figure B.8: RD Plots for Political Competition Outcomes



Notes: Darker (lighter)-shaded dots give the average value of the specified outcome variable for villages falling within 2.5km (1km) distance bins. Distance to cutoff refers to the distance between a village centroid and the closest point on the Cirebon–Priangan border, in kilometers. The dotted vertical line represents the Cirebon–Priangan border. Negative (positive) values of distance give the distance of villages South (North) of the Cirebon–Priangan border with villages to the North having had persistently larger plots of *bengkok* land. Solid line trends are predicted values from a regression of the specified variable on a linear polynomial in distance to the border that allows for a local linear trend estimated separately on each side of the discontinuity, uses a triangular kernel and a bandwidth of 30km. Each regression is jointly estimated following equations (1) and (2). All regressions control for whether a village had ever split, whether a chief's electoral term coincided with the end of Suharto rule, and include a nearest-border segment fixed effect. Standard errors clustered at the sub-district (*kecamatan*) level and figures show 95% confidence intervals. The order of these plots correspond to the order of outcomes in Table 4.

Figure B.9: RD Plots: *Bengkok* Villages, Embeddedness, and Pro-Sociality



Notes: Darker (lighter)-shaded dots give the average value of the specified outcome variable for villages falling within 2.5km (1km) distance bins. Distance to cutoff refers to the distance between a village centroid and the closest point on the Cirebon–Priangan border, in kilometers. The dotted vertical line represents the Cirebon–Priangan border. Negative (positive) values of distance give the distance of villages South (North) of the Cirebon–Priangan border with villages to the North having had persistently larger plots of *bengkok* land. Solid line trends are predicted values from a regression of the specified variable on a linear polynomial in distance to the border that allows for a local linear trend estimated separately on each side of the discontinuity, uses a triangular kernel and a bandwidth of 30km. Each regression is jointly estimated following equations (1) and (2). All regressions control for whether a village had ever split. Regressions in (a) and (b) include a nearest-border segment fixed effect and also control for survey year. In addition, regressions in (a) control for whether the project had been completed and whether the project was primarily managed by the village (administration). Regressions in (c) control for chief-cohort fixed effects. Regression in (d) controls for whether a chief's electoral term coincided with the end of Suharto rule, whether a project was a road, and whether it employed paid laborers. Standard errors clustered at the sub-district (*kecamatan*) level and figures show 95% confidence intervals. The order of these plots corresponds to the order of outcomes in Tables 5.

B.4 *Bengkok* Villages, Dam Share, and Total Project Count

Table B.3: *Bengkok* Villages, Share of Dams, and Total Projects Constructed (1983-1986)

	(1)	(2)	(3)	(4)
	=1 if project is a dam (Project Level)		Total project count (Village Level)	
Bandwidth	Opt.	Wide	Opt.	Wide
bengkok (ha)	0.046*	0.038**	-0.056	0.135
	(0.028)	(0.015)	(0.152)	(0.158)
weak-instrument-robust p-value	[0.028]	[0.003]	[0.716]	[0.435]
wild-cluster bootstrap t-test	0.288	0.063	0.735	0.460
FM SE-MD bootstrap AR p-value	0.358	0.064	0.749	0.416
Bandwidth	Opt.	Wide	Opt.	Wide
Observations	370	1142	134	346
Clusters	11	22	11	22
Mean Dep. Var.	0.068	0.061	3.739	3.665
Bandwidth (km)	5.67	30.00	7.15	30.00
First Stage Effective F-stat	9.08	13.05	6.32	10.28
Underidentification Test, p-value	0.048	0.014	0.022	0.018

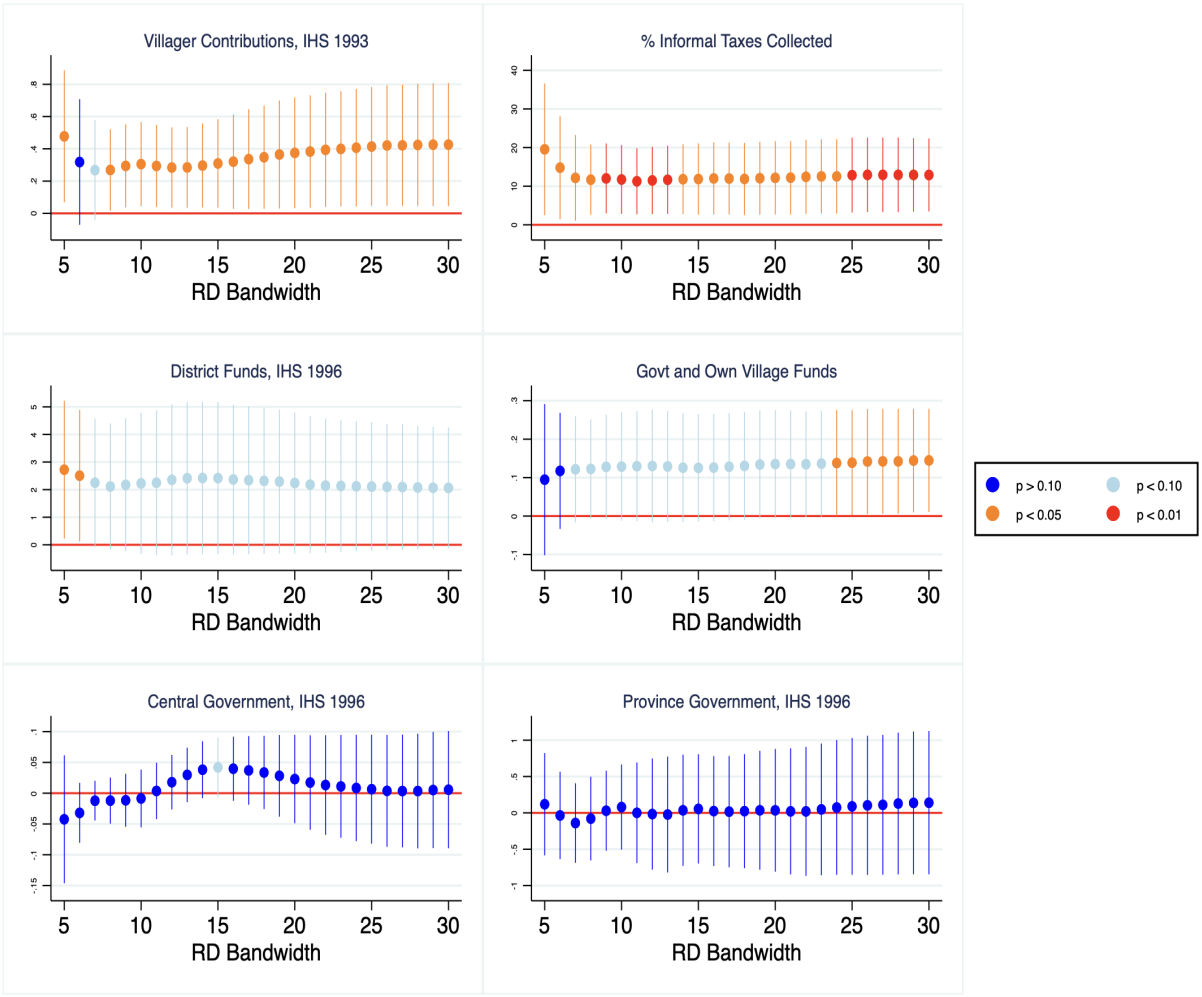
Note: Standard errors clustered at the subdistrict level. All regressions include a local linear specification estimated separately on each side of the study boundary and use a triangular kernel. Each regression is jointly estimated following equations (1) and (2). Odd columns use the MSE-optimal bandwidth following Calonico et al. (2014); even columns use a 30 km window. Columns (1)–(2) are at the village–project level (=1 if the project is a dam) with additional controls for project year, completion and project manager, as in the paper's main specification. Columns (3)–(4) are at the village–wave level controlling for project year (PODES wave-year). Both outcome variables measured in the Village Census (PODES) 1983 and 1986 waves.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Appendix C. Robustness Tables and Figures

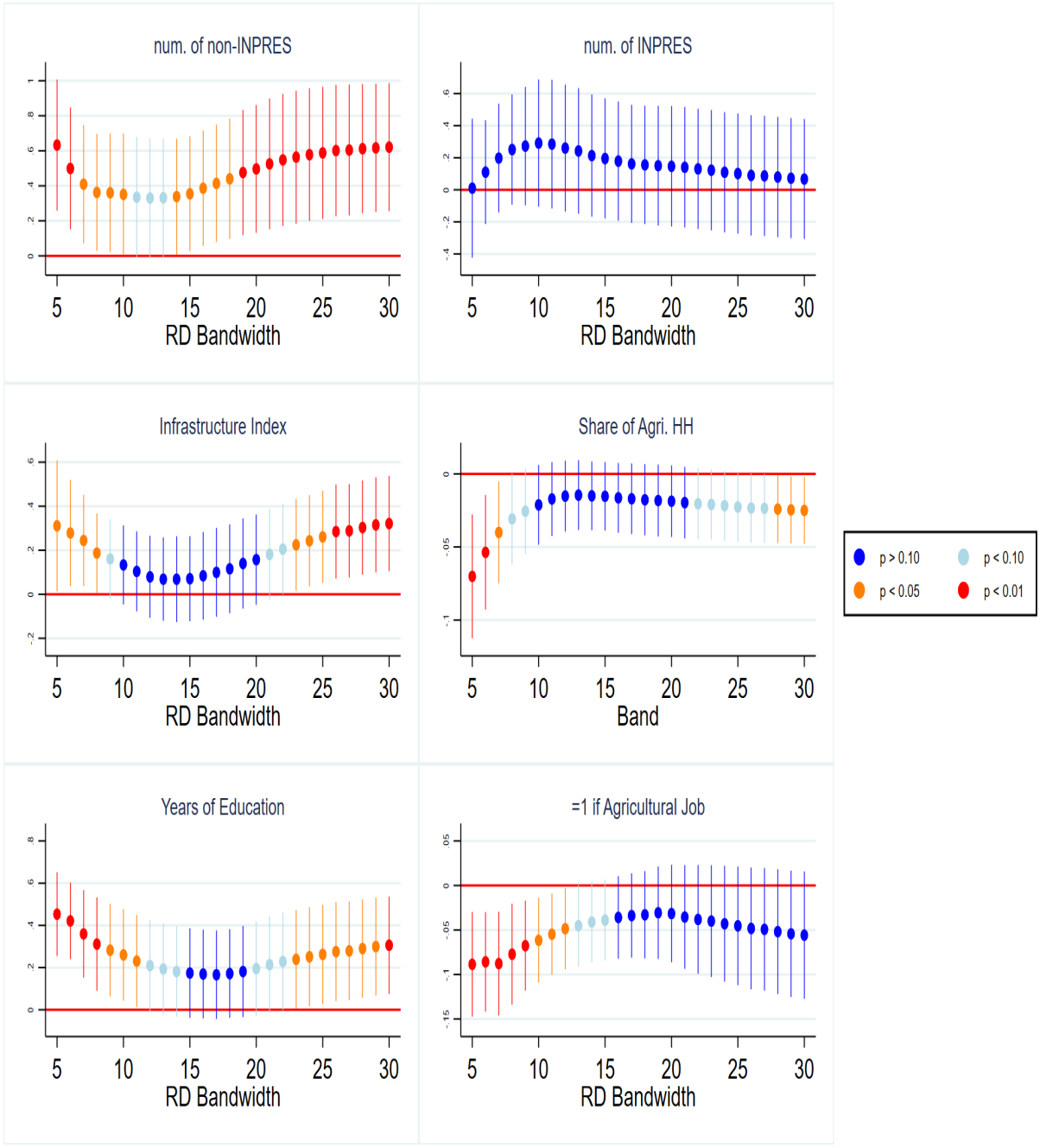
C.1 Robustness to RD Bandwidth

Figure C.1: *Bengkok* Villages and Village Funds: Robustness to RD Bandwidth



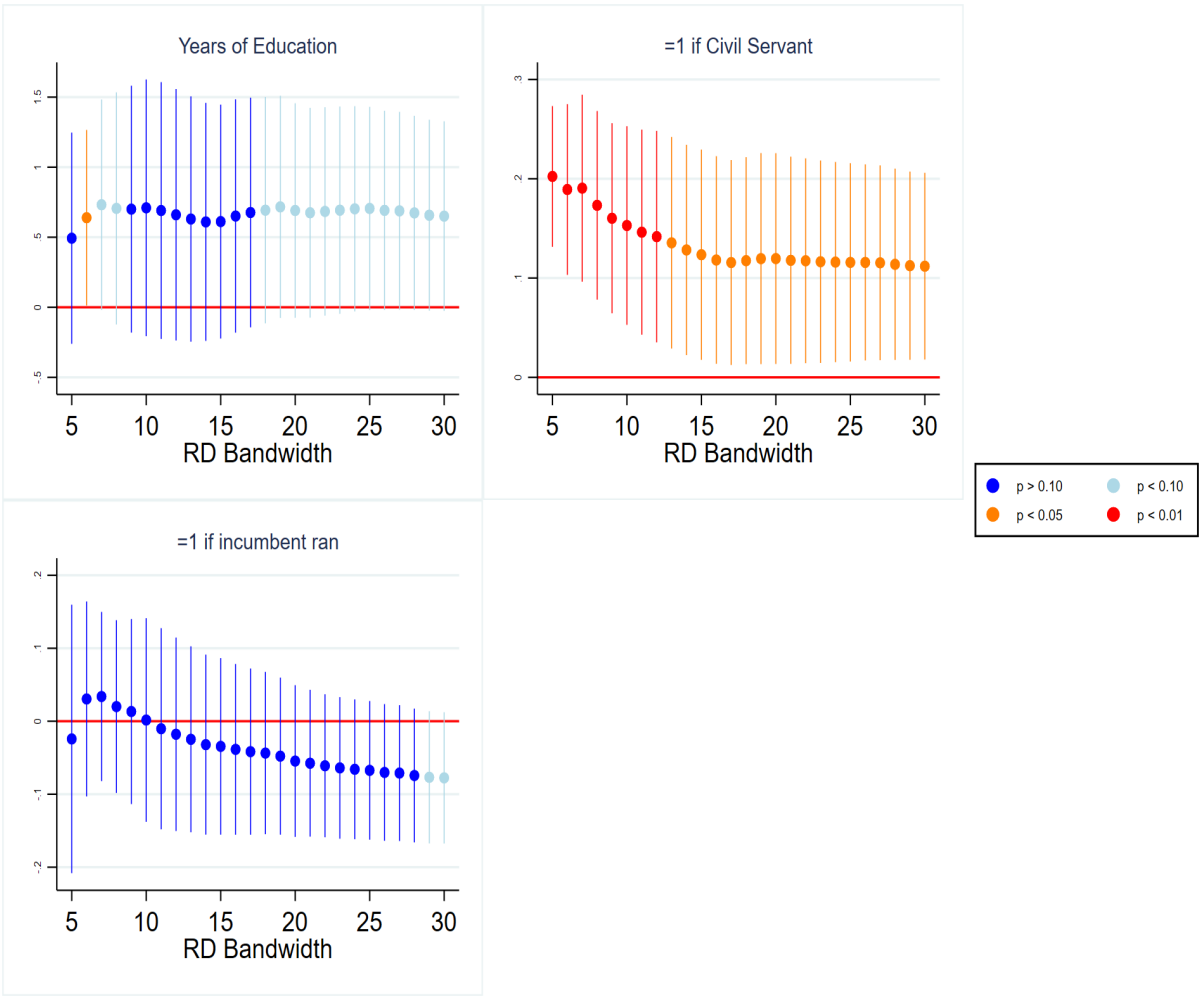
Notes: Standard errors clustered at the sub-district level. All regressions include a local linear specification estimated separately on each side of the Cirebon–Priangan boundary. All regressions control for whether a village had ever split, and include a nearest-border segment fixed effect. In addition, both Panel (b) and (d) controls for whether a chief's electoral term coincided with the end of Suharto rule. Panel (d) additionally controls for whether the development project was a road project, the most common type of project in our survey data. Regressions use a triangular kernel following Cattaneo et al. (2019). Figure shows point estimates and 95% confidence intervals.

Figure C.2: *Bengkok* Villages and Contemporary Development: Robustness to RD Bandwidth



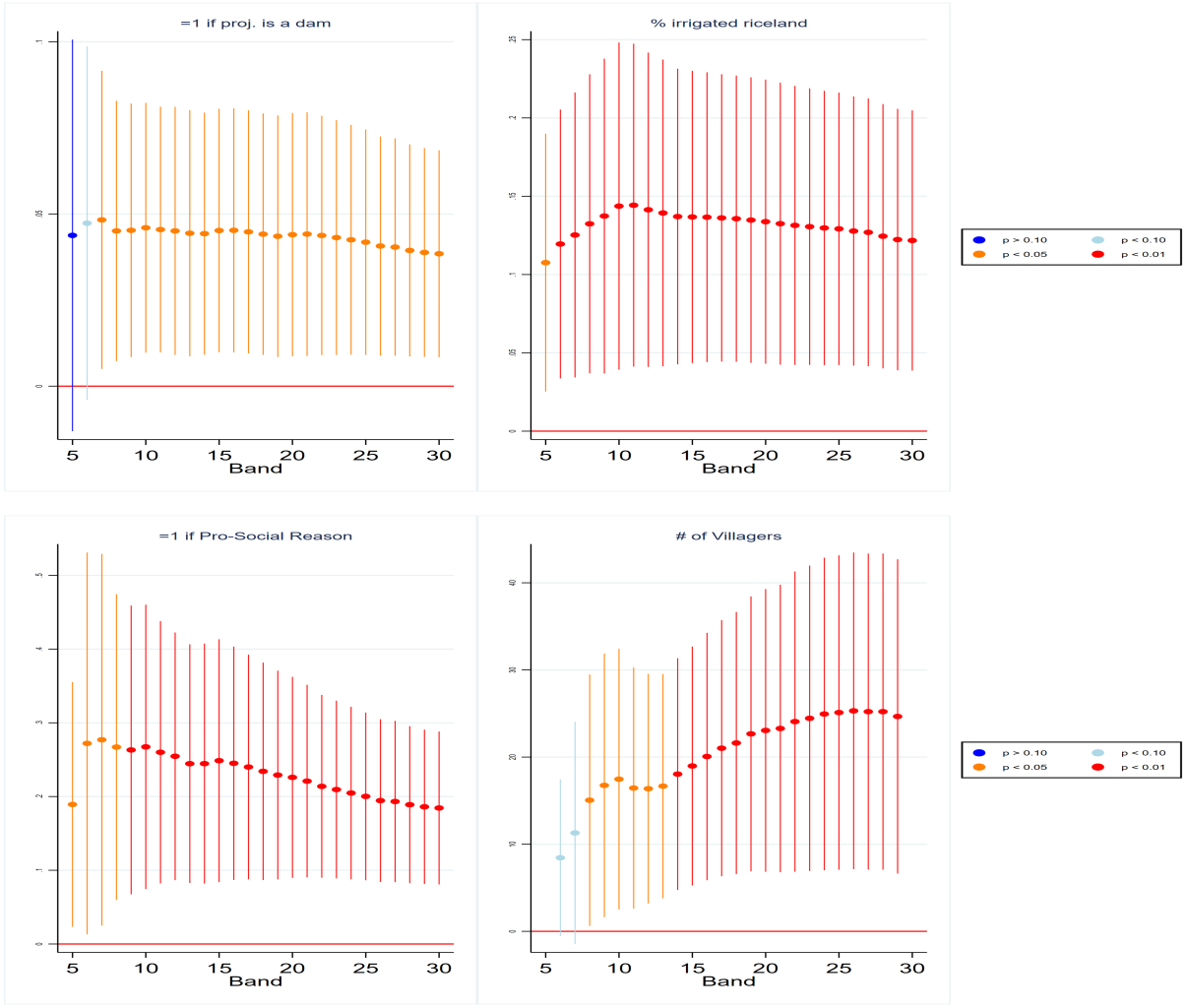
Notes: Standard errors clustered at the sub-district level. All regressions include a local linear specification estimated separately on each side of the Cirebon–Priangan boundary. All regressions control for whether a village had ever split and nearest border segment fixed effects. In addition, individual-level regressions of *years of education*, control for gender and age-cohort. Regressions of *infrastructure index* and *share of agricultural households* controls for survey year. All regressions use a triangular kernel following Cattaneo et al. (2019). Figure shows point estimates and 95% confidence intervals.

Figure C.3: *Bengkok* Villages, Political Selection and Re-election Incentives: Robustness to RD Bandwidth



Notes: Standard errors clustered at the sub-district level. All regressions include a local linear specification estimated separately on each side of the Cirebon–Priangan boundary. All regressions control for whether a village had ever split, nearest border segment fixed effects, and an indicator variable for whether a chief's term of office coincided with the end of Suharto's rule. All regressions use a triangular kernel following Cattaneo et al. (2019). Figure shows point estimates and 95% confidence intervals.

Figure C.4: *Bengkok* Villages, Share of Dams Constructed, and % Irrigated Riceland Robustness to RD Bandwidth



Notes: Standard errors clustered at the sub-district level. All regressions include a local linear specification estimated separately on each side of the Cirebon–Priangan boundary. All regressions control for whether a village had ever split, nearest border segment fixed effects. Regression in the top row also control for survey year. In addition, regressions in the bottom right panel control for whether the project had been completed and whether the project was primarily managed by the village (administration). In addition, $= 1$ *if pro-social reason* controls for chief-cohort fixed effects. All other outcome variables, where relevant, control for whether a chief's electoral term coincided with the end of Suharto rule. *# of Villagers* control for whether a project was a road and whether it employed paid laborers. All regressions use a triangular kernel following Cattaneo et al. (2019). Figure shows point estimates and 95% confidence intervals.

C.2 Robustness to Additional Controls

Table C.1: *Bengkok* Villages and Village Funds:
Robustness to Controlling for Historical Coffee Cultivation (1853)

	(1)	(2)	(3)	(4)
Panel A: Informal Taxation	Villager Contributions, IHS 1993		% Informal Taxes Collected	
bengkok (ha)	0.242	0.421**	28.419*	12.575**
	(0.196)	(0.198)	(14.736)	(5.496)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	56	184	41	143
Clusters	11	22	10	20
Bandwidth	5.52	30.00	4.73	30.00
Mean Dep. Var.	10.92	11.17	62.44	67.13
Std. Dev. Var.	1.014	0.858	17.928	19.111
F stat	4	9	3	8
Mean Dep. Var. (RP)	45153	50694		

	(1)	(2)	(3)	(4)
Panel B: District-Level Funds	District Funds, IHS 1996		Govt and Own Village Funds	
bengkok (ha)	2.239*	2.065*	0.148	0.168**
	(1.305)	(1.187)	(0.093)	(0.078)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	69	184	200	616
Clusters	11	22	11	22
Bandwidth	6.42	30.00	6.92	30.00
Mean Dep. Var.	4.77	5.26	0.21	0.25
Std. Dev. Var.	3.395	2.808	0.412	0.435
F stat	5	9	5	6
Mean Dep. Var. (RP)	2800	1363		

	(1)	(2)	(3)	(4)
Panel C: Central and Province	Central Government, IHS 1996		Province Government, IHS 1996	
bengkok (ha)	–0.015	0.007	–0.023	0.204
	(0.016)	(0.044)	(0.285)	(0.539)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	68	184	69	184
Clusters	11	22	11	22
Bandwidth	6.34	30.00	6.45	30.00
Mean Dep. Var.	9.45	9.48	1.08	1.04
Std. Dev. Var.	0.202	0.336	3.251	2.946
F stat	7	9	7	9
Mean Dep. Var. (RP)	6526	7179	3487	1570

Note: Standard errors clustered at the subdistrict level. Each regression is jointly estimated following equations (1) and (2). Unit of observation is at the village level except for *% Informal Taxes Collected* which is at the village-chief level, and *Govt and Own Village Funds* which is at the village-chief, development-project level. All regressions control for an indicator that equals 1 if a village had ever split and a border segment fixed effect. In addition, regression of *% Informal Taxes Collected* control for whether a chief's electoral term coincided with the end of Suharto rule and regression of *Govt and Own Village Funds* controls for both the former and whether a development project is a road project, the most common project in our survey data. *Villager Contributions* measures the amount of funds collected from villagers. *% Informal Taxes Collected* measures the percentage of informal taxes, collected successfully by village chiefs, as a percentage of their annual target. *District Funds* measures the amount of funds from district-level government sources. *Govt and Own Village Funds* equals one if a development project was constructed using both government and villager contributions, and zero otherwise. *Central Government* and *Province Government Funds* measures the amount of funds from Central and Provincial government sources, respectively.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table C.2: *Bengkok* Villages and Contemporary Development: Robustness to Controlling for Historical Coffee Cultivation (1853)

	(1)	(2)	(3)	(4)
Panel A: Schools (1983)	num. of non-INPRES		num. of INPRES	
bengkok (ha)	0.392**	0.637***	0.274	0.076
	(0.183)	(0.206)	(0.187)	(0.194)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	79	182	86	182
Clusters	11	22	11	22
Bandwidth	7.71	30.00	8.61	30.00
Mean Dep. Var.	2.56	2.47	1.16	1.38
Std. Dev. Var.	1.268	1.140	0.838	0.949
F stat	6	9	5	9

	(1)	(2)	(3)	(4)
Panel B: Infra. & Structural Change	Infrastructure Index		Share of Agri. HH	
bengkok	0.322*	0.321***	−0.068***	−0.023*
	(0.165)	(0.124)	(0.022)	(0.012)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	135	540	139	546
Clusters	10	22	10	22
Bandwidth	4.78	30.00	4.88	30.00
Mean Dep. Var.	-0.02	0.01	0.66	0.74
Std. Dev. Var.	0.447	0.589	0.195	0.164
F stat	7	9	8	10

	(1)	(2)	(3)	(4)
Panel C: Education & Prosperity	Years of Education		=1 if Agricultural Job	
bengkok (ha)	0.448***	0.283**	−0.093***	−0.060
	(0.089)	(0.123)	(0.036)	(0.039)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	66040	248462	35946	182682
Clusters	10	22	9	22
Bandwidth	4.99	30.00	4.36	30.00
Mean Dep. Var.	7.15	6.77	0.24	0.39
Std. Dev. Var.	3.160	2.857	0.429	0.489

Note: Standard errors clustered at the subdistrict level. Each regression is jointly estimated following equations (1) and (2). Unit of observation in Panels A, B and C (Columns (3) & (4)) is at the village level. Unit of observation in Panel C, Columns (1) & (2) is at the individual, villager-level. All regressions control for an indicator that equals 1 if a village had ever split and a border segment fixed effect. In addition, regressions in Panel B and Panel C, Columns (3) & (4), control for survey year. Regressions in Panel C, Columns (1) & (2) control for cohort-year and gender. *num. of non-INPRES* measures the number of bottom-up village schools. *num. of INPRES* measures the number of top-down, Central government-constructed schools. *Infrastructure Index* is comprised of three variables indicating the presence of safe water sources, aspalt road, and safe garbage disposal between 1986-1996. I construct this index following (Kling et al., 2007) by standardising each variable, averaging across all three standardised variables, and standardising the average. *Years of Education* measures the number of years of education for all individuals aged 21-40 years old. *Share of Agri. HH* measures the village-level share of households working in the agricultural sector between 1986-1996. *=1 if Agricultural Job* is an indicator variable that takes the value of 1 if an individual has an agricultural job and 0 otherwise, for all individuals aged 21-40 years old.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table C.3: *Bengkok* Villages and Village Funds:
Robustness to Controlling for Colonial Roads and Railways (1945)

	(1)	(2)	(3)	(4)
Panel A: Informal Taxation	Villager Contributions, IHS 1993		% Informal Taxes Collected	
bengkok (ha)	0.288	0.410**	22.765**	12.749***
	(0.213)	(0.200)	(9.367)	(4.699)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	52	184	41	143
Clusters	11	22	10	20
Bandwidth	5.19	30.00	4.69	30.00
Mean Dep. Var.	10.82	11.17	62.44	67.13
Std. Dev. Var.	0.950	0.858	17.928	19.111
F stat	6	11	5	11
Mean Dep. Var. (RP)	37451	50694		

	(1)	(2)	(3)	(4)
Panel B: District-Level Funds	District Funds, IHS 1996		Govt and Own Village Funds	
bengkok (ha)	2.388**	2.016*	0.148**	0.151***
	(1.148)	(1.093)	(0.070)	(0.057)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	69	184	206	616
Clusters	11	22	11	22
Bandwidth	6.48	30.00	7.24	30.00
Mean Dep. Var.	4.77	5.26	0.21	0.25
Std. Dev. Var.	3.395	2.808	0.411	0.435
F stat	7	11	10	10
Mean Dep. Var. (RP)	2800	1363		

	(1)	(2)	(3)	(4)
Panel C: Central and Province	Central Government, IHS 1996		Province Government, IHS 1996	
bengkok (ha)	−0.016	0.007	0.005	0.131
	(0.014)	(0.051)	(0.317)	(0.496)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	69	184	66	184
Clusters	11	22	11	22
Bandwidth	6.81	30.00	6.11	30.00
Mean Dep. Var.	9.45	9.48	1.13	1.04
Std. Dev. Var.	0.200	0.336	3.317	2.946
F stat	9	10	10	10
Mean Dep. Var. (RP)	6518	7179	3645	1570

Note: Standard errors clustered at the subdistrict level. Each regression is jointly estimated following equations (1) and (2). Unit of observation is at the village level except for *% Informal Taxes Collected* which is at the village-chief level, and *Govt and Own Village Funds* which is at the village-chief, development-project level. All regressions control for an indicator that equals 1 if a village had ever split and a border segment fixed effect. In addition, regression of *% Informal Taxes Collected* control for whether a chief's electoral term coincided with the end of Suharto rule and regression of *Govt and Own Village Funds* controls for both the former and whether a development project is a road project, the most common project in our survey data. *Villager Contributions* measures the amount of funds collected from villagers. *% Informal Taxes Collected* measures the percentage of informal taxes, collected successfully by village chiefs, as a percentage of their annual target. *District Funds* measures the amount of funds from district-level government sources. *Govt and Own Village Funds* equals one if a development project was constructed using both government and villager contributions, and zero otherwise. *Central Government* and *Province Government Funds* measures the amount of funds from Central and Provincial government sources, respectively.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table C.4: *Bengkok* Villages and Contemporary Development: Robustness to Controlling for Colonial Roads and Railways (1945)

	(1)	(2)	(3)	(4)
Panel A: Schools (1983)	num. of non-INPRES		num. of INPRES	
bengkok (ha)	0.405**	0.628***	0.209	0.062
	(0.175)	(0.201)	(0.159)	(0.183)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	73	182	72	182
Clusters	11	22	11	22
Bandwidth	7.39	30.00	7.24	30.00
Mean Dep. Var.	2.56	2.47	1.17	1.38
Std. Dev. Var.	1.269	1.140	0.805	0.949
F stat	7	9	7	9

	(1)	(2)	(3)	(4)
Panel B: Infra. & Structural Change	Infrastructure Index		Share of Agri. HH	
bengkok	0.331**	0.319***	−0.064***	−0.025**
	(0.148)	(0.108)	(0.018)	(0.011)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	135	540	139	546
Clusters	10	22	10	22
Bandwidth	4.78	30.00	4.83	30.00
Mean Dep. Var.	-0.02	0.01	0.66	0.74
Std. Dev. Var.	0.447	0.589	0.195	0.164
F stat	11	10	13	11

	(1)	(2)	(3)	(4)
Panel C: Education & Prosperity	Years of Education		=1 if Agricultural Job	
bengkok (ha)	0.487***	0.304**	−0.068**	−0.060*
	(0.111)	(0.124)	(0.033)	(0.036)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	58491	248462	44058	182682
Clusters	10	22	10	22
Bandwidth	4.53	30.00	5.09	30.00
Mean Dep. Var.	7.15	6.77	0.23	0.39
Std. Dev. Var.	3.153	2.857	0.420	0.489
F stat	22	9	19	11

Note: Standard errors clustered at the subdistrict level. Each regression is jointly estimated following equations (1) and (2). Unit of observation in Panels A, B and C (Columns (3) & (4)) is at the village level. Unit of observation in Panel C, Columns (1) & (2) is at the individual, villager-level. All regressions control for an indicator that equals 1 if a village had ever split and a border segment fixed effect. In addition, regressions in Panel B and Panel C, Columns (3) & (4), control for survey year. Regressions in Panel C, Columns (1) & (2) control for cohort-year and gender. *num. of non-INPRES* measures the number of bottom-up village schools. *num. of INPRES* measures the number of top-down, Central government-constructed schools. *Infrastructure Index* is comprised of three variables indicating the presence of safe water sources, aspalt road, and safe garbage disposal between 1986-1996. I construct this index following (Kling et al., 2007) by standardising each variable, averaging across all three standardised variables, and standardising the average. *Years of Education* measures the number of years of education for all individuals aged 21-40 years old. *Share of Agri. HH* measures the village-level share of households working in the agricultural sector between 1986-1996. *=1 if Agricultural Job* is an indicator variable that takes the value of 1 if an individual has an agricultural job and 0 otherwise, for all individuals aged 21-40 years old.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table C.5: *Bengkok* Villages and Village Funds: Robustness to Controlling for Ruggedness

	(1)	(2)	(3)	(4)
Panel A: Informal Taxation	Villager Contributions, IHS 1993		% Informal Taxes Collected	
bengkok (ha)	0.257	0.412**	20.144**	12.896***
	(0.195)	(0.203)	(8.807)	(4.669)
Ruggedness	0.892	−0.310	−44.176	−0.797
	(0.985)	(0.648)	(39.792)	(18.565)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	55	184	42	143
Clusters	11	22	10	20
Bandwidth	5.28	30.00	4.78	30.00
Mean Dep. Var.	10.88	11.17	62.62	67.13
Std. Dev. Var.	0.964	0.858	17.746	19.111
Mean Dep. Var. (RP)	39837	50694		
First Stage Effective F-stat	5.05	11.08	4.55	11.86
Underidentification Test, p-value	0.057	0.013	0.099	0.012

	(1)	(2)	(3)	(4)
Panel B: District-Level Funds	District Funds, IHS 1996		Govt and Own Village Funds	
bengkok (ha)	2.219*	2.047*	0.129	0.151**
	(1.217)	(1.098)	(0.080)	(0.065)
Ruggedness	−4.927	−2.959	−0.360	−0.456*
	(5.581)	(3.325)	(0.345)	(0.254)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	69	184	200	616
Clusters	11	22	11	22
Bandwidth	6.62	30.00	6.94	30.00
Mean Dep. Var.	4.77	5.26	0.21	0.25
Std. Dev. Var.	3.395	2.808	0.412	0.435
Mean Dep. Var. (RP)	2800	1363		
First Stage Effective F-stat	5.50	11.08	5.38	7.69
Underidentification Test, p-value	0.023	0.013	0.033	0.043

	(1)	(2)	(3)	(4)
Panel C: Central and Province	Central Government, IHS 1996		Province Government, IHS 1996	
bengkok (ha)	−0.069	0.008	0.097	0.171
	(0.062)	(0.049)	(0.328)	(0.544)
Ruggedness	0.488**	−0.038	0.310	−0.612
	(0.238)	(0.173)	(2.365)	(2.122)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	45	184	94	184
Clusters	10	22	12	22
Bandwidth	4.68	30.00	9.78	30.00
Mean Dep. Var.	9.45	9.48	1.06	1.04
Std. Dev. Var.	0.239	0.336	3.123	2.946
Mean Dep. Var. (RP)	6633	7179	2634	1570
First Stage Effective F-stat	5.24	11.08	6.45	11.08
Underidentification Test, p-value	0.064	0.013	0.013	0.013

Note: Standard errors clustered at the subdistrict level. All regressions include a local linear specification estimated separately on each side of the study boundary and use a triangular kernel. Each regression is jointly estimated following equations (1) and (2). Optimal bandwidths are chosen following Calonico et al. (2014) and are reported in kilometers. Unit of observation is at the village level except for *% Informal Taxes Collected* which is at the village-chief level, and *Govt and Own Village Funds* which is at the village-chief, development-project level. All regressions control for an indicator that equals 1 if a village had ever split and a border segment fixed effect. In addition, regression of *% Informal Taxes Collected* control for whether a chief's electoral term coincided with the end of Suharto rule and regression of *Govt and Own Village Funds* controls for both the former and whether a development project is a road project, the most common project in our survey data. *Villager Contributions* measures the amount of funds collected from villagers. *% Informal Taxes Collected* measures the percentage of informal taxes, collected successfully by village chiefs, as a percentage of their annual target. *District Funds* measures the amount of funds from district-level government sources. *Govt and Own Village Funds* equals one if a development project was constructed using both government and villager contributions, and zero otherwise. *Central Government* and *Province Government Funds* measures the amount of funds from Central and Provincial government sources, respectively.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table C.6: *Bengkok* Villages and Contemporary Development: Robustness to Controlling for Ruggedness

	(1)	(2)	(3)	(4)
Panel A: Schools (1983)	num. of non-INPRES		num. of INPRES	
bengkok (ha)	0.429**	0.621***	0.269	0.074
	(0.181)	(0.188)	(0.215)	(0.199)
Ruggedness	−3.048*	−1.035	−1.722	−0.661
	(1.575)	(1.157)	(1.129)	(0.473)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	69	181	71	181
Clusters	11	22	11	22
Bandwidth	6.88	30.00	7.22	30.00
Mean Dep. Var.	2.54	2.47	1.17	1.38
Std. Dev. Var.	1.267	1.143	0.810	0.951
First Stage Effective F-stat	5.59	10.87	5.77	10.87
Underidentification Test, p-value	0.019	0.014	0.017	0.014

	(1)	(2)	(3)	(4)
Panel B: Infra. & Structural Change	Infrastructure Index		Share of Agri. HH	
bengkok (ha)	0.338**	0.303***	−0.066**	−0.024**
	(0.171)	(0.110)	(0.030)	(0.012)
Ruggedness	−1.035	0.255	0.278*	−0.032
	(0.835)	(0.509)	(0.145)	(0.057)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	132	537	193	546
Clusters	10	22	11	22
Bandwidth	4.78	30.00	5.97	30.00
Mean Dep. Var.	-0.06	-0.02	0.67	0.74
Std. Dev. Var.	0.781	0.955	0.185	0.164
First Stage Effective F-stat	6.09	12.27	5.86	11.61
Underidentification Test, p-value	0.068	0.014	0.031	0.013

	(1)	(2)	(3)	(4)
Panel C: Education & Prosperity	Years of Education		=1 if Agricultural Job	
bengkok (ha)	0.489***	0.304**	−0.113**	−0.052
	(0.146)	(0.130)	(0.048)	(0.038)
Ruggedness	−1.346	−0.114	0.484	−0.020
	(1.596)	(0.639)	(0.298)	(0.144)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	74738	246734	48890	181635
Clusters	11	22	11	22
Bandwidth	5.59	30.00	5.46	30.00
Mean Dep. Var.	7.19	6.77	0.24	0.40
Std. Dev. Var.	3.131	2.860	0.426	0.489
First Stage Effective F-stat	6.82	11.31	7.14	13.96
Underidentification Test, p-value	0.051	0.013	0.061	0.008

Note: Standard errors clustered at the subdistrict level. All regressions include a local linear specification estimated separately on each side of the study boundary and use a triangular kernel. Each regression is jointly estimated following equations (1) and (2). Optimal bandwidths are chosen following Calonico et al. (2014) and are reported in kilometers. Unit of observation in Panels A and B is at the village level. Unit of observation in Panel C is at the individual, villager-level. All regressions control for an indicator that equals 1 if a village had ever split and a border segment fixed effect. In addition, regression in Panel B controls for survey year. Regressions in Panel C control for cohort-year and gender. *num. of non-INPRES* measures the number of bottom-up village schools. *num. of INPRES* measures the number of top-down, Central government-constructed schools. *Infrastructure Index* is comprised of three variables indicating the presence of safe water sources, aspalt road, and safe garbage disposal between 1986-1996. I construct this index following (Kling et al., 2007) by standardising each variable, averaging across all three standardised variables, and standardising the average. *Years of Education* measures the number of years of education for all individuals aged 21-40 years old. *Share of Agri. HH* measures the share of village households engaged primarily in agriculture. *=1 if Agricultural Job* is an indicator variable that takes the value of 1 if an individual has an agricultural job and 0 otherwise, for all individuals aged 21-40 years old.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table C.7: *Bengkok* Villages and Village Funds: Robustness to Controlling for Coffee Suitability

	(1)	(2)	(3)	(4)
Panel A: Informal Taxation	Villager Contributions, IHS 1993		% Informal Taxes Collected	
bengkok (ha)	0.754**	0.451**	35.989***	13.149***
	(0.331)	(0.178)	(13.271)	(5.000)
(mean) Coffee_potYield	0.130***	0.039**	1.577	0.315
	(0.029)	(0.016)	(1.208)	(0.291)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	41	184	28	143
Clusters	9	22	7	20
Bandwidth	4.17	30.00	3.45	30.00
Mean Dep. Var.	10.88	11.17	55.89	67.13
Std. Dev. Var.	0.957	0.858	17.694	19.111
Mean Dep. Var. (RP)	39799	50694		
First Stage Effective F-stat	6.27	10.58	5.29	9.36
Underidentification Test, p-value	0.066	0.014	0.091	0.013

	(1)	(2)	(3)	(4)
Panel B: District-Level Funds	District Funds, IHS 1996		Govt and Own Village Funds	
bengkok (ha)	2.631**	2.118**	0.136	0.151**
	(1.267)	(1.081)	(0.102)	(0.071)
Coffee Potential Yield	0.254	0.112**	0.006	0.005
	(0.166)	(0.044)	(0.011)	(0.003)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	65	184	196	616
Clusters	11	22	11	22
Bandwidth	6.03	30.00	6.90	30.00
Mean Dep. Var.	4.86	5.26	0.22	0.25
Std. Dev. Var.	3.377	2.808	0.415	0.435
Mean Dep. Var. (RP)	2957	1363		
First Stage Effective F-stat	5.02	10.58	3.49	6.83
Underidentification Test, p-value	0.048	0.014	0.074	0.052

	(1)	(2)	(3)	(4)
Panel C: Central and Province	Central Government, IHS 1996		Province Government, IHS 1996	
bengkok (ha)	0.001	0.014	0.209	0.203
	(0.026)	(0.043)	(0.404)	(0.501)
Coffee Potential Yield	0.012	0.006*	0.118	0.039
	(0.013)	(0.003)	(0.088)	(0.024)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	66	184	81	184
Clusters	11	22	11	22
Bandwidth	6.11	30.00	8.03	30.00
Mean Dep. Var.	9.45	9.48	1.02	1.04
Std. Dev. Var.	0.205	0.336	3.136	2.946
Mean Dep. Var. (RP)	6534	7179	3001	1570
First Stage Effective F-stat	4.92	10.58	4.84	10.58
Underidentification Test, p-value	0.047	0.014	0.038	0.014

Note: Standard errors clustered at the subdistrict level. All regressions include a local linear specification estimated separately on each side of the study boundary and use a triangular kernel. Each regression is jointly estimated following equations (1) and (2). Optimal bandwidths are chosen following Calonico et al. (2014) and are reported in kilometers. Unit of observation is at the village level except for *% Informal Taxes Collected* which is at the village-chief level, and *Govt and Own Village Funds* which is at the village-chief, development-project level. All regressions control for an indicator that equals 1 if a village had ever split and a border segment fixed effect. In addition, regression of *% Informal Taxes Collected* control for whether a chief's electoral term coincided with the end of Suharto rule and regression of *Govt and Own Village Funds* controls for both the former and whether a development project is a road project, the most common project in our survey data. *Villager Contributions* measures the amount of funds collected from villagers. *% Informal Taxes Collected* measures the percentage of informal taxes, collected successfully by village chiefs, as a percentage of their annual target. *District Funds* measures the amount of funds from district-level government sources. *Govt and Own Village Funds* equals one if a development project was constructed using both government and villager contributions, and zero otherwise. *Central Government* and *Province Government Funds* measures the amount of funds from Central and Provincial government sources, respectively.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table C.8: *Bengkok* Villages and Contemporary Development: Robustness to Controlling for Coffee Suitability

	(1)	(2)	(3)	(4)
Panel A: Schools (1983)	num. of non-INPRES		num. of INPRES	
bengkok (ha)	0.427***	0.616***	0.249	0.042
	(0.149)	(0.183)	(0.207)	(0.178)
Coffee Potential Yield	0.045**	0.015	−0.012	−0.018
	(0.020)	(0.019)	(0.032)	(0.012)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	68	181	84	181
Clusters	11	22	11	22
Bandwidth	6.80	30.00	8.52	30.00
Mean Dep. Var.	2.53	2.47	1.18	1.38
Std. Dev. Var.	1.275	1.143	0.838	0.951
First Stage Effective F-stat	4.91	10.56	5.00	10.56
Underidentification Test, p-value	0.044	0.015	0.033	0.015

	(1)	(2)	(3)	(4)
Panel B: Infra. & Structural Change	Infrastructure Index		Share of Agri. HH	
bengkok (ha)	0.322**	0.317***	−0.058**	−0.022*
	(0.143)	(0.109)	(0.024)	(0.011)
Coffee Potential Yield	0.031	0.010	0.004	0.003**
	(0.026)	(0.008)	(0.004)	(0.001)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	132	537	166	546
Clusters	10	22	11	22
Bandwidth	4.78	30.00	5.44	30.00
Mean Dep. Var.	-0.06	-0.02	0.67	0.74
Std. Dev. Var.	0.781	0.955	0.190	0.164
First Stage Effective F-stat	8.12	11.93	6.28	11.16
Underidentification Test, p-value	0.065	0.015	0.055	0.015

	(1)	(2)	(3)	(4)
Panel C: Education & Prosperity	Years of Education		=1 if Agricultural Job	
bengkok (ha)	0.563***	0.293**	−0.060*	−0.042
	(0.109)	(0.122)	(0.031)	(0.034)
(mean) Coffee_potYield	0.068***	−0.009	0.010*	0.008***
	(0.016)	(0.014)	(0.005)	(0.002)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	56763	246734	47379	181635
Clusters	10	22	11	22
Bandwidth	4.58	30.00	5.26	30.00
Mean Dep. Var.	7.16	6.77	0.24	0.40
Std. Dev. Var.	3.174	2.860	0.426	0.489
First Stage Effective F-stat	10.64	11.12	9.70	14.10
Underidentification Test, p-value	0.079	0.015	0.069	0.009

Note: Standard errors clustered at the subdistrict level. All regressions include a local linear specification estimated separately on each side of the study boundary and use a triangular kernel. Each regression is jointly estimated following equations (1) and (2). Optimal bandwidths are chosen following Calonico et al. (2014) and are reported in kilometers. Unit of observation in Panels A and B is at the village level. Unit of observation in Panel C is at the individual, villager-level. All regressions control for an indicator that equals 1 if a village had ever split and a border segment fixed effect. In addition, regression in Panel B controls for survey year. Regressions in Panel C control for cohort-year and gender. *num. of non-INPRES* measures the number of bottom-up village schools. *num. of INPRES* measures the number of top-down, Central government-constructed schools. *Infrastructure Index* is comprised of three variables indicating the presence of safe water sources, aspalt road, and safe garbage disposal between 1986-1996. I construct this index following (Kling et al., 2007) by standardising each variable, averaging across all three standardised variables, and standardising the average. *Years of Education* measures the number of years of education for all individuals aged 21-40 years old. *Share of Agri. HH* measures the share of village households engaged primarily in agriculture. *=1 if Agricultural Job* is an indicator variable that takes the value of 1 if an individual has an agricultural job and 0 otherwise, for all individuals aged 21-40 years old.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table C.9: *Bengkok* Villages and Village Funds: Robustness to Controlling for Ruggedness and Rice Suitability

	(1)	(2)	(3)	(4)
Panel A: Informal Taxation	Villager Contributions, IHS 1993		% Informal Taxes Collected	
bengkok (ha)	0.455*	0.371*	22.294**	12.955***
	(0.237)	(0.192)	(9.510)	(4.535)
Wet Rice Potential Yield	0.051***	0.013*	0.248	−0.025
	(0.020)	(0.008)	(0.273)	(0.159)
Ruggedness	−0.426	−0.025	−56.974	−1.374
	(1.135)	(0.603)	(43.074)	(18.443)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	44	184	38	143
Clusters	10	22	10	20
Bandwidth	4.62	30.00	4.43	30.00
Mean Dep. Var.	10.89	11.17	61.05	67.13
Std. Dev. Var.	0.931	0.858	17.902	19.111
Mean Dep. Var. (RP)	39271	50694		
First Stage Effective F-stat	4.58	13.03	4.52	12.63
Underidentification Test, p-value	0.068	0.008	0.097	0.009

	(1)	(2)	(3)	(4)
Panel B: District-Level Funds	District Funds, IHS 1996		Govt and Own Village Funds	
bengkok (ha)	1.897*	2.113*	0.131	0.146**
	(1.070)	(1.134)	(0.147)	(0.064)
Wet Rice Potential Yield	−0.094*	−0.021	0.001	0.003
	(0.049)	(0.050)	(0.010)	(0.002)
Ruggedness	−2.896	−3.424	−0.318	−0.406*
	(5.069)	(3.301)	(0.853)	(0.225)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	70	184	161	616
Clusters	11	22	11	22
Bandwidth	6.87	30.00	5.40	30.00
Mean Dep. Var.	4.80	5.26	0.25	0.25
Std. Dev. Var.	3.381	2.808	0.437	0.435
Mean Dep. Var. (RP)	2768	1363		
First Stage Effective F-stat	6.16	13.03	4.30	8.30
Underidentification Test, p-value	0.016	0.008	0.041	0.034

	(1)	(2)	(3)	(4)
Panel C: Central and Province	Central Government, IHS 1996		Province Government, IHS 1996	
bengkok (ha)	−0.045	0.001	0.101	0.242
	(0.034)	(0.050)	(0.351)	(0.565)
Wet Rice Potential Yield	0.007	0.002	−0.026	−0.023
	(0.007)	(0.002)	(0.033)	(0.015)
Ruggedness	0.338**	0.009	0.162	−1.111
	(0.137)	(0.182)	(2.560)	(2.167)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	55	184	94	184
Clusters	11	22	12	22
Bandwidth	5.29	30.00	9.92	30.00
Mean Dep. Var.	9.45	9.48	1.06	1.04
Std. Dev. Var.	0.223	0.336	3.123	2.946
Mean Dep. Var. (RP)	6609	7179	2634	1570
First Stage Effective F-stat	4.44	13.03	7.99	13.03
Underidentification Test, p-value	0.056	0.008	0.011	0.008

Note: Standard errors clustered at the subdistrict level. All regressions include a local linear specification estimated separately on each side of the study boundary and use a triangular kernel. Each regression is jointly estimated following equations (1) and (2). Optimal bandwidths are chosen following Calonico et al. (2014) and are reported in kilometers. Unit of observation is at the village level except for *% Informal Taxes Collected* which is at the village-chief level, and *Govt and Own Village Funds* which is at the village-chief, development-project level. All regressions control for an indicator that equals 1 if a village had ever split and a border segment fixed effect. In addition, regression of *% Informal Taxes Collected* control for whether a chief's electoral term coincided with the end of Suharto rule and regression of *Govt and Own Village Funds* controls for both the former and whether a development project is a road project, the most common project in our survey data. *Villager Contributions* measures the amount of funds collected from villagers. *% Informal Taxes Collected* measures the percentage of informal taxes, collected successfully by village chiefs, as a percentage of their annual target. *District Funds* measures the amount of funds from district-level government sources. *Govt and Own Village Funds* equals one if a development project was constructed using both government and villager contributions, and zero otherwise. *Central Government* and *Province Government Funds* measures the amount of funds from Central and Provincial government sources, respectively.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table C.10: *Bengkok* Villages and Contemporary Development: Robustness to Controlling for Ruggedness and Rice Suitability

	(1)	(2)	(3)	(4)
Panel A: Schools (1983)	num. of non-INPRES		num. of INPRES	
bengkok (ha)	0.488**	0.670***	0.247	0.121
	(0.202)	(0.202)	(0.198)	(0.196)
Wet Rice Potential Yield	0.013	−0.014**	−0.020*	−0.013
	(0.008)	(0.006)	(0.011)	(0.008)
Ruggedness	−3.371**	−1.351	−1.547	−0.964*
	(1.633)	(1.243)	(0.957)	(0.537)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	68	181	70	181
Clusters	11	22	11	22
Bandwidth	6.76	30.00	7.05	30.00
Mean Dep. Var.	2.53	2.47	1.17	1.38
Std. Dev. Var.	1.275	1.143	0.816	0.951
First Stage Effective F-stat	5.35	12.33	5.91	12.33
Underidentification Test, p-value	0.020	0.009	0.016	0.009

	(1)	(2)	(3)	(4)
Panel B: Infra. & Structural Change	Infrastructure Index		Share of Agri. HH	
bengkok (ha)	0.337*	0.322***	−0.023**	−0.030**
	(0.174)	(0.115)	(0.010)	(0.012)
Wet Rice Potential Yield	−0.002	−0.005	0.004***	0.002
	(0.007)	(0.005)	(0.001)	(0.001)
Ruggedness	−1.008	0.141	0.091	0.002
	(0.876)	(0.553)	(0.067)	(0.064)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	132	537	277	546
Clusters	10	22	12	22
Bandwidth	4.78	30.00	9.72	30.00
Mean Dep. Var.	-0.06	-0.02	0.69	0.74
Std. Dev. Var.	0.781	0.955	0.178	0.164
First Stage Effective F-stat	5.83	13.44	8.62	13.38
Underidentification Test, p-value	0.065	0.009	0.012	0.008

	(1)	(2)	(3)	(4)
Panel C: Education & Prosperity	Years of Education		=1 if Agricultural Job	
bengkok (ha)	0.581***	0.290**	−0.079***	−0.055
	(0.225)	(0.128)	(0.027)	(0.037)
Wet Rice Potential Yield	0.031	0.005	0.009***	0.001
	(0.020)	(0.006)	(0.002)	(0.002)
Ruggedness	−2.147	0.016	0.276	0.009
	(1.851)	(0.539)	(0.215)	(0.159)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	67279	246734	50430	181635
Clusters	11	22	11	22
Bandwidth	5.10	30.00	5.61	30.00
Mean Dep. Var.	7.19	6.77	0.24	0.40
Std. Dev. Var.	3.177	2.860	0.426	0.489
First Stage Effective F-stat	6.48	13.37	6.95	16.59
Underidentification Test, p-value	0.067	0.006	0.042	0.005

Note: Standard errors clustered at the subdistrict level. All regressions include a local linear specification estimated separately on each side of the study boundary and use a triangular kernel. Each regression is jointly estimated following equations (1) and (2). Optimal bandwidths are chosen following Calonico et al. (2014) and are reported in kilometers. Unit of observation in Panels A and B is at the village level. Unit of observation in Panel C is at the individual, villager-level. All regressions control for an indicator that equals 1 if a village had ever split and a border segment fixed effect. In addition, regression in Panel B controls for survey year. Regressions in Panel C control for cohort-year and gender. *num. of non-INPRES* measures the number of bottom-up village schools. *num. of INPRES* measures the number of top-down, Central government-constructed schools. *Infrastructure Index* is comprised of three variables indicating the presence of safe water sources, aspalt road, and safe garbage disposal between 1986-1996. I construct this index following (Kling et al., 2007) by standardising each variable, averaging across all three standardised variables, and standardising the average. *Years of Education* measures the number of years of education for all individuals aged 21-40 years old. *Share of Agri. HH* measures the share of village households engaged primarily in agriculture. *=1 if Agricultural Job* is an indicator variable that takes the value of 1 if an individual has an agricultural job and 0 otherwise, for all individuals aged 21-40 years old.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table C.11: *Bengkok* Villages and Village Funds: Robustness to Controlling for Rice Suitability

	(1)	(2)	(3)	(4)
Panel A: Informal Taxation	Villager Contributions, IHS 1993		% Informal Taxes Collected	
bengkok (ha)	0.428**	0.371**	32.681***	12.965***
	(0.171)	(0.184)	(10.899)	(4.623)
Wet Rice Potential Yield	0.050**	0.013*	1.173	−0.022
	(0.020)	(0.007)	(0.716)	(0.167)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	44	184	28	143
Clusters	10	22	7	20
Bandwidth	4.62	30.00	3.33	30.00
Mean Dep. Var.	10.89	11.17	55.89	67.13
Std. Dev. Var.	0.931	0.858	17.694	19.111
Mean Dep. Var. (RP)	39271	50694		
First Stage Effective F-stat	6.56	12.39	6.03	9.75
Underidentification Test, p-value	0.052	0.013	0.100	0.011

	(1)	(2)	(3)	(4)
Panel B: District-Level Funds	District Funds, IHS 1996		Govt and Own Village Funds	
bengkok (ha)	1.898**	2.020*	0.120*	0.135**
	(0.929)	(1.075)	(0.072)	(0.067)
Wet Rice Potential Yield	−0.098*	−0.011	−0.001	0.004
	(0.056)	(0.052)	(0.008)	(0.003)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	69	184	200	616
Clusters	11	22	11	22
Bandwidth	6.69	30.00	7.06	30.00
Mean Dep. Var.	4.77	5.26	0.21	0.25
Std. Dev. Var.	3.395	2.808	0.412	0.435
Mean Dep. Var. (RP)	2800	1363		
First Stage Effective F-stat	7.21	12.39	6.26	7.58
Underidentification Test, p-value	0.026	0.013	0.037	0.046

	(1)	(2)	(3)	(4)
Panel C: Central and Province	Central Government, IHS 1996		Province Government, IHS 1996	
bengkok (ha)	−0.015	0.001	0.039	0.212
	(0.014)	(0.050)	(0.306)	(0.513)
Wet Rice Potential Yield	0.006	0.002	−0.023	−0.019
	(0.006)	(0.002)	(0.035)	(0.014)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	67	184	87	184
Clusters	11	22	11	22
Bandwidth	6.18	30.00	8.79	30.00
Mean Dep. Var.	9.45	9.48	1.05	1.04
Std. Dev. Var.	0.203	0.336	3.140	2.946
Mean Dep. Var. (RP)	6533	7179	2823	1570
First Stage Effective F-stat	7.20	12.39	8.09	12.39
Underidentification Test, p-value	0.029	0.013	0.016	0.013

Note: Standard errors clustered at the subdistrict level. All regressions include a local linear specification estimated separately on each side of the study boundary and use a triangular kernel. Each regression is jointly estimated following equations (1) and (2). Optimal bandwidths are chosen following Calonico et al. (2014) and are reported in kilometers. Unit of observation is at the village level except for *% Informal Taxes Collected* which is at the village-chief level, and *Govt and Own Village Funds* which is at the village-chief, development-project level. All regressions control for an indicator that equals 1 if a village had ever split and a border segment fixed effect. In addition, regression of *% Informal Taxes Collected* control for whether a chief's electoral term coincided with the end of Suharto rule and regression of *Govt and Own Village Funds* controls for both the former and whether a development project is a road project, the most common project in our survey data. *Villager Contributions* measures the amount of funds collected from villagers. *% Informal Taxes Collected* measures the percentage of informal taxes, collected successfully by village chiefs, as a percentage of their annual target. *District Funds* measures the amount of funds from district-level government sources. *Govt and Own Village Funds* equals one if a development project was constructed using both government and villager contributions, and zero otherwise. *Central Government* and *Province Government Funds* measures the amount of funds from Central and Provincial government sources, respectively.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table C.12: *Bengkok* Villages and Contemporary Development: Robustness to Controlling for Rice Suitability

	(1)	(2)	(3)	(4)
Panel A: Schools (1983)	num. of non-INPRES		num. of INPRES	
bengkok (ha)	0.344***	0.630***	0.258	0.092
	(0.130)	(0.184)	(0.169)	(0.188)
Wet Rice Potential Yield	0.010	−0.010	−0.018	−0.010
	(0.011)	(0.006)	(0.011)	(0.008)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	70	181	82	181
Clusters	11	22	11	22
Bandwidth	7.10	30.00	8.13	30.00
Mean Dep. Var.	2.53	2.47	1.16	1.38
Std. Dev. Var.	1.259	1.143	0.838	0.951
First Stage Effective F-stat	6.84	11.90	7.49	11.90
Underidentification Test, p-value	0.022	0.013	0.018	0.013

	(1)	(2)	(3)	(4)
Panel B: Infra. & Structural Change	Infrastructure Index		Share of Agri. HH	
bengkok (ha)	0.281**	0.326***	−0.030**	−0.029**
	(0.128)	(0.109)	(0.012)	(0.012)
Wet Rice Potential Yield	−0.006	−0.005	0.005***	0.002
	(0.006)	(0.005)	(0.001)	(0.001)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	132	537	235	546
Clusters	10	22	11	22
Bandwidth	4.78	30.00	7.82	30.00
Mean Dep. Var.	-0.06	-0.02	0.68	0.74
Std. Dev. Var.	0.781	0.955	0.184	0.164
First Stage Effective F-stat	8.64	12.78	8.68	12.69
Underidentification Test, p-value	0.048	0.013	0.018	0.013

	(1)	(2)	(3)	(4)
Panel C: Education & Prosperity	Years of Education		=1 if Agricultural Job	
bengkok (ha)	0.464***	0.291**	−0.063***	−0.054
	(0.119)	(0.123)	(0.021)	(0.034)
Wet Rice Potential Yield	0.035*	0.005	0.010***	0.001
	(0.019)	(0.007)	(0.002)	(0.002)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	52837	246734	46677	181635
Clusters	9	22	11	22
Bandwidth	4.31	30.00	5.24	30.00
Mean Dep. Var.	7.18	6.77	0.23	0.40
Std. Dev. Var.	3.155	2.860	0.424	0.489
First Stage Effective F-stat	12.42	12.76	12.86	16.30
Underidentification Test, p-value	0.054	0.011	0.061	0.008

Note: Standard errors clustered at the subdistrict level. All regressions include a local linear specification estimated separately on each side of the study boundary and use a triangular kernel. Each regression is jointly estimated following equations (1) and (2). Optimal bandwidths are chosen following Calonico et al. (2014) and are reported in kilometers. Unit of observation in Panels A and B is at the village level. Unit of observation in Panel C is at the individual, villager-level. All regressions control for an indicator that equals 1 if a village had ever split and a border segment fixed effect. In addition, regression in Panel B controls for survey year. Regressions in Panel C control for cohort-year and gender. *num. of non-INPRES* measures the number of bottom-up village schools. *num. of INPRES* measures the number of top-down, Central government-constructed schools. *Infrastructure Index* is comprised of three variables indicating the presence of safe water sources, aspalt road, and safe garbage disposal between 1986-1996. I construct this index following (Kling et al., 2007) by standardising each variable, averaging across all three standardised variables, and standardising the average. *Years of Education* measures the number of years of education for all individuals aged 21-40 years old. *Share of Agri. HH* measures the share of village households engaged primarily in agriculture. *=1 if Agricultural Job* is an indicator variable that takes the value of 1 if an individual has an agricultural job and 0 otherwise, for all individuals aged 21-40 years old.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table C.13: *Bengkok* Villages and Village Funds: Robustness to Controlling for Rice Suitability (Squared)

	(1)	(2)	(3)	(4)
Panel A: Informal Taxation	Villager Contributions, IHS 1993		% Informal Taxes Collected	
bengkok (ha)	0.500***	0.355	32.824***	15.536**
	(0.191)	(0.226)	(11.429)	(6.371)
Wet Rice Potential Yield	0.016	0.016	3.010	−0.421
	(0.021)	(0.010)	(2.801)	(0.285)
Wet Rice Potential Yield (Squared)	0.004**	−0.000	−0.151	0.031
	(0.001)	(0.001)	(0.167)	(0.022)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	41	184	28	143
Clusters	9	22	7	20
Bandwidth	4.28	30.00	3.27	30.00
Mean Dep. Var.	10.88	11.17	55.89	67.13
Std. Dev. Var.	0.957	0.858	17.694	19.111
Mean Dep. Var. (RP)	39799	50694		
First Stage Effective F-stat	6.10	9.93	5.27	8.28
Underidentification Test, p-value	0.045	0.017	0.096	0.015

	(1)	(2)	(3)	(4)
Panel B: District-Level Funds	District Funds, IHS 1996		Govt and Own Village Funds	
bengkok (ha)	2.007**	2.668*	0.130	0.174**
	(0.932)	(1.505)	(0.087)	(0.083)
Wet Rice Potential Yield	−0.179**	−0.115	−0.010	−0.004
	(0.077)	(0.074)	(0.009)	(0.004)
Wet Rice Potential Yield (Squared)	0.010*	0.007*	0.001**	0.000***
	(0.005)	(0.004)	(0.000)	(0.000)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	58	184	186	616
Clusters	11	22	11	22
Bandwidth	5.63	30.00	6.07	30.00
Mean Dep. Var.	4.59	5.26	0.22	0.25
Std. Dev. Var.	3.456	2.808	0.416	0.435
Mean Dep. Var. (RP)	3169	1363		
First Stage Effective F-stat	7.16	9.93	6.27	5.74
Underidentification Test, p-value	0.037	0.017	0.031	0.054

	(1)	(2)	(3)	(4)
Panel C: Central and Province	Central Government, IHS 1996		Province Government, IHS 1996	
bengkok (ha)	−0.010	0.039	−0.151	0.111
	(0.012)	(0.055)	(0.287)	(0.644)
Wet Rice Potential Yield	0.004	−0.004	−0.017	−0.003
	(0.003)	(0.004)	(0.049)	(0.038)
Wet Rice Potential Yield (Squared)	0.000	0.000***	−0.000	−0.001
	(0.000)	(0.000)	(0.003)	(0.002)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	69	184	71	184
Clusters	11	22	11	22
Bandwidth	6.40	30.00	7.21	30.00
Mean Dep. Var.	9.45	9.48	1.05	1.04
Std. Dev. Var.	0.200	0.336	3.210	2.946
Mean Dep. Var. (RP)	6518	7179	3388	1570
First Stage Effective F-stat	7.64	9.93	7.91	9.93
Underidentification Test, p-value	0.027	0.017	0.023	0.017

Note: Standard errors clustered at the subdistrict level. All regressions include a local linear specification estimated separately on each side of the study boundary and use a triangular kernel. Each regression is jointly estimated following equations (1) and (2). Optimal bandwidths are chosen following Calonico et al. (2014) and are reported in kilometers. Unit of observation is at the village level except for *% Informal Taxes Collected* which is at the village-chief level, and *Govt and Own Village Funds* which is at the village-chief, development-project level. All regressions control for an indicator that equals 1 if a village had ever split and a border segment fixed effect. In addition, regression of *% Informal Taxes Collected* control for whether a chief's electoral term coincided with the end of Suharto rule and regression of *Govt and Own Village Funds* controls for both the former and whether a development project is a road project, the most common project in our survey data. *Villager Contributions* measures the amount of funds collected from villagers. *% Informal Taxes Collected* measures the percentage of informal taxes, collected successfully by village chiefs, as a percentage of their annual target. *District Funds* measures the amount of funds from district-level government sources. *Govt and Own Village Funds* equals one if a development project was constructed using both government and villager contributions, and zero otherwise. *Central Government* and *Province Government Funds* measures the amount of funds from Central and Provincial government sources, respectively.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table C.14: *Bengkok* Villages and Contemporary Development: Robustness to Controlling for Rice Suitability (Squared)

	(1)	(2)	(3)	(4)
Panel A: Schools (1983)	num. of non-INPRES		num. of INPRES	
bengkok (ha)	0.340***	0.634***	0.232	0.166
	(0.123)	(0.228)	(0.163)	(0.216)
Wet Rice Potential Yield	0.006	−0.010	−0.027**	−0.022*
	(0.013)	(0.011)	(0.011)	(0.011)
Wet Rice Potential Yield (Squared)	0.001	0.000	0.001**	0.001*
	(0.001)	(0.001)	(0.001)	(0.000)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	69	181	76	181
Clusters	11	22	11	22
Bandwidth	6.86	30.00	7.61	30.00
Mean Dep. Var.	2.54	2.47	1.17	1.38
Std. Dev. Var.	1.267	1.143	0.839	0.951
First Stage Effective F-stat	7.62	9.58	8.14	9.58
Underidentification Test, p-value	0.022	0.018	0.019	0.018

	(1)	(2)	(3)	(4)
Panel B: Infra. & Structural Change	Infrastructure Index		Share of Agri. HH	
bengkok (ha)	0.290**	0.319**	−0.035***	−0.037***
	(0.126)	(0.124)	(0.013)	(0.013)
Wet Rice Potential Yield	−0.013*	−0.004	0.007***	0.003***
	(0.007)	(0.008)	(0.001)	(0.001)
Wet Rice Potential Yield (Squared)	0.001***	−0.000	−0.000	−0.000**
	(0.001)	(0.000)	(0.000)	(0.000)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	132	537	211	546
Clusters	10	22	11	22
Bandwidth	4.78	30.00	6.97	30.00
Mean Dep. Var.	-0.06	-0.02	0.68	0.74
Std. Dev. Var.	0.781	0.955	0.182	0.164
First Stage Effective F-stat	9.82	10.09	8.80	10.14
Underidentification Test, p-value	0.049	0.019	0.023	0.018

	(1)	(2)	(3)	(4)
Panel C: Education & Prosperity	Years of Education		=1 if Agricultural Job	
bengkok (ha)	0.489***	0.217*	−0.069***	−0.060
	(0.118)	(0.132)	(0.021)	(0.041)
Wet Rice Potential Yield	0.020	0.017**	0.013***	0.002
	(0.014)	(0.008)	(0.004)	(0.003)
Wet Rice Potential Yield (Squared)	0.001**	−0.001**	−0.000	−0.000
	(0.001)	(0.000)	(0.000)	(0.000)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	52837	246734	40165	181635
Clusters	9	22	10	22
Bandwidth	4.14	30.00	4.85	30.00
Mean Dep. Var.	7.18	6.77	0.23	0.40
Std. Dev. Var.	3.155	2.860	0.423	0.489
First Stage Effective F-stat	14.61	10.53	15.89	13.32
Underidentification Test, p-value	0.050	0.012	0.054	0.008

Note: Standard errors clustered at the subdistrict level. All regressions include a local linear specification estimated separately on each side of the study boundary and use a triangular kernel. Each regression is jointly estimated following equations (1) and (2). Optimal bandwidths are chosen following Calonico et al. (2014) and are reported in kilometers. Unit of observation in Panels A and B is at the village level. Unit of observation in Panel C is at the individual, villager-level. All regressions control for an indicator that equals 1 if a village had ever split and a border segment fixed effect. In addition, regression in Panel B controls for survey year. Regressions in Panel C control for cohort-year and gender. *num. of non-INPRES* measures the number of bottom-up village schools. *num. of INPRES* measures the number of top-down, Central government-constructed schools. *Infrastructure Index* is comprised of three variables indicating the presence of safe water sources, aspalt road, and safe garbage disposal between 1986-1996. I construct this index following (Kling et al., 2007) by standardising each variable, averaging across all three standardised variables, and standardising the average. *Years of Education* measures the number of years of education for all individuals aged 21-40 years old. *Share of Agri. HH* measures the share of village households engaged primarily in agriculture. *=1 if Agricultural Job* is an indicator variable that takes the value of 1 if an individual has an agricultural job and 0 otherwise, for all individuals aged 21-40 years old.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table C.15: *Bengkok* Villages and Village Funds: Robustness to Controlling for Rice Suitability (Cubed)

	(1)	(2)	(3)	(4)
Panel A: Informal Taxation	Villager Contributions, IHS 1993		% Informal Taxes Collected	
bengkok (ha)	0.617***	0.358	46.609***	13.923***
	(0.197)	(0.228)	(11.998)	(4.483)
Wet Rice Potential Yield	−0.059*	0.019	18.512*	−0.839**
	(0.030)	(0.012)	(10.283)	(0.357)
Wet Rice Potential Yield (Squared)	0.003***	0.000	0.701	0.007
	(0.001)	(0.001)	(1.123)	(0.010)
Wet Rice Potential Yield (Cubed)	0.000***	−0.000	−0.094	0.001***
	(0.000)	(0.000)	(0.091)	(0.000)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	41	184	26	143
Clusters	9	22	7	20
Bandwidth	4.23	30.00	3.23	30.00
Mean Dep. Var.	10.88	11.17	56.35	67.13
Std. Dev. Var.	0.957	0.858	18.306	19.111
Mean Dep. Var. (RP)	39799	50694		
First Stage Effective F-stat	7.49	11.77	8.37	11.27
Underidentification Test, p-value	0.054	0.016	0.163	0.011

	(1)	(2)	(3)	(4)
Panel B: District-Level Funds	District Funds, IHS 1996		Govt and Own Village Funds	
bengkok (ha)	1.954**	2.619*	0.128	0.175**
	(0.895)	(1.375)	(0.079)	(0.084)
Wet Rice Potential Yield	−0.174*	−0.174*	−0.000	−0.003
	(0.099)	(0.090)	(0.015)	(0.006)
Wet Rice Potential Yield (Squared)	0.009	0.003	0.001**	0.001***
	(0.007)	(0.004)	(0.001)	(0.000)
Wet Rice Potential Yield (Cubed)	−0.000	0.000*	−0.000	−0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	66	184	189	616
Clusters	11	22	11	22
Bandwidth	6.10	30.00	6.34	30.00
Mean Dep. Var.	4.87	5.26	0.22	0.25
Std. Dev. Var.	3.353	2.808	0.413	0.435
Mean Dep. Var. (RP)	2915	1363		
First Stage Effective F-stat	7.46	11.77	6.72	6.96
Underidentification Test, p-value	0.030	0.016	0.028	0.047

	(1)	(2)	(3)	(4)
Panel C: Central and Province	Central Government, IHS 1996		Province Government, IHS 1996	
bengkok (ha)	−0.023	0.038	−0.128	0.083
	(0.019)	(0.056)	(0.300)	(0.574)
Wet Rice Potential Yield	0.011	−0.006	−0.020	−0.036
	(0.009)	(0.005)	(0.083)	(0.028)
Wet Rice Potential Yield (Squared)	0.000	0.000**	0.001	−0.003
	(0.000)	(0.000)	(0.004)	(0.002)
Wet Rice Potential Yield (Cubed)	−0.000	0.000	−0.000	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	65	184	68	184
Clusters	11	22	11	22
Bandwidth	6.00	30.00	6.34	30.00
Mean Dep. Var.	9.45	9.48	1.09	1.04
Std. Dev. Var.	0.206	0.336	3.273	2.946
Mean Dep. Var. (RP)	6542	7179	3538	1570
First Stage Effective F-stat	7.37	11.77	7.53	11.77
Underidentification Test, p-value	0.032	0.016	0.028	0.016

Note: Standard errors clustered at the subdistrict level. All regressions include a local linear specification estimated separately on each side of the study boundary and use a triangular kernel. Each regression is jointly estimated following equations (1) and (2). Optimal bandwidths are chosen following Calonico et al. (2014) and are reported in kilometers. Unit of observation is at the village level except for *% Informal Taxes Collected* which is at the village-chief level, and *Govt and Own Village Funds* which is at the village-chief, development-project level. All regressions control for an indicator that equals 1 if a village had ever split and a border segment fixed effect. In addition, regression of *% Informal Taxes Collected* control for whether a chief's electoral term coincided with the end of Suharto rule and regression of *Govt and Own Village Funds* controls for both the former and whether a development project is a road project, the most common project in our survey data. *Villager Contributions* measures the amount of funds collected from villagers. *% Informal Taxes Collected* measures the percentage of informal taxes, collected successfully by village chiefs, as a percentage of their annual target. *District Funds* measures the amount of funds from district-level government sources. *Govt and Own Village Funds* equals one if a development project was constructed using both government and villager contributions, and zero otherwise. *Central Government* and *Province Government Funds* measures the amount of funds from Central and Provincial government sources, respectively.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table C.16: *Bengkok* Villages and Contemporary Development: Robustness to Controlling for Rice Suitability (Cubed)

	(1)	(2)	(3)	(4)
Panel A: Schools (1983)	num. of non-INPRES		num. of INPRES	
bengkok (ha)	0.368***	0.629***	0.161	0.165
	(0.125)	(0.214)	(0.160)	(0.213)
Wet Rice Potential Yield	−0.005	−0.022*	−0.025	−0.025*
	(0.023)	(0.011)	(0.019)	(0.015)
Wet Rice Potential Yield (Squared)	0.000	−0.001	0.001*	0.001*
	(0.001)	(0.001)	(0.001)	(0.000)
Wet Rice Potential Yield (Cubed)	0.000	0.000**	−0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	68	181	68	181
Clusters	11	22	11	22
Bandwidth	6.64	30.00	6.71	30.00
Mean Dep. Var.	2.53	2.47	1.19	1.38
Std. Dev. Var.	1.275	1.143	0.815	0.951
First Stage Effective F-stat	7.31	11.29	7.31	11.29
Underidentification Test, p-value	0.026	0.017	0.026	0.017

	(1)	(2)	(3)	(4)
Panel B: Infra. & Structural Change	Infrastructure Index		Share of Agri. HH	
bengkok (ha)	0.279**	0.320***	−0.090***	−0.036***
	(0.124)	(0.122)	(0.024)	(0.014)
Wet Rice Potential Yield	−0.002	−0.002	0.015*	0.004***
	(0.031)	(0.011)	(0.008)	(0.001)
Wet Rice Potential Yield (Squared)	0.001**	0.000	−0.000***	−0.000
	(0.001)	(0.000)	(0.000)	(0.000)
Wet Rice Potential Yield (Cubed)	−0.000	−0.000	−0.000	−0.000*
	(0.000)	(0.000)	(0.000)	(0.000)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	132	537	115	546
Clusters	10	22	9	22
Bandwidth	4.78	30.00	3.83	30.00
Mean Dep. Var.	-0.06	-0.02	0.67	0.74
Std. Dev. Var.	0.781	0.955	0.198	0.164
First Stage Effective F-stat	11.62	11.80	10.20	12.03
Underidentification Test, p-value	0.057	0.018	0.054	0.017

	(1)	(2)	(3)	(4)
Panel C: Education & Prosperity	Years of Education		=1 if Agricultural Job	
bengkok (ha)	0.483***	0.223*	−0.056***	−0.061
	(0.099)	(0.133)	(0.021)	(0.040)
Wet Rice Potential Yield	0.019	0.020*	−0.000	0.001
	(0.041)	(0.010)	(0.006)	(0.003)
Wet Rice Potential Yield (Squared)	0.001*	−0.001	−0.000	−0.000
	(0.001)	(0.001)	(0.000)	(0.000)
Wet Rice Potential Yield (Cubed)	0.000	−0.000	0.000**	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	51937	246734	44144	181635
Clusters	9	22	11	22
Bandwidth	3.92	30.00	5.14	30.00
Mean Dep. Var.	7.18	6.77	0.23	0.40
Std. Dev. Var.	3.153	2.860	0.419	0.489
First Stage Effective F-stat	18.77	12.65	15.66	16.21
Underidentification Test, p-value	0.059	0.010	0.052	0.008

Note: Standard errors clustered at the subdistrict level. All regressions include a local linear specification estimated separately on each side of the study boundary and use a triangular kernel. Each regression is jointly estimated following equations (1) and (2). Optimal bandwidths are chosen following Calonico et al. (2014) and are reported in kilometers. Unit of observation in Panels A and B is at the village level. Unit of observation in Panel C is at the individual, villager-level. All regressions control for an indicator that equals 1 if a village had ever split and a border segment fixed effect. In addition, regression in Panel B controls for survey year. Regressions in Panel C control for cohort-year and gender. *num. of non-INPRES* measures the number of bottom-up village schools. *num. of INPRES* measures the number of top-down, Central government-constructed schools. *Infrastructure Index* is comprised of three variables indicating the presence of safe water sources, aspalt road, and safe garbage disposal between 1986-1996. I construct this index following (Kling et al., 2007) by standardising each variable, averaging across all three standardised variables, and standardising the average. *Years of Education* measures the number of years of education for all individuals aged 21-40 years old. *Share of Agri. HH* measures the share of village households engaged primarily in agriculture. *=1 if Agricultural Job* is an indicator variable that takes the value of 1 if an individual has an agricultural job and 0 otherwise, for all individuals aged 21-40 years old.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

C.3 Alternative RD Specification

Table C.17: *Bengkok* Villages and Village Funds:
Alternative RD Specification: Linear Polynomial in Latitude and Longitude

	(1)	(2)	(3)	(4)
Panel A: Informal Taxation	Villager Contributions, IHS 1993		% Informal Taxes Collected	
bengkok	0.217***	0.514**	4.500***	14.388***
	(0.080)	(0.226)	(1.374)	(4.775)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	46	186	34	144
Clusters	10	23	8	21
Bandwidth	4.52	30.00	3.59	30.00
Mean Dep. Var.	10.94	11.17	59.26	67.22
Std. Dev. Var.	0.939	0.861	17.970	19.074
Mean Dep. Var. (RP)	41142	50569		

	(1)	(2)	(3)	(4)
Panel B: District-Level Funds	District Funds, IHS 1996		Govt and Own Village Funds	
bengkok	1.811*	1.948*	0.143**	0.206***
	(0.938)	(1.101)	(0.060)	(0.071)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	71	186	199	623
Clusters	11	23	11	23
Bandwidth	6.49	30.00	6.67	30.00
Mean Dep. Var.	4.82	5.24	0.22	0.26
Std. Dev. Var.	3.363	2.821	0.416	0.436
Mean Dep. Var. (RP)	2734	1350		

	(1)	(2)	(3)	(4)
Panel C: Central and Province	Central Government, IHS 1996		Province Government, IHS 1996	
bengkok	–0.012	0.023	–0.129	0.100
	(0.025)	(0.059)	(0.586)	(0.600)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	71	186	82	186
Clusters	11	23	11	23
Bandwidth	6.55	30.00	7.93	30.00
Mean Dep. Var.	9.44	9.49	1.01	1.03
Std. Dev. Var.	0.198	0.349	3.119	2.932
Mean Dep. Var. (RP)	6503	7274	2964	1553

Note: Standard errors clustered at the subdistrict level. All regressions include a local linear specification in latitude and longitude and use a triangular kernel. Each regression is jointly estimated following equations (1) and (2). I use the same optimal bandwidths as in Table B.2. Unit of observation is at the village level except for *% Informal Taxes Collected* which is at the village-chief level, and *Govt and Own Village Funds* which is at the village-chief, development-project level. All regressions control for an indicator that equals 1 if a village had ever split and a border segment fixed effect. In addition, regression of *% Informal Taxes Collected* control for whether a chief's electoral term coincided with the end of Suharto rule and regression of *Govt and Own Village Funds* controls for both the former and whether a development project is a road project, the most common project in our survey data. *Villager Contributions* measures the amount of funds collected from villagers. *% Informal Taxes Collected* measures the percentage of informal taxes, collected successfully by village chiefs, as a percentage of their annual target. *District Funds* measures the amount of funds from district-level government sources. *Govt and Own Village Funds* equals one if a development project was constructed using both government and villager contributions, and zero otherwise. *Central Government* and *Province Government Funds* measures the amount of funds from Central and Provincial government sources, respectively.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table C.18: *Bengkok* Villages and Contemporary Development:
Alternative RD Specification: Linear Polynomial in Latitude and Longitude

	(1)	(2)	(3)	(4)
Panel A: Schools (1983)	num. of non-INPRES		num. of INPRES	
bengkok	0.357***	0.617***	0.217*	0.015
	(0.116)	(0.205)	(0.123)	(0.163)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	76	183	87	183
Clusters	11	23	11	23
Bandwidth	7.51	30.00	8.59	30.00
Mean Dep. Var.	2.58	2.46	1.16	1.39
Std. Dev. Var.	1.278	1.142	0.834	0.953

	(1)	(2)	(3)	(4)
Panel B: Infra. & Structural Change	Infrastructure Index		Share of Agri. HH	
bengkok (ha)	0.353***	0.433***	−0.054***	−0.026
	(0.063)	(0.133)	(0.017)	(0.019)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	138	543	196	546
Clusters	10	23	11	22
Bandwidth	4.78	30.00	6.07	30.00
Mean Dep. Var.	-0.02	0.01	0.67	0.74
Std. Dev. Var.	0.446	0.590	0.184	0.164
F stat	20	16	21	16

	(1)	(2)	(3)	(4)
Panel C: Education & Prosperity	Years of Education		=1 if Agricultural Job	
bengkok	0.189***	0.357***	−0.110***	−0.076*
	(0.049)	(0.124)	(0.020)	(0.044)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	63977	250112	42178	184238
Clusters	10	23	10	23
Bandwidth	4.83	30.00	4.84	30.00
Mean Dep. Var.	7.16	6.77	0.23	0.40
Std. Dev. Var.	3.132	2.851	0.423	0.490

Note: Standard errors clustered at the subdistrict level. All regressions include a local linear specification polynomial in latitude and longitude and use a triangular kernel. Each regression is jointly estimated following equations (1) and (2). I use the same optimal bandwidths as in Table 2. Unit of observation in Panels A, B and C (Columns (3) & (4)) is at the village level. Unit of observation in Panel C, Columns (1) & (2) is at the individual, villager-level. All regressions control for an indicator that equals 1 if a village had ever split and a border segment fixed effect. In addition, regressions in Panel B and Panel C, Columns (3) & (4), control for survey year. Regressions in Panel C, Columns (1) & (2) control for cohort-year and gender. *num. of non-INPRES* measures the number of bottom-up village schools. *num. of INPRES* measures the number of top-down, Central government-constructed schools. *Infrastructure Index* is comprised of three variables indicating the presence of safe water sources, aspalt road, and safe garbage disposal between 1986-1996. I construct this index following (Kling et al., 2007) by standardising each variable, averaging across all three standardised variables, and standardising the average. *Years of Education* measures the number of years of education for all individuals aged 21-40 years old. *Share of Agri. HH* measures the village-level share of households working in the agricultural sector between 1986-1996. *=1 if Agricultural Job* is an indicator variable that takes the value of 1 if an individual has an agricultural job and 0 otherwise, for all individuals aged 21-40 years old.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table C.19: *Bengkok* Villages, Political Selection and Re-election Incentives: Alternative RD Specification: Linear Polynomial in Latitude and Longitude

	(1)	(2)	(3)	(4)
Panel A: Chiefs	Years of Education		=1 if Civil Servant	
bengkok	0.210	0.768*	0.100**	0.077**
	(0.267)	(0.396)	(0.045)	(0.033)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	76	247	64	247
Clusters	11	23	10	23
Bandwidth	5.26	30.00	4.52	30.00
Mean Dep. Var.	9.54	9.50	0.16	0.13
Std. Dev. Var.	3.048	2.919	0.366	0.336

	(1)	(2)
Panel B: Re-Election Incentives	=1 if incumbent ran	
bengkok	−0.018	−0.016
	(0.027)	(0.062)
Bandwidth choice	Optimal	Wide
Observations	95	290
Clusters	11	23
Bandwidth	5.67	30.00
Mean Dep. Var.	0.21	0.28
Std. Dev. Var.	0.410	0.448

Note: Standard errors clustered at the subdistrict level. All regressions include a local linear polynomial in latitude and longitude. Each regression is jointly estimated following equations (1) and (2). I use the same optimal bandwidths as in Table 3. Unit of observation is at the village chief level. All regressions control for an indicator that equals 1 if a village had ever split, whether a chief's electoral term coincided with the end of Suharto rule, and a border segment fixed effect. *Years of Education* measures the number of years of education of a village chief. *=1 if Civil Servant* takes the value of 1 if a chief worked in the civil service before becoming a chief, and 0 otherwise. *=1 if incumbent ran* takes the value of 1 if a chief re-ran for elections in the subsequent term.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table C.20: *Bengkok* Villages, Pro-Sociality and Embedded-ness
Alternative RD Specification: Linear Polynomial in Latitude and Longitude

	(1)	(2)	(3)	(4)
Panel A: Economic Embeddedness	=1 if project is a dam		% irrigated riceland	
bengkok	0.061***	0.048***	0.120***	0.134***
	(0.016)	(0.016)	(0.032)	(0.030)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	370	1142	126	331
Clusters	11	22	11	22
Bandwidth	5.67	30.00	6.46	30.00
Mean Dep. Var.	0.07	0.06	0.78	0.75
Std. Dev. Var.	0.251	0.240	0.287	0.290
First Stage Effective F-stat	25	18	20	16
Underidentification Test, p-value	0.01	0.01	0.01	0.01

	(1)	(2)	(3)	(4)
Panel B: Pro-Sociality & Social Embeddedness	=1 if pro-social reason		# of villagers (*Gotong Royong*)	
bengkok	0.180***	0.170***	11.853	21.931*
	(0.061)	(0.047)	(8.651)	(12.655)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	147	406	101	337
Clusters	11	22	9	19
Bandwidth	6.05	30.00	6.03	30.00
Mean Dep. Var.	0.52	0.50	85.08	99.69
Std. Dev. Var.	0.501	0.501	102.322	95.878
First Stage Effective F-stat	17.53	18.06	5.55	8.69

Note: Standard errors clustered at the subdistrict level. All regressions include a local linear specification estimated separately on each side of the study boundary and use a triangular kernel. Each regression is jointly estimated following equations (1) and (2). Optimal bandwidths are chosen following Calonico et al. (2014) and are reported in kilometers. All regressions control for an indicator that equals 1 if a village had ever split, and a border segment fixed effect. Regressions in Panel A control for survey year. Unit of observation in Columns (1) & (2), Panel A, is at the village-project level. Unit of observation in Columns (3) & (4), Panel A, is at the village level. In addition, regressions in Columns (1) & (2), Panel A control for whether the project had been completed and whether the project was primarily managed by the village (administration). $= 1$ *if project is a dam* takes the value of 1 if a development project was a village dam. *% irrigated riceland* measures the percentage share of wetrice land (within the village) that was irrigated. In addition, $= 1$ *if pro-social reason* controls for chief-cohort fixed effects. Wherever relevant, regressions control for whether a chief's electoral term coincided with the end of Suharto rule. Regressions in Columns (3) and (4) of Panel B control for whether a project was a road and whether it employed paid laborers. $= 1$ *if pro-social reason* takes the value of 1 if a chief reported running for office due to pro-social reasons. *# of villages* measures the number of villagers mobilized.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

C.4 Main Results - Reduced Form (Sharp RD) and Conley Spatial Standard Errors

Table C.21: *Bengkok* Villages and Village Funds: Robustness to Conley Spatial SE (Cut-off = 30 km)

	(1)	(2)	(3)	(4)
Panel A: Informal Taxation	Villager Contributions, IHS 1993		% Informal Taxes Collected	
cirebon	0.937***	0.848***	62.736***	23.885***
	(0.327)	(0.124)	(1.769)	(4.631)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	45	184	33	143
Bandwidth	4.72	30.00	3.59	30.00
Mean Dep. Var.	10.92	11.17	58.79	67.13
Std. Dev. Var.	0.939	0.858	18.029	19.111
Mean Dep. Var. (RP)	40509.16	50694.40		

	(1)	(2)	(3)	(4)
Panel B: District-Level Funds	District Funds, IHS 1996		Govt and Own Village Funds	
cirebon	5.177***	4.152**	0.485***	0.339***
	(0.949)	(1.704)	(0.077)	(0.029)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	69	184	194	616
Bandwidth	6.43	30.00	6.80	30.00
Mean Dep. Var.	4.77	5.26	0.21	0.25
Std. Dev. Var.	3.395	2.808	0.409	0.435
Mean Dep. Var. (RP)	2799.84	1362.61		

	(1)	(2)	(3)	(4)
Panel C: Central and Province	Central Government, IHS 1996		Province Government, IHS 1996	
cirebon	-0.046	0.015	0.088	0.332
	(0.033)	(0.011)	(0.725)	(0.703)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	69	184	86	184
Bandwidth	6.70	30.00	8.69	30.00
Mean Dep. Var.	9.45	9.48	1.06	1.04
Std. Dev. Var.	0.200	0.336	3.157	2.946
Mean Dep. Var. (RP)	6517.91	7178.80	2855.60	1569.65

Note: All regressions include a local linear specification estimated separately on each side of the study boundary and use a triangular kernel. Each regression is jointly estimated following equations (1) and (2). Optimal bandwidths are chosen following Calonico et al. (2014) and are reported in kilometers. Unit of observation is at the village level except for *% Informal Taxes Collected* which is at the village-chief level, and *Govt and Own Village Funds* which is at the village-chief, development-project level. All regressions control for an indicator that equals 1 if a village had ever split and a border segment fixed effect. In addition, regression of *% Informal Taxes Collected* control for whether a chief's electoral term coincided with the end of Suharto rule and regression of *Govt and Own Village Funds* controls for both the former and whether a development project is a road project, the most common project in our survey data. *Villager Contributions* measures the amount of funds collected from villagers. *% Informal Taxes Collected* measures the percentage of informal taxes, collected successfully by village chiefs, as a percentage of their annual target. *District Funds* measures the amount of funds from district-level government sources. *Govt and Own Village Funds* equals one if a development project was constructed using both government and villager contributions, and zero otherwise. *Central Government* and *Province Government Funds* measures the amount of funds from Central and Provincial government sources, respectively.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table C.22: *Bengkok* Villages and Contemporary Development: Robustness to Conley Spatial SE (Cut-off = 30 km)

	(1)	(2)	(3)	(4)
Panel A: Schools (1983)	num. of non-INPRES		num. of INPRES	
cirebon	0.850***	1.261***	0.713***	0.128**
	(0.255)	(0.065)	(0.075)	(0.062)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	76	181	85	181
Bandwidth	7.66	30.00	8.65	30.00
Mean Dep. Var.	2.55	2.47	1.16	1.38
Std. Dev. Var.	1.290	1.143	0.843	0.951

	(1)	(2)	(3)	(4)
Panel B: Infra. & Structural Change	Infrastructure Index		Share of Agri. HH	
cirebon	0.796***	0.673***	-0.142***	-0.053**
	(0.194)	(0.227)	(0.015)	(0.023)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	132	537	193	546
Bandwidth	4.78	30.00	6.07	30.00
Mean Dep. Var.	-0.06	-0.02	0.67	0.74
Std. Dev. Var.	0.781	0.955	0.185	0.164

	(1)	(2)	(3)	(4)
Panel C: Education & Prosperity	Years of Education		=1 if Agricultural Job	
cirebon	1.350***	0.652*	-0.233***	-0.137
	(0.303)	(0.350)	(0.010)	(0.088)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	60,822	248,751	40,165	183,573
Bandwidth	4.81	30.00	4.86	30.00
Mean Dep. Var.	7.17	6.77	0.23	0.40
Std. Dev. Var.	3.165	2.857	0.423	0.490

Note: All regressions include a local linear specification estimated separately on each side of the study boundary and use a triangular kernel. Each regression is jointly estimated following equations (1) and (2). Optimal bandwidths are chosen following Calonico et al. (2014) and are reported in kilometers. Unit of observation in Panels A and B is at the village level. Unit of observation in Panel C is at the individual, villager-level. All regressions control for an indicator that equals 1 if a village had ever split and a border segment fixed effect. In addition, regression in Panel B controls for survey year. Regressions in Panel C control for cohort-year and gender. *num. of non-INPRES* measures the number of bottom-up village schools. *num. of INPRES* measures the number of top-down, Central government-constructed schools. *Infrastructure Index* is comprised of three variables indicating the presence of safe water sources, aspalt road, and safe garbage disposal between 1986-1996. I construct this index following (Kling et al., 2007) by standardising each variable, averaging across all three standardised variables, and standardising the average. *Years of Education* measures the number of years of education for all individuals aged 21-40 years old. *Share of Agri. HH* measures the share of village households engaged primarily in agriculture. *=1 if Agricultural Job* is an indicator variable that takes the value of 1 if an individual has an agricultural job and 0 otherwise, for all individuals aged 21-40 years old.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table C.23: *Bengkok* Villages and Village Funds: Robustness to Conley Spatial SE (Cut-off = 20 km)

	(1)	(2)	(3)	(4)
Panel A: Informal Taxation	Villager Contributions, IHS 1993		% Informal Taxes Collected	
cirebon	0.937***	0.848***	62.736***	23.885***
	(0.049)	(0.122)	(4.506)	(6.128)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	45	184	33	143
Bandwidth	4.72	30.00	3.59	30.00
Mean Dep. Var.	10.92	11.17	58.79	67.13
Std. Dev. Var.	0.939	0.858	18.029	19.111
Mean Dep. Var. (RP)	40509.16	50694.40		

	(1)	(2)	(3)	(4)
Panel B: District-Level Funds	District Funds, IHS 1996		Govt and Own Village Funds	
cirebon	5.177***	4.152**	0.485***	0.339***
	(1.185)	(1.866)	(0.133)	(0.045)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	69	184	194	616
Bandwidth	6.43	30.00	6.80	30.00
Mean Dep. Var.	4.77	5.26	0.21	0.25
Std. Dev. Var.	3.395	2.808	0.409	0.435
Mean Dep. Var. (RP)	2799.84	1362.61		

	(1)	(2)	(3)	(4)
Panel C: Central and Province	Central Government, IHS 1996		Province Government, IHS 1996	
cirebon	-0.046**	0.015**	0.088	0.332
	(0.019)	(0.006)	(0.515)	(0.940)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	69	184	86	184
Bandwidth	6.70	30.00	8.69	30.00
Mean Dep. Var.	9.45	9.48	1.06	1.04
Std. Dev. Var.	0.200	0.336	3.157	2.946
Mean Dep. Var. (RP)	6517.91	7178.80	2855.60	1569.65

Note: All regressions include a local linear specification estimated separately on each side of the study boundary and use a triangular kernel. Each regression is jointly estimated following equations (1) and (2). Optimal bandwidths are chosen following Calonico et al. (2014) and are reported in kilometers. Unit of observation is at the village level except for *% Informal Taxes Collected* which is at the village-chief level, and *Govt and Own Village Funds* which is at the village-chief, development-project level. All regressions control for an indicator that equals 1 if a village had ever split and a border segment fixed effect. In addition, regression of *% Informal Taxes Collected* control for whether a chief's electoral term coincided with the end of Suharto rule and regression of *Govt and Own Village Funds* controls for both the former and whether a development project is a road project, the most common project in our survey data. *Villager Contributions* measures the amount of funds collected from villagers. *% Informal Taxes Collected* measures the percentage of informal taxes, collected successfully by village chiefs, as a percentage of their annual target. *District Funds* measures the amount of funds from district-level government sources. *Govt and Own Village Funds* equals one if a development project was constructed using both government and villager contributions, and zero otherwise. *Central Government* and *Province Government Funds* measures the amount of funds from Central and Provincial government sources, respectively.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table C.24: *Bengkok* Villages and Contemporary Development: Robustness to Conley Spatial SE (Cut-off = 20 km)

	(1)	(2)	(3)	(4)
Panel A: Schools (1983)	num. of non-INPRES		num. of INPRES	
cirebon	0.850***	1.261***	0.713***	0.128**
	(0.071)	(0.126)	(0.032)	(0.061)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	76	181	85	181
Bandwidth	7.66	30.00	8.65	30.00
Mean Dep. Var.	2.55	2.47	1.16	1.38
Std. Dev. Var.	1.290	1.143	0.843	0.951

	(1)	(2)	(3)	(4)
Panel B: Infra. & Structural Change	Infrastructure Index		Share of Agri. HH	
cirebon	0.796***	0.673***	-0.142***	-0.053***
	(0.290)	(0.209)	(0.023)	(0.010)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	132	537	193	546
Bandwidth	4.78	30.00	6.07	30.00
Mean Dep. Var.	-0.06	-0.02	0.67	0.74
Std. Dev. Var.	0.781	0.955	0.185	0.164

	(1)	(2)	(3)	(4)
Panel C: Education & Prosperity	Years of Education		=1 if Agricultural Job	
cirebon	1.350***	0.652**	-0.233***	-0.137***
	(0.072)	(0.267)	(0.035)	(0.047)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	60,822	248,751	40,165	183,573
Bandwidth	4.81	30.00	4.86	30.00
Mean Dep. Var.	7.17	6.77	0.23	0.40
Std. Dev. Var.	3.165	2.857	0.423	0.490

Note: All regressions include a local linear specification estimated separately on each side of the study boundary and use a triangular kernel. Each regression is jointly estimated following equations (1) and (2). Optimal bandwidths are chosen following Calonico et al. (2014) and are reported in kilometers. Unit of observation in Panels A and B is at the village level. Unit of observation in Panel C is at the individual, villager-level. All regressions control for an indicator that equals 1 if a village had ever split and a border segment fixed effect. In addition, regression in Panel B controls for survey year. Regressions in Panel C control for cohort-year and gender. *num. of non-INPRES* measures the number of bottom-up village schools. *num. of INPRES* measures the number of top-down, Central government-constructed schools. *Infrastructure Index* is comprised of three variables indicating the presence of safe water sources, aspalt road, and safe garbage disposal between 1986-1996. I construct this index following (Kling et al., 2007) by standardising each variable, averaging across all three standardised variables, and standardising the average. *Years of Education* measures the number of years of education for all individuals aged 21-40 years old. *Share of Agri. HH* measures the share of village households engaged primarily in agriculture. *=1 if Agricultural Job* is an indicator variable that takes the value of 1 if an individual has an agricultural job and 0 otherwise, for all individuals aged 21-40 years old.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table C.25: *Bengkok* Villages and Village Funds: Robustness to Conley Spatial SE (Cut-off = 10 km)

	(1)	(2)	(3)	(4)
Panel A: Informal Taxation	Villager Contributions, IHS 1993		% Informal Taxes Collected	
cirebon	0.937***	0.848***	62.736***	23.885***
	(0.123)	(0.217)	(2.340)	(5.281)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	45	184	33	143
Bandwidth	4.72	30.00	3.59	30.00
Mean Dep. Var.	10.92	11.17	58.79	67.13
Std. Dev. Var.	0.939	0.858	18.029	19.111
Mean Dep. Var. (RP)	40509.16	50694.40		

	(1)	(2)	(3)	(4)
Panel B: District-Level Funds	District Funds, IHS 1996		Govt and Own Village Funds	
cirebon	5.177***	4.152**	0.485***	0.339***
	(1.266)	(1.684)	(0.048)	(0.090)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	69	184	194	616
Bandwidth	6.43	30.00	6.80	30.00
Mean Dep. Var.	4.77	5.26	0.21	0.25
Std. Dev. Var.	3.395	2.808	0.409	0.435
Mean Dep. Var. (RP)	2799.84	1362.61		

	(1)	(2)	(3)	(4)
Panel C: Central and Province	Central Government, IHS 1996		Province Government, IHS 1996	
cirebon	-0.046**	0.015	0.088	0.332
	(0.023)	(0.039)	(0.561)	(1.101)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	69	184	86	184
Bandwidth	6.70	30.00	8.69	30.00
Mean Dep. Var.	9.45	9.48	1.06	1.04
Std. Dev. Var.	0.200	0.336	3.157	2.946
Mean Dep. Var. (RP)	6517.91	7178.80	2855.60	1569.65

Note: All regressions include a local linear specification estimated separately on each side of the study boundary and use a triangular kernel. Each regression is jointly estimated following equations (1) and (2). Optimal bandwidths are chosen following Calonico et al. (2014) and are reported in kilometers. Unit of observation is at the village level except for *% Informal Taxes Collected* which is at the village-chief level, and *Govt and Own Village Funds* which is at the village-chief, development-project level. All regressions control for an indicator that equals 1 if a village had ever split and a border segment fixed effect. In addition, regression of *% Informal Taxes Collected* control for whether a chief's electoral term coincided with the end of Suharto rule and regression of *Govt and Own Village Funds* controls for both the former and whether a development project is a road project, the most common project in our survey data. *Villager Contributions* measures the amount of funds collected from villagers. *% Informal Taxes Collected* measures the percentage of informal taxes, collected successfully by village chiefs, as a percentage of their annual target. *District Funds* measures the amount of funds from district-level government sources. *Govt and Own Village Funds* equals one if a development project was constructed using both government and villager contributions, and zero otherwise. *Central Government* and *Province Government Funds* measures the amount of funds from Central and Provincial government sources, respectively.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table C.26: *Bengkok* Villages and Contemporary Development: Robustness to Conley Spatial SE (Cut-off = 10 km)

	(1)	(2)	(3)	(4)
Panel A: Schools (1983)	num. of non-INPRES		num. of INPRES	
cirebon	0.850***	1.261***	0.713***	0.128
	(0.280)	(0.183)	(0.032)	(0.102)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	76	181	85	181
Bandwidth	7.66	30.00	8.65	30.00
Mean Dep. Var.	2.55	2.47	1.16	1.38
Std. Dev. Var.	1.290	1.143	0.843	0.951

	(1)	(2)	(3)	(4)
Panel B: Infra. & Structural Change	Infrastructure Index		Share of Agri. HH	
cirebon	0.796***	0.673***	-0.142***	-0.053***
	(0.248)	(0.209)	(0.032)	(0.014)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	132	537	193	546
Bandwidth	4.78	30.00	6.07	30.00
Mean Dep. Var.	-0.06	-0.02	0.67	0.74
Std. Dev. Var.	0.781	0.955	0.185	0.164

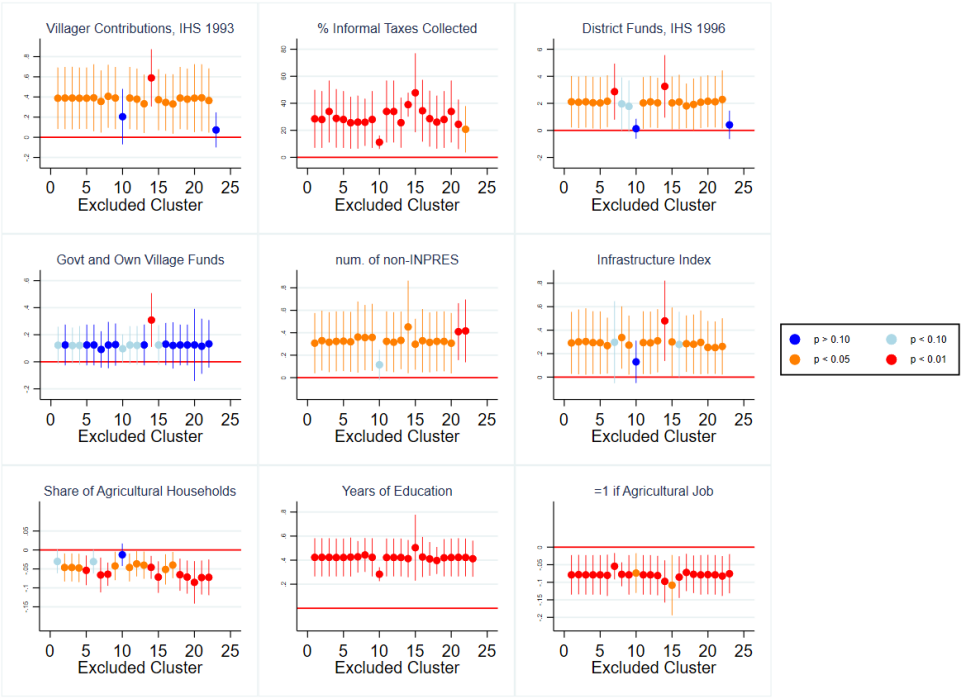
	(1)	(2)	(3)	(4)
Panel C: Education & Prosperity	Years of Education		=1 if Agricultural Job	
cirebon	1.350***	0.652***	-0.233***	-0.137
	(0.166)	(0.212)	(0.042)	(0.091)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	60,822	248,751	40,165	183,573
Bandwidth	4.81	30.00	4.86	30.00
Mean Dep. Var.	7.17	6.77	0.23	0.40
Std. Dev. Var.	3.165	2.857	0.423	0.490

Note: All regressions include a local linear specification estimated separately on each side of the study boundary and use a triangular kernel. Each regression is jointly estimated following equations (1) and (2). Optimal bandwidths are chosen following Calonico et al. (2014) and are reported in kilometers. Unit of observation in Panels A and B is at the village level. Unit of observation in Panel C is at the individual, villager-level. All regressions control for an indicator that equals 1 if a village had ever split and a border segment fixed effect. In addition, regression in Panel B controls for survey year. Regressions in Panel C control for cohort-year and gender. *num. of non-INPRES* measures the number of bottom-up village schools. *num. of INPRES* measures the number of top-down, Central government-constructed schools. *Infrastructure Index* is comprised of three variables indicating the presence of safe water sources, aspalt road, and safe garbage disposal between 1986-1996. I construct this index following (Kling et al., 2007) by standardising each variable, averaging across all three standardised variables, and standardising the average. *Years of Education* measures the number of years of education for all individuals aged 21-40 years old. *Share of Agri. HH* measures the share of village households engaged primarily in agriculture. *=1 if Agricultural Job* is an indicator variable that takes the value of 1 if an individual has an agricultural job and 0 otherwise, for all individuals aged 21-40 years old.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

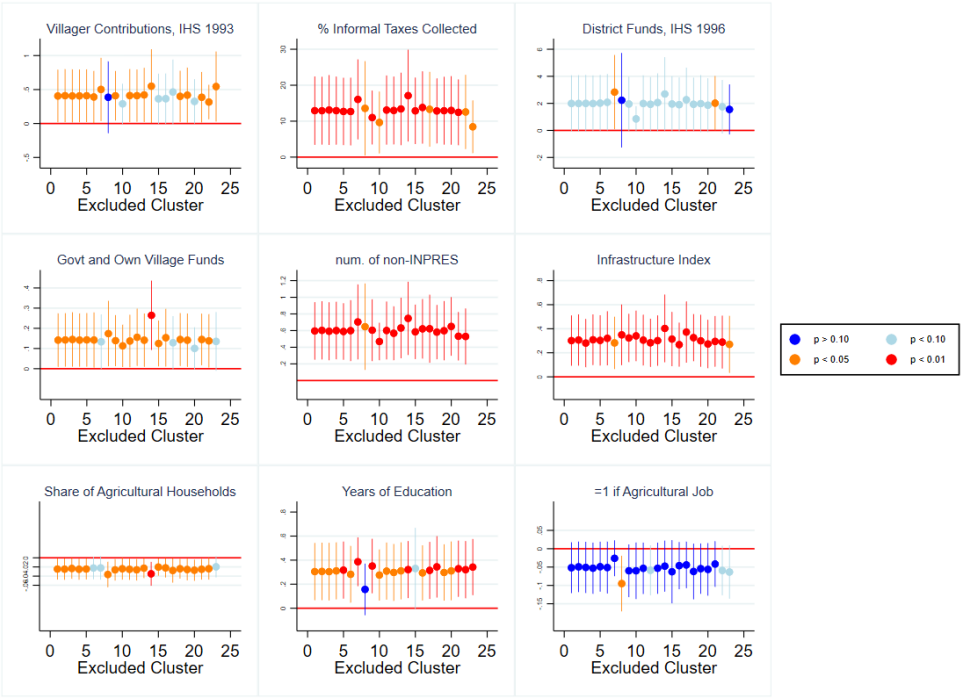
C.5 Main Results – Robustness to Dropping One Cluster At a Time

Figure C.5: Leave-One-Out Plot I: Optimal RD Bandwidth



Notes: Standard errors clustered at the sub-district level. All regressions include a local linear specification estimated separately on each side of the Cirebon–Priangan boundary. All regressions control for whether a village had ever split and nearest border segment fixed effects. In addition, individual-level regressions of years of education, control for gender and age-cohort. Regressions of infrastructure index and share of agricultural households controls for survey year. All regressions use a triangular kernel following Calonico et al. (2014). Figure shows point estimates and 95% confidence intervals.

Figure C.6: Leave-One-Out Plot II: Wide RD BW of 30km



Notes: Standard errors clustered at the sub-district level. All regressions include a local linear specification estimated separately on each side of the Cirebon–Priangan boundary. All regressions control for whether a village had ever split and nearest border segment fixed effects. In addition, individual-level regressions of years of education, control for gender and age-cohort. Regressions of infrastructure index and share of agricultural households controls for survey year. All regressions use a triangular kernel following Calonico et al. (2014). Figure shows point estimates and 95% confidence intervals.

Appendix D. District Falsification Exercise

D.1 Description of Falsification Test Across Adjacent District Border-Pairs in Figure D.1

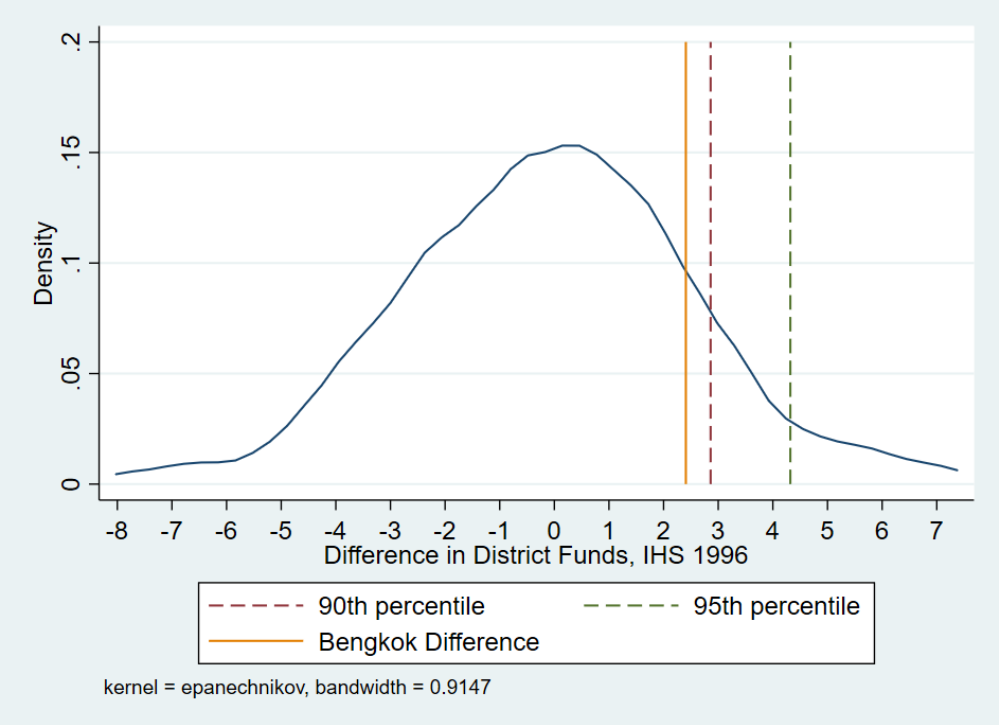
I proceed in three steps. First, I use data from the 1996 village census and restrict my sample to all rural villages on Java (urban villages do not receive *bengkok*), and exclude any rural villages (adjacent border-pairs) in (bordering) the greater Jakarta area or Yogyakarta, an independent Sultanate/Kingdom whose villages are ruled under a different governance structure. I then overlay all remaining district borders on Java onto village polygons and exclude any district borders that overlap with provincial borders.

Second, each district could potentially be adjacent to more than one district. Hence, for each district, I randomly draw a single adjacent district-border pair.

Third, for each adjacent district-border pair, I randomly assign one of the two districts into treatment and calculate the average differences, at the village-level, in 1996 district funds between treated and non-treated districts, using the same specification as equations (1) and (2) and the optimal Calonico et al. (2014) bandwidth.

Last, to avoid variations in district-funding due to differences in topography that are uncharacteristic of my study area, I exclude adjacent district-border pairs that are unbalanced on elevation. I also exclude those that are unbalanced on village-level *bengkok*, given that these large differences in *bengkok* could have occurred for other plausibly non-exogenous reasons that I cannot account for. District-border pairs that are too short in length and hence, have insufficient villages for estimation purposes are also excluded from my analysis.

Figure D.1: Differences in District Funds, IHS 1996: Neighboring District-Pairs on Java



Notes: Histogram of differences in amount of funds received from their respective district governments, for villages in adjacent districts on Java. Dashed lines give the 90th and 95th percentile of the distribution. The solid line gives the estimated difference between *bengkok* and non-*bengkok* villages across my study boundary. Sample excludes all villages within urban areas (whose chiefs do not receive any *bengkok*); adjacent district-pairs where there are insufficient villages on both sides of the border for estimation (district-pair border is too short); adjacent district-pairs that are unbalanced on elevation; and adjacent district-pairs that are outliers in terms of cross-district border differences in *bengkok*.

Appendix E. Alternative Explanations

E.1 Colonial Policy

Table E.1: *Bengkok* Villages and Colonial Policy

	(1)	(2)	(3)	(4)
Panel A: 1853 Land Use	% Land Settled		% Land Grew Coffee	
bengkok (ha)	2.056	0.940	−4.490*	1.917*
	(1.834)	(1.382)	(2.404)	(1.053)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	42	185	33	185
Clusters	9	22	9	22
Bandwidth	4.15	30.00	3.46	30.00
Mean Dep. Var.	14.25	5.95	4.96	2.11
Std. Dev. Var.	12.650	8.563	9.188	5.236

	(1)	(2)	(3)	(4)
Panel B: Road Density	1853		1945	
bengkok (ha)	0.887	0.617	1.575	−0.042
	(1.562)	(0.494)	(1.528)	(0.571)
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	65	185	42	185
Clusters	11	22	9	22
Bandwidth	5.90	30.00	4.24	30.00
Mean Dep. Var.	2.81	1.58	6.90	3.45
Std. Dev. Var.	3.827	3.022	4.903	4.224

	(1)	(2)
Panel C: Railroad Density	1945	
bengkok (ha)	−0.031	−0.243
	(0.364)	(0.328)
Bandwidth choice	Optimal	Wide
Observations	88	185
Clusters	11	22
Bandwidth	8.79	30.00
Mean Dep. Var.	0.66	0.34
Std. Dev. Var.	1.952	1.391

Note: Unit of observation is at the village-level. Standard errors clustered at the subdistrict level. Following my main regression specifications, I control for an indicator for whether a village had ever experienced a split and border fixed effects. All measures calculated from 1853 and 1945 Dutch maps overlaid over 2000 village border polygons. The unit of measure for road and rail density is meters per hectare. Standard errors clustered at the sub-district level. *% Land Settled* divides the area covered by housing settlements, over the total area within a village polygon and is a proxy for village development in 1853. *% Land Grew Coffee* divides the area covered by coffee fields, over the total area within a village polygon.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

E.2 Structural Change—Manufacturing Firms

To explore the presence of manufacturing firms, we use three rounds of the Manufacturing Census (*Statistik Industri*) from 1995 to 1997. These are the only rounds for which village-level identifiers are available. Notably, however, unlike with all other datasets, we identify firm-locations based solely on village level identifiers (SI does not report desa names). However, given the relatively small number of village splits and mergers during this time period, this is unlikely to be an issue.

The Manufacturing Census covers all firms that employ minimally 20 to 30 employees and are involved in any form of manufacturing activity. We examine two outcomes: the number of manufacturing firms and a dummy variable indicating the presence of at least one manufacturing firm in the village. We find that *bengkok* is associated with an increase of 0.142 and 0.150 in the number of manufacturing firms at the optimal and wide bandwidths, respectively, both statistically significant at the 1% level. For the dummy variable, we find increases of 0.105 and 0.116 at the optimal and wide bandwidths, statistically significant at the 5% and 1% levels, respectively. These results suggest that *bengkok* remuneration does not appear to have channeled development towards agricultural returns at the expense of broader structural transformation. This appears to be plausible given the relatively inelastic supply of poor renters for *bengkok* land.

Table E.2: *Bengkok* Villages and Manufacturing Firms (SI)

	# of firms		=1 if $\geq$ 1 firm	
	(1)	(2)	(3)	(4)
bengkok (ha)	0.142***	0.150***	0.105**	0.116***
	(0.051)	(0.053)	(0.047)	(0.037)
weak-instrument-robust p-value	[0.020]	[0.000]	[0.044]	[0.001]
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	210	543	195	543
Clusters	11	22	11	22
Bandwidth	6.90	30.00	5.96	30.00
Mean Dep. Var.	0.13	0.09	0.11	0.07
Std. Dev. Var.	0.401	0.348	0.317	0.252
First Stage Effective F-stat	6.65	9.88	6.99	9.88
Underidentification Test, p-value	0.020	0.019	0.029	0.019

Note: Standard errors clustered at the subdistrict level. All regressions include a local linear specification estimated separately on each side of the study boundary and use a triangular kernel. Each regression is jointly estimated following equations (1) and (2). Optimal bandwidths are chosen following Calonico et al. (2014) and are reported in kilometers. All regressions control for whether a village had ever split and nearest border segment fixed effects. They also control for survey year. Unit of observation is at the village-survey-year level (1995-1997). *# of firms* measures the number of manufacturing firms. $= 1$ *if* ≥ 1 *firm* is an indicator that takes the value of 1 if a village has at least one manufacturing firm.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

E.3 Land Inequality and Land Rights

Land Inequality. *Bengkok* could have affected the distribution of private farmland within the village. This would be a concern, especially given qualitative evidence that *bengkok* land (vis-a-vis private farmland) might have been exempted from 1960s land redistribution efforts (given village chiefs often set on land reform panels (Utrecht, 1969)). I test this with land-inequality measures from the 1980 Population "Census" which asked a sample of households, within each village, about the size of private farmland owned. However, there are two potential limitations. First, as described, the dataset is in fact, a 5% sample and not all villages in my study region were enumerated. Second, the data does not distinguish between wet (riceland) and dry land. Nonetheless, given that much of productive, private farmland in my study region is likely to consist of wet riceland, effects here could reasonably be interpreted as capturing a meaningful effect of *bengkok* on overall, agricultural land inequality.

Table E.3 finds little effect on a wide range of measures such as mean private farmland; its Gini coefficient; the share of households owning more than 1ha of private farmland; nor on the share of effectively landless households. These null effects might seem puzzling given that the allocation of *bengkok* land could have constrained the remaining amount of land that could be devoted to private farmland. However, there are two forces that potentially work against increases in land inequality from *bengkok*. First, given *bengkok* is typically rented out to poor villager-tenants (see Section 5.4), landless and/or poorer villagers in *bengkok* villages might have been able to purchase some additional farmland over time. Second, chief *bengkok* land comprises an average of 1.6ha compared to total village wetrice land holdings of 158ha. This might not have been large enough to shift the overall distribution of land ownership within villages.

Land Rights. *Bengkok* might have worked by making chiefs' claims on land more secure than other villagers' (Goldstein and Udry, 2008). This would, however, necessarily require a substantial gap in the security of land rights between chiefs and villagers. This is not the case in Java where 87 to 90% of rural households hold a legal document proving ownership.[80] In comparison, in the Ghana setting of Goldstein and Udry (2008), more than double the share of office holders reported having secure land rights over private farmland compared to individual, non-office holders. Specifically, only 10% said they could sell; 15% say could rent out, and 4% said they could determine inheritance. The corresponding shares for officeholders were 22%; 37%; and 18% respectively.

[80] Author's tabulations, IFLS 4 and 5 (2007, 2014).

Table E.3: *Bengkok* Villages and Land Distribution

	(1)	(2)	(3)	(4)
Panel A: Land distribution	Farm size (ha)		Gini	
bengkok	−0.005	0.002	0.006	−0.001
	(0.024)	(0.026)	(0.024)	(0.017)
weak-instrument-robust p-value	[0.86]	[0.93]	[0.85]	[0.95]
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	890	4953	25	101
Clusters	9	18	9	18
Bandwidth	4.30	30.00	5.05	30.00
Mean Dep. Var.	0.48	0.51	0.51	0.48
Std. Dev. Var.	0.549	0.543	0.093	0.082
First Stage Effective F-stat	14.32	12.70	8.63	12.31
Underidentification Test, p-value	0.027	0.014	0.041	0.013

	(1)	(2)	(3)	(4)
Panel B: Land Owned	Share of Households >1 ha		Landless (<=0.1ha)	
bengkok	0.004	0.003	−0.020	0.012
	(0.005)	(0.012)	(0.021)	(0.044)
weak-instrument-robust p-value	[0.34]	[0.80]	[0.31]	[0.80]
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	2473	8438	3038	8438
Clusters	10	18	10	18
Bandwidth	5.15	30.00	6.83	30.00
Mean Dep. Var.	0.04	0.09	0.58	0.44
Std. Dev. Var.	0.206	0.288	0.493	0.496
First Stage Effective F-stat	9.97	13.78	7.78	13.78
Underidentification Test, p-value	0.034	0.013	0.037	0.013

Note: Standard errors clustered at the subdistrict level. All regressions include a local linear specification estimated separately on each side of the study boundary and use a triangular kernel. Each regression is jointly estimated following equations (1) and (2). Optimal bandwidths are chosen following Calonico et al. (2014) and are reported in kilometers. All regressions control for whether a village had ever split and nearest border segment fixed effects. They also control for survey year. Unit of observation in Panel A, Columns (1)-(2) and Panel B is at the household level. That of Panel A, Columns (3)-(4) is at the village level. The smaller number of observations is due to the fact that the 1980 Census did not enumerate all villages. *Farm size (ha)* measures the size of private farmland belonging to a household. *Gini* is a Gini coefficient of farmland sizes within each village. *>1 ha* takes the value of 1 if a household owns more than 1ha of farmland. *Landless* takes the value of 1 if a household is near-landless and owns less than or equal 0.1ha of farmland.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

E.4 Intermediate Political Economy Tradeoffs

Demographic Changes from the 1965–66 Mass Violence While the extant literature suggests that my study area did not see a high incidence of violence (Hart et al., 1989) and the data limitations concerning the geographical distribution of killings are well known (Cribb, 1990), it is possible that *bengkok* chiefs might have been more likely to be co-opted as agents of the state. Alternatively, they might have been better able to protect villagers from external actors.

I explore these possibilities in Panel A of Table E.4, where I test for *bengkok* effects on two measures of demographic composition: the population of age cohorts born in 1930-1945 (Panel A: Columns (1)-(2)), and the male-to-female sex ratios of individuals born in 1930-1945 (Panel A: Columns (3)-(4)) and find limited evidence for either possibility. While these measures might be affected by selective out-migration and/or differential attrition across villages, they are my best available proxy for potential demographic changes. Specifically, these individuals would have been 20-35 years old at the time of the mass killings, and given that killings were concentrated among Communist Party (PKI) members and supporters (Cribb, 2004)—many of whom might have been young prime-age adults—differences in the demographic composition of these cohorts could be informative about the incidence of the mass killings.

State Patronage during the Green Revolution A central part of the Green Revolution rollout involved village chiefs who played a key role in channeling and disbursing credit and inputs from the state to farmers (Rieffel, 1969). If *bengkok* chiefs were more effective at leveraging patronage to obtain credit and/or capital-intensive agricultural machinery, this would represent an additional channel through which *bengkok* affected long-run development. As a proxy, I test for differences in the number of tractors and water pumps from the 1983 Village Census (Panel B, Table E.4). *Bengkok* size does not significantly correlate with the number of tractors or water pumps. This has two implications for my main results. First, the positive long-run effects on chief performance and village development are not likely to be driven by differential Green Revolution technology adoption channeled through state patronage. Second, even if village chiefs and administration were important for delivering Green Revolution credit and inputs, villages with larger *bengkok* endowments were not systematically those where chiefs were better able to or willing to leverage state patronage to obtain capital-intensive machinery.

Table E.4: Alternative Explanations: Demographic Change and Patronage During the Green Revolution

	(1)	(2)	(3)	(4)
Panel A: Demographic Change	1930 - 1945 birth cohort			
	Population		Sex Ratio	
bengkok (ha)	0.184	0.078	−0.052	0.076
	(0.302)	(0.142)	(0.202)	(0.145)
weak-instrument-robust p-value	[0.62]	[0.60]	[0.82]	[0.64]
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	45	175	39	175
Clusters	9	21	9	21
Bandwidth	4.91	30.00	3.85	30.00
First Stage Effective F-stat	7.49	10.25	6.48	10.25
Underidentification Test, p-value	0.063	0.018	0.046	0.018

	(1)	(2)	(3)	(4)
Panel B: Green Revolution (1983)	Tractors		Water Pumps	
bengkok (ha)	0.003	0.034	0.032	0.004
	(0.020)	(0.040)	(0.059)	(0.040)
weak-instrument-robust p-value	[0.89]	[0.40]	[0.62]	[0.92]
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	59	184	54	171
Clusters	11	22	11	22
Bandwidth	5.67	30.00	5.71	30.00
First Stage Effective F-stat	7.53	11.01	12.52	13.56
Underidentification Test, p-value	0.041	0.017	0.030	0.015

Note: Standard errors clustered at the subdistrict level. All regressions include a local linear specification estimated separately on each side of the study boundary and use a triangular kernel. Each regression is jointly estimated following equations (1) and (2). Optimal bandwidths are chosen following Calonico et al. (2014) and are reported in kilometers. All regressions control for whether a village had ever split and nearest border segment fixed effects.. Unit of observation is at the village level. *Population* measures the number of individuals born between 1930-1945 in the 2000 Population Census. *Sex Ratio* measures the male to female sex ratio of the same cohort. *Tractors* measures the number of tractors. *Water pumps* measures the number of water pumps.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

E.5 Multi-tasking (Moonlighting)

Chiefs without *bengkok* earn no living wage, so they may underperform because of moonlighting (Gagliarducci and Nannicini, 2013). From the primary survey I build an indicator for whether a chief reported working a second job during his term of office.[81] Table E.5 suggests that this was unlikely: *Bengkok* chiefs are, in fact, slightly *more* likely to hold a second job. This is consistent with qualitative accounts from our fieldwork where many *bengkok* chiefs appear to have continued to manage pre-existing businesses, even after taking office. In comparison, many non-*bengkok* chiefs often left their previous jobs to become "full-time" chiefs.

Table E.5: *Bengkok* Villages and Multi-tasking

	(1)	(2)
	$= 1$ if chief had a second job while in office	
bengkok (ha)	0.095*	0.069
	(0.051)	(0.046)
weak-instrument-robust p-value	[0.117]	[0.260]
Bandwidth choice	Optimal	Wide
Observations	75	222
Clusters	10	21
Bandwidth	5.27	30.00
Mean Dep. Var.	0.43	0.55
Std. Dev. Var.	0.498	0.499
First Stage Effective F-stat	4.39	6.13
Underidentification Test, p-value	0.054	0.046

Note: Standard errors clustered at the subdistrict level. All regressions include a local linear specification estimated separately on each side of the study boundary and use a triangular kernel. Each regression is jointly estimated following equations (1) and (2). Optimal bandwidths are chosen following Calonico et al. (2014) and are reported in kilometers. All regressions control for whether a village had ever split and nearest border segment fixed effects. They also control for an indicator that equals 1 if a village had ever split, whether a chief's electoral term coincided with the end of Suharto rule. Unit of observation is at the village chief level. $= 1$ *if chief had a second job while in office* takes the value of 1 if an ex-village chief reported having held a second job while in office.

[81] Only living chiefs could be interviewed, so I extend the analysis to all chiefs who took office in both the pre- and post-decentralization periods.

Appendix F. Migration

F.1 Selective Migration

As mentioned in Section 3.3, a potential channel of interest is selective migration. Selective migration would be a plausible channel of persistence if the most capable individuals (from outside *bengkok* villages) moved into *bengkok* villages given better chief performance and public goods. Ideally, it would be possible to estimate long-run development effects net of all compositional changes. Unfortunately, to the best of my knowledge, granular data on out-migration rates for my sample villages does not exist. However, granular data on in-migration rates exist. In this section I conduct two exercises to examine robustness of my main results to excluding in-migrants and test for heterogeneity in effect sizes by ease of out-migration.

First, I examine *bengkok* effects on individual-level outcomes, *excluding* in-migrants. I identify in-migrants from the Indonesian Population Census 2000. I construct an indicator that takes the value of 1 if an individual's district of birth is different from that of the current village in which (s)he is residing. This allows me to identify all villagers that migrated from a different district into their current village of residence.

Table F.1 presents evidence suggesting that differential in-migration is unlikely to explain differences in long-run development outcomes (Panel C, Table 4). I redefine my regression sample to exclude all in-migrants and hence, re-estimate the main IV regressions only for incumbents. Estimates suggest that positive *bengkok* effects are still present for incumbents.

Next, I test whether selective out-migration from non-*bengkok* areas might account for much of the main *bengkok* effects. As mentioned, detailed micro-level data on historical out-migration rates does not exist for my study area. As a proxy, Section F.2 tests for heterogeneity in effect sizes by ease of out-migration. Specifically, I examine if my estimated results differ between non-*bengkok* villages in Priangan, where it would be easier to out-migrate compared to non-*bengkok* villages, where it would be more difficult to out-migrate. If selective out-migration is higher in the former, with more "good" people leaving we would expect that RD estimates of the positive *bengkok* effect would be larger (in absolute value) than that for villages from which out-migration is more difficult.

To that end, I use the colonial road network as a proxy for ease of out-migration. For each non-*bengkok* villages in Priangan, I calculate the shortest distance along a road to leave the Priangan region (and enter the Cirebon region). I then compare villages that have a below median road distance to leave the Priangan region to those villages that have an above median road distance to leave the Priangan region. Estimation details and results are presented in Appendix F.2. I find that villages where it is easier to out-migrate do not appear to be significantly better off than villages where it is harder to out-migrate. In fact, positive *bengkok* effects appear to be somewhat larger in places where the road network made it *harder* to out-migrate.

The results from these two exercises suggest that neither selective in- nor out-migration is likely to be the main mechanism of persistence driving differences between *bengkok* and non-

Table F.1: *Bengkok* Villages and Contemporary Development: Excluding In-Migrants

	Years of Education		=1 if Agricultural Job	
	(1)	(2)	(3)	(4)
bengkok (ha)	0.424***	0.295**	-0.078***	-0.051
	(0.086)	(0.132)	(0.029)	(0.036)
weak-instrument-robust p-value	[0.001]	[0.058]	[0.012]	[0.150]
Bandwidth choice	Optimal	Wide	Optimal	Wide
Observations	55118	233860	36437	172707
Clusters	10	22	10	22
Bandwidth	4.74	30.00	4.78	30.00
Mean Dep. Var.	7.11	6.73	0.24	0.40
Std. Dev. Var.	3.125	2.821	0.429	0.490
First Stage Effective F-stat	11.94	11.13	14.43	13.89
Underidentification Test, p-value	0.065	0.017	0.063	0.011

Note: Standard errors clustered at the subdistrict level. All regressions include a local linear specification estimated separately on each side of the study boundary and use a triangular kernel. Each regression is jointly estimated following equations (1) and (2). Optimal bandwidths are chosen following Calonico et al. (2014) and are reported in kilometers. Unit of observation is at the individual, villager-level. All regressions control for an indicator that equals 1 if a village had ever split; a border segment fixed effect; cohort-year and gender. *Years of Education* measures the number of years of education for all individuals aged 21-40 years old. *=1 if Agricultural Job* is an indicator variable that takes the value of 1 if an individual has an agricultural job and 0 otherwise, for all individuals aged 21-40 years old.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

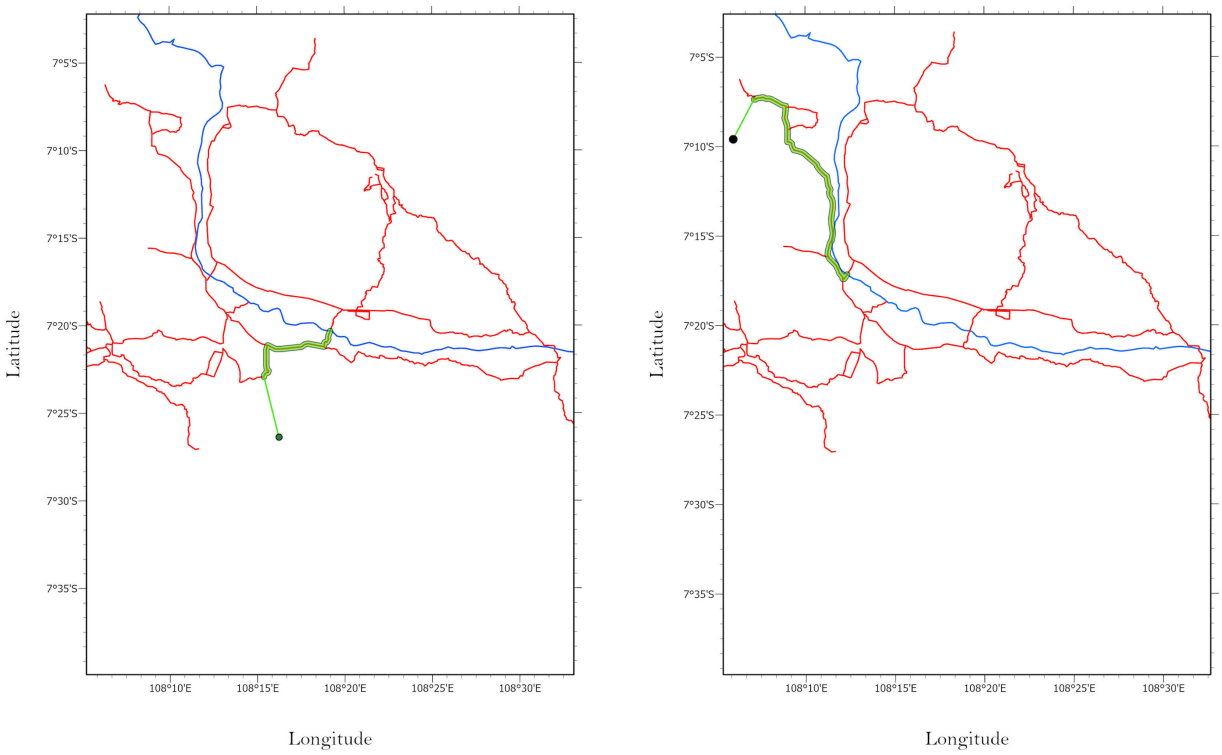
bengkok villages. These results are also consistent with qualitative evidence from our pilots and interviews: (out-)migration to other rural areas appears to be challenging due to difficulties in gaining access to land in rural villages that one was not born into.

F.2 Heterogeneity by Ease of Out-Migration Based on the Colonial Road Network

In this section, we examine how our results differ depending on the ease of out-migration to the RD border from non-*bengkok* villages in Priangan (towards bengkok villages in Cirebon). To that end, we examine villages that happen to be on a road segment that has easy access (i.e. shorter distance) to the RD border relative to those villages who happen to be on road segments with harder access to the border. We calculate road distances based on the colonial road network in 1853.

For intuition, consider Figure F.1. Here we consider two villages in Priangan with similar euclidean distances to the border but differing road route distances: one village is located on a road that makes it easier to leave along the road network (Figure F.1(a), optimal path highlighted in green) while the other village is located off the colonial road network, making it harder to leave Priangan (Figure F.1(b)). By comparing these two villages, we can examine whether people in villages where it's easier to out-migrate have better development outcomes than those in villages where it's harder to out-migrate.

Figure F.1: Road Networks and Road Distance to RD Border: Examples



(c) Short Road Distance

(d) Long Road Distance

We proceed as follows. First, for each village inside Priangan (non-*bengkok* villages), we calculate the shortest cost road route from its location to the border. Optimal shortest cost road segments for each village are highlighted in Figure F.2 in green. Second, for each sub-sample of villages within an Euclidean distance bandwidth away from the border, we split the sample into villages above and below median road distance to the RD border and estimate our baseline specification. Note that many villages do not lie right next to a colonial road, so this exercise is not simply comparing villages with roads to those without roads. Rather, variation in road distance (and ease of out-migration) to the RD border primarily comes about from the fact that, there are only a small number of roads directly connected to the RD border. For the subset of villages that are not located next to a road segment, we join each village centroid to the nearest road segment based on straight line distance.

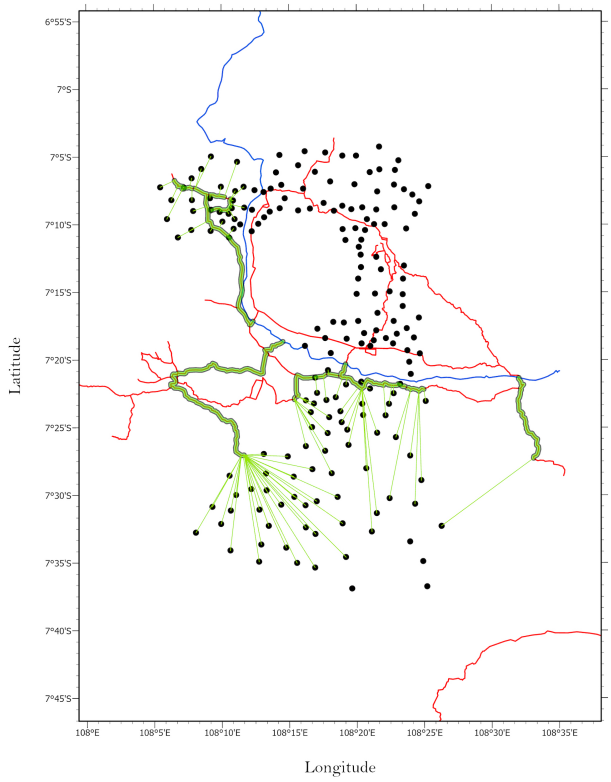


Figure F.2: Road Networks and Road Distance to RD Border: All Routes

If selective out-migration is large, we would expect that RD estimates for villages with shorter road distance to the border (where it is easier to out-migrate) to be larger (in absolute value) than estimates for villages with longer road distances to the border (where it is harder to out-migrate). Table F.2 presents results. Columns (1)-(2) suggests that the positive impacts of *bengkok* on villager years of education are largely similar for both samples. Similarly, the effects on the share of agricultural households and the probability of having an agricultural job remain largely similar (Columns (3)-(6)). If anything, they appear to be slightly stronger in places where the road network made it *harder* to out-migrate. Taken together, these results suggest that villages from where it is easier to out-migrate do not appear to be significantly better off than villages where it is harder to out-migrate. This offers suggestive evidence against out-migration being a key explanation for observed *bengkok* effects in Section 4.

Table F.2: Ease of Out-Migration and Contemporary Development: Colonial Road Network

	Panel A: < 24 km Road Distance to Border (Easier to Out-Migrate)					
	(1)	(2)	(3)	(4)	(5)	(6)
	Years of Education		% Agri. HH		= 1 if Agricultural Job	
bengkok (ha)	0.266***	0.153	−0.018	−0.010	−0.046**	−0.010
	(0.096)	(0.110)	(0.012)	(0.011)	(0.022)	(0.025)
weak-instrument-robust p-value	[0.056]	[0.225]	[0.055]	[0.315]	[0.050]	[0.706]
Bandwidth choice	Narrow	Wide	Narrow	Wide	Narrow	Wide
Observations	113640	171072	254	394	76901	120699
Clusters	12	17	12	17	12	17
Bandwidth	10.00	30.00	10.00	30.00	10.00	30.00
Mean Dep. Var.	6.91	6.93	0.69	0.72	0.29	0.33
Std. Dev. Var.	3.058	2.924	0.175	0.161	0.453	0.470
First Stage Effective F-stat	8.24	11.34	8.03	11.32	10.14	14.68
Underidentification Test, p-value	0.020	0.019	0.015	0.019	0.013	0.012

	Panel B: > 24 km Road Distance to Border (Harder to Out-Migrate)					
	(1)	(2)	(3)	(4)	(5)	(6)
	Years of Education		% Agri. HH		= 1 if Agricultural Job	
bengkok (ha)	0.265**	0.374	−0.099	−0.078*	−0.174*	−0.172*
	(0.118)	(0.256)	(0.080)	(0.042)	(0.094)	(0.088)
weak-instrument-robust p-value	[0.363]	[0.277]	[0.004]	[0.015]	[0.000]	[0.016]
Bandwidth choice	Narrow	Wide	Narrow	Wide	Narrow	Wide
Observations	72242	180844	157	397	49321	134609
Clusters	9	19	9	19	9	19
Bandwidth	10.00	30.00	10.00	30.00	10.00	30.00
Mean Dep. Var.	7.11	6.85	0.68	0.74	0.27	0.40
Std. Dev. Var.	2.918	2.755	0.182	0.162	0.446	0.489
First Stage Effective F-stat	2.28	4.37	1.27	3.04	3.28	5.59
Underidentification Test, p-value	0.283	0.034	0.375	0.042	0.243	0.020

Note: Standard errors clustered at the subdistrict level. All regressions include a local linear specification estimated separately on each side of the study boundary and use a triangular kernel. Each regression is jointly estimated following equations (1) and (2). Unit of observation is at the individual, villager-level. All regressions control for an indicator that equals 1 if a village had ever split; a border segment fixed effect; cohort-year and gender. *Years of Education* measures the number of years of education for all individuals aged 21-40 years old. *% Agri. HH* measures the village-level share of households working in the agricultural sector between 1986-1996. *=1 if Agricultural Job* is an indicator variable that takes the value of 1 if an individual has an agricultural job and 0 otherwise, for all individuals aged 21-40 years old. in 2000.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Appendix G. Additional References

References

Acemoglu, Daron, María Angélica Bautista, Pablo Querubin, and James A Robinson, "Economic and political inequality in development: The case of Cundinamarca, Colombia," Technical Report, National Bureau of Economic Research 2007.

Antlöv, Hans et al., *Exemplary centre, administrative periphery: rural leadership and the new order in Java.*, Curzon Press Ltd, 1995.

Baldwin, Kate, "Why vote with the chief? Political connections and public goods provision in Zambia," *American Journal of Political Science*, 2013, *57* (4), 794–809.

_____ , *The paradox of traditional chiefs in democratic Africa*, Cambridge University Press, 2016.

Bates, Robert H, *Markets and states in tropical Africa: the political basis of agricultural policies*, Univ of California Press, 2014.

Bellemare, Marc F and Casey J Wichman, "Elasticities and the inverse hyperbolic sine transformation," *Oxford Bulletin of Economics and Statistics*, 2019.

Calonico, Sebastian, Matias D. Cattaneo, and Rocio Titiunik, "Robust data-driven inference in the regression-discontinuity design," *The Stata Journal*, 2014, *14* (4), 909–946.

Cattaneo, Matias D., Nicolas Idrobo, and Rocio Titiunik, *A Practical Introduction to Regression Discontinuity Designs: Foundations* November 2019. arXiv:1911.09511 [econ, stat].

Cribb, Robert, "Problems in the Historiography of the Killings in Indonesia," *The Indonesian Killings 1965-1966: Studies from Java and Bali*, 1990.

_____ , "The Indonesian Massacres," in "Century of genocide," Routledge, 2004, pp. 257–286.

Dell, Melissa and Benjamin A Olken, "The development effects of the extractive colonial economy: The dutch cultivation system in java," *The Review of Economic Studies*, 2020, *87* (1), 164–203.

Duflo, Esther, "Schooling and labor market consequences of school construction in Indonesia: Evidence from an unusual policy experiment," *American economic review*, 2001, *91* (4), 795–813.

Evers, Pieter J, "Resourceful villagers, powerless communities: Rural village government in Indonesia," *A World Bank–Bappenas Research Project*, 2000.

Fernando, Merennage Radin, "Peasant and Plantation Economy: The Social Impact of the European Plantation Economy in Cirebon Residency from the Cultivation System to the End of First Decade of the Twentienth Century." PhD dissertation, Department of History, Monash University 1982.

Gagliarducci, Stefano and Tommaso Nannicini, "Do better paid politicians perform better? Disentangling incentives from selection," *Journal of the European Economic Association*, 2013, *11* (2), 369–398.

Goldstein, Markus and Christopher Udry, "The profits of power: Land rights and agricul-

tural investment in Ghana," *Journal of political Economy*, 2008, *116* (6), 981–1022.

Gulzar, Saad and Muhammad Yasir Khan, "Good politicians: Experimental evidence on motivations for political candidacy and government performance," *Review of Economic Studies*, 2025, *92* (1), 339–364.

Hart, Gillian, Andrew Turton, Benjamin White, Brian Fegan, and Teck Ghee Lim, *Agrarian transformations: local processes and the state in Southeast Asia.* 1989.

Kling, Jeffrey R, Jeffrey B Liebman, and Lawrence F Katz, "Experimental analysis of neighborhood effects," *Econometrica*, 2007, *75* (1), 83–119.

MacAndrews, Colin, *Central government and local development in Indonesia*, Oxford University Press, USA, 1986.

Martinez-Bravo, Monica, "The local political economy effects of school construction in Indonesia," *American Economic Journal: Applied Economics*, 2017, *9* (2), 256–89.

Olson, Mancur, "Dictatorship, democracy, and development," *American political science review*, 1993, *87* (3), 567–576.

Raffles, Thomas Stamford, *The history of Java*, Vol. 2, J. Murray, 1830.

Rieffel, Alexis, "The BIMAS Program for Self-Sufficiency in Rice Production," *Indonesia*, 1969, (8), 103–133.

Rogoff, Kenneth S, "Equilibrium political budget cycles," 1987.

Utrecht, Ernst, "Land reform in Indonesia," *Bulletin of Indonesian Economic Studies*, 1969, *5* (3), 71–88.

von Benda-Beckmann, Franz and Keebet von Benda-Beckmann, *Political and legal transformations of an Indonesian polity: the Nagari from colonisation to decentralisation*, Cambridge University Press, 2013.