Landed elites and human capital accumulation in America's Philippines, 1903–1939

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Abstract

This paper investigates the behavior of landed elites in the Philippines during the American occupation (1898–1946). The U.S. aimed to develop an American-style democracy in the Islands by gradually extending self-rule to Filipinos while expanding basic education. Landed elites easily captured newly opened offices, and since they derived their wealth from the cash crop economy, a policy of mass education did not necessarily align with their interests. We exploit the discontinuity in elite power during 1913–19 that saw a vigorous Filipinization of the government to conduct a difference-in-difference analysis at the provincial level. Using census data, we find that where landlords grew in power in the period after Filipinization, the growth of the literate population was slower. This suggests that when landed elites dominate, democratization may hinder developmental policies like the accumulation of human capital.

Keywords: landed elites, human capital accumulation, democracy

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1 Introduction

The Philippines underwent great political, economic, and social change during the period of American occupation (1898–1941). There was *political* change in that the U.S., keen to install a democratic form of government in the colony, facilitated the creation of an elected Assembly in 1907, an elected Senate in 1916, and finally, an elected Executive in 1935. This gave increasing power to native politicians.

There was also *economic* change in the form of the sugar boom, as seen in Figure 1. This was partly an American-engineered phenomenon as it granted the Philippines tariff-free access to its markets beginning 1909, which spurred massive investments in sugar processing facilities (called "centrals") in the 1920s. Other export industries like coconut oil and (initially) abaca also benefited from access to the U.S. market. Figure 2 shows that real growth during the period, while erratic, was positive on average. As Hooley (2005) observes, the GDP growth of 4.2% p.a. and per capita growth of 2.2% p.a. that the Philippines experienced compared favorably with other Asian economies at the time. However, by the nature of cash crop economies, most of these gains accrued to the land-owning elites.

Finally, there was great *social* change arising from the American-led push to extend formal education to the colony, beginning with the arrival of 600 American teachers on the USS *Thomas* in 1901. The literacy rate shot up from 18% in 1903 to 49% in 1939, while the enrollment rate among the school-age population went from 15% to 41%. A legacy of this became the widespread use of English that persists today.

The democratization of the Islands followed events in the United States that bore no relation to what was occurring in the Philippines. In particular, the great push to Filipinize the Islands' government in 1913–19 happened because the anti-imperialist Democrats emerged victorious in the 1912 elections. Coupled with the geographically-determined prevalence of plantation economies, w1e are able to construct a natural experiment. It is well-known that landed elites operating in plantation agriculture hold interests that are inimical to industrialization (Galor, Moav, & Vollrath, 2009). While Filipino elites were constrained by Americans, they could not act on this impulse, but once unfettered under self-rule, they pursued their own narrow interests.

We take the expansion of formal education as the policy outcome of interest. Human capital accumulation is a fundamental determinant of economic growth. As such, it leads one to wonder why the Philippines remains underdeveloped despite the emphasis given by its colonizer to education. We hypothesize that the combination of democracy and the domination of government by landlords worked to reverse the policy of the Americans. Plantations require mere unskilled labor, and they thrive especially when that labor is easily coerced. Education expands the outside options farm workers possess, making their reservation wages higher. Clearly, landlords have no incentive to encourage the general expansion of schooling.

To test this hypothesis, we utilize data taken from three well-timed censuses taken during the American period to conduct a difference-in-difference analysis at the provincial level. We divide the American period into an Occupation period (1903–1918) and a Democratic period (1918–1939). To measure the prevalence of plantation agriculture, we compute Gini coefficients of land ownership concentration, which to our knowledge is here done for the first time. Human capital accumulation, meanwhile, is measured by the annual growth in the population of literate individuals.

Our regression results show while changes in land inequality had no impact on literacy growth during the Occupation period, it had a significant negative impact during the Democratic period. This supports our hypothesis that landlords worked to undermine education, and, moreover, that it was the democratization of government that allowed them to do so.

Our study is part of an active research program in economics that uses statistical analysis to uncover new insights into the past. Exploiting natural experiments generated by the confluence of geography,

climate, and historical accidents, these have established credible causal relationships that has helped shed light on the process of long-run economic development.[1] Many of these focus on the consequences of colonialism on subsequent growth, a long-standing debate that received renewed attention following the publication of Acemoglu, Johnson, and Robinson (2001). A more recent example is Dell and Olken (forthcoming), which finds that the exploitative Dutch cultivation system in Java had actually promoted some measure of industrialization that persisted after colonization. Closer to our study are two papers, Galor et al. (2009) and Dippel, Greif, and Trefler (2018), which exploit variations landlord prevalence arising from geography to analyze their impacts on educational investments and labor coercion. These are discussed further below.

The rest of this paper is organized as follows. The next section provides a historical account of the landed elites in the Philippines, from their origins in the Spanish period to their role as America's partners under "benevolent assimilation". Section 3 provides a theoretical framework for our hypothesis while Section 4 tests it empirically using a difference-in-difference methodology. The final section concludes.

2 Historical background

The Philippine Islands as a geopolitical unit was created by Western colonization, first under the Spanish for 333 years then under the Americans for another 48 years. As the archipelago held no great economic or strategic value, both regimes treated it with much ambivalence, never devoting enough resources to completely dominate it and always keen to economize on its upkeep. This left significant space for native elites to direct social and economic development in ways that benefited their interests.

2.1 Emergence of landed elites

Long a backwater of the Spanish colonial empire, foreign demand for Philippine produce intensified as the Industrial Revolution came to Europe, spurring economic activity in the Islands. Though the Spanish colonial government attempted to keep the trade to itself, it was powerless to stop smugglers, so it began opening the Islands to trade by the end of the 18th century. Foreign merchants flocked in, bringing capital and expertise to the burgeoning export industries.[2] What Larkin calls the "century of the frontier" began in 1820 and comprised "the period of most dramatic change in all of Philippine history."[3] In a pattern stylized by Myint's (1958) "vent for surplus" model, foreign demand pushed pioneers to clear frontier areas for cash crop cultivation. Subsistence agriculture gave way to specialization as one or two crops came to dominate certain regions, requiring them to import their food and clothing needs from other provinces or abroad.

The introduction of cash crops changed the composition of the native elites in most of the Islands. During the Spanish conquest, traditional leaders had been co-opted into the colonial structure as a ruling class called the *principalia*, tasked with collecting tributes and organizing labor gangs in their respective villages.[4] To reward subjects during the conquest of the Islands, land grants were made from 1571 to 1626. While most went to Spanish officers and civil servants, a significant number were awarded to the native *principales*, especially in Pampanga. The Royal Land Grants therefore marked the beginning of a landowning elite in the Philippines.[5]

However, not all of these elites survived the transition to the vent for surplus economy. In particular, they had to contend with the rise of the Chinese *mestizos*. The Chinese had long been adept at providing

[1] See Spolaore and Wacziarg (2013) for a review.
[2] Larkin (1982, pp. 606–12); Stanley (1974, pp. 24–30).
[3] Larkin (1982, pp. 612–24).
[4] de Jesus (1982, pp. 25–26); Larkin (1982, p. 601).
[5] Cushner and Larkin (1978).

the marketing and credit services crucial to linking producers in the interior to buyers in cities and ports, but due to restrictions on their movement, periodic persecutions, and a general disinterest in social status, they never became an elite group. Such did not apply to their children with *indio* (i.e. indigenous Malay) wives, who combined the entrepreneurial skills of their fathers while assimilating into the broader Catholic–Hispanic–*indio* culture. The wealth accumulated by these *mestizos* allowed them to join the *principalia* of their respective communities, oftentimes sparking resentment from both Spaniards and *indios*.[6]

Initially clustered in urban areas and focused on commercial enterprise, the rise of export agriculture led *mestizos* to acquire landholdings both in cities and the countryside. *Mestizos* in Cebu and Iloilo were drawn by sugar cultivation, while those in Central Luzon were drawn by sugar, rice, and other speculative ventures.[7] They came to be associated with a notorious practice called *pacto de retro* where *indios* who pawned their land for ready cash invariably ended up relinquishing their titles to *mestizos*.[8]

Fears of a *mestizo* takeover abated as intermarriage and a common urbanized, Hispanic culture blurred the lines between *indio* and *mestizo*. Wealth, rather than lineage, was prized above all else. By the end of the 19th century, an inclusive "Filipino" identity was ascendant.[9] It is the behavior of this Filipino landed class that our paper focuses on.

2.2 The American occupation

Inspired by the revolt of Cuba in 1895, a radical group with working class backgrounds called the Katipunan instigated the Philippine Revolution in August 1896, soon drawing in certain members of the landed class. It was crushed the following year and its leaders were exiled, but in the meantime the Cuban rebels had elicited sympathy from another country: America. In its brief war with Spain in 1898, an American force occupied Manila with the help of Filipino rebels, who then declared independence on June 12. The U.S. eventually decided to retain the Islands, affirming their sovereignty by a brutal campaign against native resistance that lasted until 1902.[10]

As the Philippines transitioned from Spanish to American domination, the composition of elites was left intact, most especially at the local level where their wealth, education, and prominence were less easily replaceable.[11] Larkin's (1972, p. 126–27) observation about Pampangan elites generalizes to those of other provinces:

> The landlords belonged to a conservative tradition that looked to stable government for the preservation of their property. Politically they were committed to no ideology, and none of the three powers in the struggle—Spain, the Philippine Republic, or the United States—threatened the sanctity of private property. In some way or another, each power recognized the traditional role of the elite and called upon them to supply leadership in times of crisis.

The Americans in particular had much use for the elites. Under McKinley's program of "benevolent assimilation", a unique colonial structure was established emphasizing tutelage in self-government rather than economic exploitation. Offices at the municipal and provincial levels were rapidly opened to Filipinos, followed in 1907 by an elected Philippine Assembly that served as the lower house to the American-

[6] Some of the grievances of the 1745 Tagalog Revolt were directed at *mestizos* (Larkin, 1982, p. 610). The 1849 abolition of the *mestizo* parish in Cebu by wary Augustinians is recounted in Cullinane (1982, pp. 62–68).

[7] On Central Luzon, see Larkin (1972, pp. 71–74) and McLennan (1982, pp. 69–70). On Cebu, see Cullinane (1982, pp. 268–76). On Iloilo, see McCoy (1982, pp. 314–26).

[8] Wickberg (1964, pp. 74–76).

[9] Wickberg (1964, pp. 93–96); Stanley (1974, p. 30). Prior to this, the term "Filipino" referred to white Spaniards born in the Philippines. Another common term for the emerging Filipino elite, particularly the professionals, was *ilustrado*, "enlightened ones".

[10] Golay (1997, ch. 2–3).

[11] Guerrero (1982).

controlled Philippine Commission. By 1913, 71 percent of public service positions were filled by Filipinos, most of whom belonged to the educated landed class.[12]

William Howard Taft, in his capacity first as Governor–General, then as Secretary of War, then finally as President of the United States, dominated Philippine policy-making until 1913. The Taft years saw the laying down of the foundations of the colony, including the expansion of formal education in English, through which it was hoped that the ideal of a mass-based democratic society could be realized.[13] The Islands were also brought into the American tariff wall beginning 1909, a concession whose benefits accrued largely to Filipino sugar producers. As seen in Fig. 1, sugar came to dominate Philippine exports, most of which went to the United States.

Though given many opportunities to participate in government, control over national policy remained with the Americans until 1916. Clashes were frequent, but American authority was largely able to keep a check on the rent-seeking tendencies of Filipino elites. Internal revenues were raised early on from land and excise taxes despite elite opposition.[14] Over half of the bills passed by the Assembly prior to 1913 were overturned by the Commission, including one during the first session that enacted a large and unwarranted increase in the Assemblymen's *per diem*.[15] In 1909, Governor–General Forbes wrote,

> I have the power to remove any officer and disqualify him from holding any office, and every day I either suspend or remove and often disqualify several.[16]

Indeed, to better "supervise" erring municipal officials, the Americans had to abandon their initial goal of building democracy from the bottom up by concentrating important functions into provincial and national hands.[17]

One major battleground was over the policy on education. With universal literacy and a competent labor force in mind, the Americans naturally focused funds on the primary level. However, while Filipinos were instinctively favorable to schooling, they viewed it not as a great leveller but as a means to social mobility. Their experience under the Spanish convinced them that the acquisition of titles like doctor or attorney cemented one's social status. They therefore pushed for an expansion of higher education, even if it came at the expense of primary education. In one incident in 1912, Filipinos took advantage of Governor–General's absence to pressure the Director of Education into funding the expansion of intermediate schools by closing 769 primary schools. Upon his return from the U.S., the furious Governor–General reversed the action.[18]

With the election of Woodrow Wilson, power shifted to the anti-imperialist Democrats. A liberal Governor–General was appointed to the Islands who undertook a massive Filipinization of the government, so that by 1919 the share of Filipinos in the civil service was at 94 percent.[19] In 1916, the Jones Law was passed committing the U.S. for the first time to eventual Philippine independence, though no timeline was yet given. It also gave control of the entire legislature to Filipinos by creating an elected Philippine Senate, leaving only executive and veto powers at the hands of the American Governor–General.[20] It is important to note that this turning point in the Islands' power balance occurred without relation to events in the Islands. Filipinos had not "proven their capacity"—howsoever that may be judged. Rather, it came about simply because the Republicans had split the ticket in the 1912 elections to allow Wilson and the Democrats to prevail. It is unlikely that the Philippine question figured in

[12] Cullinane (1971, p. 11); Jenista (1971, p. 38).
[13] Cullinane (1971, p. 11); Giesecke (1987, pp. 244-50).
[14] Golay (1997, pp. 114–16).
[15] Jenista (1971, p. 40).
[16] Quoted in Cullinane (1971, p. 16).
[17] Cullinane (1971, p. 27).
[18] Giesecke (1987, p. 258–59).
[19] Golay (1997, p. 176).
[20] Stanley (1974, ch. 7–8); Golay (1997, ch. 6).

voters' decisions. Indeed, though a Democratic government insisted that the Filipinos were ready for greater self-rule, the view changed markedly once Republicans regained power in 1920.[21] This point is crucial in our research design, which identifies the 1913–19 era as an exogenous discontinuity in the degree of Filipino elite power.

While the move towards Filipinization stalled under the Republicans, it did not regress: in Friend's (1965, p. 2) periodization, the 1921–29 phase was the "achievement of equilibrium between native ambition and imperial restraint." This changed with the onset of the Great Depression. Scapegoats for economic strife were found in the inflow of duty-free Philippine imports and Filipino migrant laborers. American farmers and labor unions joined their voices with the independence movement, and with the Democrats elected back in 1932, the Tydings–McDuffie Act was passed creating an interim Philippine Commonwealth in 1935, which, after ten years, would become the independent Philippine Republic. Again, these developments were orthogonal to the Islands' actual readiness for independence. Despite the Japanese occupation of 1941–45, independence arrived on schedule on July 4, 1946.[22]

3 Theoretical framework

Our framework builds on two papers tackling the consequences of land inequality. The first is Galor et al. (2009), whose argument is summarized as follows:

> The capitalists who were striving for an educated labour force supported policies that promoted the education of the masses, whereas landowners, whose interest lay in the reduction of the mobility of the rural labour force, favored policies that deprived the masses from education (2009, p. 144).

As human capital is a fundamental determinant of growth, this hypothesis attributes the Great Divergence in incomes that occurred in the 19th and 20th centuries to the geographic conditions that allowed landlords to hold relatively more power than capitalists. They find supporting evidence for this in their analysis of the 41 states of the U.S. during the expansion of high school in the early 20th century. Regressing the change in expenditures on education on the lagged change in landownership inequality, they find that greater increases in inequality resulted in smaller increases in education spending.

The second paper is Dippel et al. (2018). They argue that in the context of the British Caribbean sugar plantations, the ability of landlords to coerce laborers into working in their farms depended on their power, measured by the share of plantation crops in exports, and the laborers' outside options, namely, a hinterland they can escape to to farm their own lands. Using various instruments, they find that greater landlord power is indeed associated with greater labor coercion, measured by incarceration rates and farm wages.

Our study also hypothesizes a relationship between landlord power and development outcomes. We use two sources of identification. First is the geographic variation across Philippine provinces, which determined whether plantation agriculture would be ascendant in the area's economy. In the Philippines, sugar was the dominant plantation crop. To quote Larkin (1993, p. 8),

> For more than a century and a half, sugar represented the most important and influential sector of an insular commercial life that [the landed] elite, with rare exception, exploited almost exclusively for their personal advancement.

[21] Such were the conclusions of the Wood–Forbes mission sent in 1921 by President Warren G. Harding (Stanley, 1974, pp. 259–62).

[22] Friend (1965, ch. 5—11); Golay (1997, ch. 8—14).

The rich alluvial soils conducive to the growing of sugar cane was found in the plains of Central and Southern Luzon and the islands of Panay, Cebu, and Negros. Since cane had to be milled immediately or else lose its sucrose content, sugar processing facilities also sprouted in these same regions. As in the sugar economies of the Carribean, the ready supply of cheap farmhands was necessary to keep the industry profitable, encouraging an economy built on labor coercion and enormous haciendas.

In contrast, the Bicol region had a rainfall regime and volcanic slopes that were ideal for the cultivation of abaca, another cash crop. However, no economies of scale could be achieved in growing it in large haciendas. Moreover, the region contained abundant rice-growing plains that not only provided labor for the industry, but also allowed workers an outside option should managers become too exploitative (Owen, 1984).

Such regional diversity is evident in the distinctly provincial outlook that developed among Filipino elites. The archipelago is populated by numerous linguistic groups, each one proud and oftentimes resentful of the ascendancy of the Tagalogs who control Manila. The Philippine Revolution of 1896–1902, for instance, was by no means a nationwide uprising. Pampangans and Cebuanos remained loyal to Spain, while insurgents in Panay and Negros who had expelled the Spanish preferred to capitulate to the Americans rather than submit to the Tagalog revolutionary government.[23]

Geography therefore determined the nature of economic relations in a given area, which then influenced the value that the expansion of education had to the area's elites. We take higher land inequality as a measure of the prevalence of plantation economies that valued cheap, unskilled, readily available labor, and which were therefore lukewarm or antagonistic to an educated labor force.

Our second source of identification is the discontinuity in elite power that occurred in 1913–19, as discussed above. The Taft years saw the heavy hand of the Governor–General directing local leaders to behave according to the American democratic ideal, but after American voters put Democrats in charge, a massive Filipinization took place that saw the imperial grip relax. Following this period therefore, landed elites, who also held positions of power, were able to direct policy according to their interests. These interests were determined by the economic relations prevailing in the local environment.

4 Empirical analysis

To recap, our main argument runs as follows. Landlords in a plantation economy require mere unskilled labor and so had no incentive to encourage the expansion of formal education. While the Americans held power, landlords could do little to halt the expansion of schooling, but as government was increasingly opened to native control, landlords became able to steer policies to their liking. Landlords were not dominant everywhere, however. Due to variations in geography, the prevalence of the plantation industry was different across provinces. We therefore argue that when landlords could influence government policy, increases in their power (measured by landownership inequality) led to the slower accumulation of human capital.

4.1 Research design

To test our hypothesis, we employ a difference-in-differences (DD) approach. Though an Assembly was established in 1907, an American legislative body held true power until the Jones Law of 1916 created a Filipino Senate. Executive control remained with an American Civil-Governor until the Commonwealth was established in 1935, but power at least at the local level was effectively indigenized after 1916.

We exploit this break in history by dividing the study period into an Occupation period (1903–1918), where Americans held power, and a Democratic period (1918–1939), where Filipinos held power. These

[23] Larkin (1972, ch. 51); Cullinane (1982, p. 281); Guerrero (1982, pp. 162–64).

dates were chosen as they coincide with census years, but their correspondence to actual events are sufficiently close.

We run the regression

$$Human\ Capital\ Growth_{it} = \beta_0 + \beta_1 \cdot \Delta Gini_{it} + \beta_2 \cdot t + \beta_3 \cdot t \cdot \Delta Gini_{it} + \beta_4 \cdot X_{it} + \varepsilon_{it}, \tag{1}$$

where i indexes provinces and $t = 1$ for the Democratic period. $\Delta Gini_{it}$ is the change in the land Gini between 1903 and 1918 for $t = 0$ and between 1918 and 1939 for $t = 1$, while X_{it} are controls.

The logic of the DD approach can be seen from the following table:

	Continuous treatment: $\Delta Gini$		Difference
Occupation period	$\beta_0 + \beta_4$	$\beta_0 + \beta_1 + \beta_4$	β_1
Democratic period	$\beta_0 + \beta_2 + \beta_4$	$\beta_0 + \beta_1 + \beta_2 + \beta_3 + \beta_4$	$\beta_1 + \beta_3$
Difference-in-difference			β_3

The parameter of interest is β_3, which gives not just the impact of landlord power on human capital accumulation, but also verifies the proposed mechanism of landlords hijacking the apparatuses of representative government to keep labor inexpensive. We theorize β_3 to be negative; that is, more landlord power under a democracy dampened the rate at which human capital grew.

4.2 Data

Data are taken from the censuses of 1903, 1918, and 1939. Specific sources are detailed in Table 2. We have adjusted the data to take into account changes in provincial boundaries, as shown in Appendix A.

Landlord power is measured by the concentration of land ownership in terms of Gini coefficients. Specifically, we use the average annual absolute change in Ginis for each province. Computed here for the first time using the methodology detailed in Appendix B, the data reveal high land inequality in 1903 and 1918 and a surprisingly large drop in inequality between 1918 and 1939.[24] This might stem from a difference in the definition of a farm across the censuses. As Owen (1971, p. 59) points out, various scraps of land under the same owner are counted as one farm in 1939 but are counted as several farms in previous years if they are managed by different people. While this makes absolute numbers incomparable, we disagree with Larkin's (1972, p. 76, n. 32) pronouncement that the data become "relatively useless". A summary measure of *distribution* like the Gini is still informative, with the caveat that figures for 1903 and 1918 might be biased downwards. But this only supports the existence of a large drop in land concentration between 1918 and 1939.

This drop is somewhat mysterious. There is no mention of any significant land reform during this period. Cadastral surveys were undertaken by the Americans that clarified boundaries, but the impact of this on concentration is ambiguous. Perhaps because these figures had not previously been computed, existing scholarship is silent on this trend. Pampanga, for example, experienced the most dramatic absolute drop of all: its Gini rose from 67 in 1903 to 72 in 1918 before dropping 35 points to 38 by 1939. Such a development is not mentioned in either of Larkin's books (1972, 1993). It remains for future research to uncover whether this great levelling of land ownership is a fluke of the data or an actual phenomenon.

Having said this, the decline in concentration still varied across provinces, and we take smaller declines to mean greater relative landlord power. However, in discussing our regression results, we simply speak of the impact of "an increase in land inequality" to avoid cumbersome language.

Our measure for human capital accumulation is the annual growth rate of the literate population. As seen in Table 2, the standard deviation among growth rates increased from the first period to the

[24] The figures for the Philippines as a whole are 60, 59, and 42.

second. This supports our assumption that while the Americans had a general goal of expanding literacy everywhere, Filipino elites did not. Once they held power, education policy fell under the sway of their varied interests.

Three controls are used. First, to take into account past accumulations of human capital, we use the initial literacy rate, defined as the number of literate persons divided by the population aged 10 and above. Second, we control for population growth. Finally, we employ provincial fixed effects.

4.3 Results

Table 3 presents our results. We first discuss the controls, none of which present any surprises. The impact of the period dummy t is consistently large and negative, indicating that human capital accumulation was unambiguously slower in the Democratic period. Meanwhile, a convergence effect is present in that provinces with higher initial human capital saw lower rates of human capital growth. Finally, we find that the coefficients on population growth are significant and close to unity.

"Change in Gini" appears to have a mildly positive impact on human capital accumulation, though this is indistinguishable from zero in some specifications. The main variable of interest is "$t \times$ Change in Gini", which has the expected negative sign and is significant in all specifications. An increase of 0.72 in the annual change in Gini during the Democratic period (the average in the data) decreases the contemporaneous growth rate of the literate population by 2.0–3.1 percentage points when using the full set of controls (columns 3 and 6). These estimates suggest that an average change in Gini affected the literate growth rate by as much as one standard deviation.

Due to the limited sample size, there is a danger of the results being driven by outliers. Inspecting Figure 3, three provinces seem to be so: Cotabato and Sulu, which are the only ones with literacy growth rates of over 10%, and Abra, which is the only one whose Gini increased. To check the robustness of our results, we re-run the regressions excluding these three.

The results are presented in Table 5 while the scatterplots are in Figure 4. As might be expected, much precision is lost after dropping six observations, and the models with fixed effects are no longer able to detect any significant impacts for the DD variable. Nevertheless, all signs remain negative and models 2 and 3 retain their significance. Using the model in column 3, an increase of 0.73 in the annual change in Gini during the Democratic period (the average in the data) decreases the contemporaneous growth rate of the literate population by 1 percentage point. This is still quite large as it suggests an impact of over half a standard deviation in the truncated dataset (see Table 4).

5 Conclusion

We find evidence in support of our hypothesis that more landlord power under democracy resulted in slower rates of human capital accumulation. These findings are significant for three reasons. First, they contribute to the literature on the consequences of colonialism for post-war development outcomes. The Americans in the Philippines were unique among colonizers in their zeal to set up representative government, supported by a program of extending formal education across the Islands to achieve the democratic ideal of a mass-based society. Though seemingly benign, their push for native self-rule may have had the unintended consequence of handing power to landlords who preferred to maintain the extractive plantation economy rather than facilitate investments in human capital.

In this regard, we also contribute to the literature on the question of democracy's causal impact on economic growth.[25] Our results show that rapid democratization in a strongly unequal society may lead to anti-growth policies if these serve the interests of the elite. Nevertheless, we remain agnostic to any

[25] See, for example, Acemoglu, Naidu, Restrepo, and Robinson (2019).

counterfactual. That is, our results do not imply that a nondemocratic system would have led to more pro-growth policies in the Philippines.

Finally, our findings contribute to the quantitative study of Philippine economic history. We have gathered a panel dataset from census information featuring province-level Ginis that, to our knowledge, have been calculated here for the first time. Besides the significant decline in land ownership inequality between 1918 and 1939, none of our conclusions overturn long-standing views in the literature. We have, however, provided a methodology that credibly points to American-imposed democratization as the means by which landlords were able to hinder policies that were against their interests.

Tables and Figures

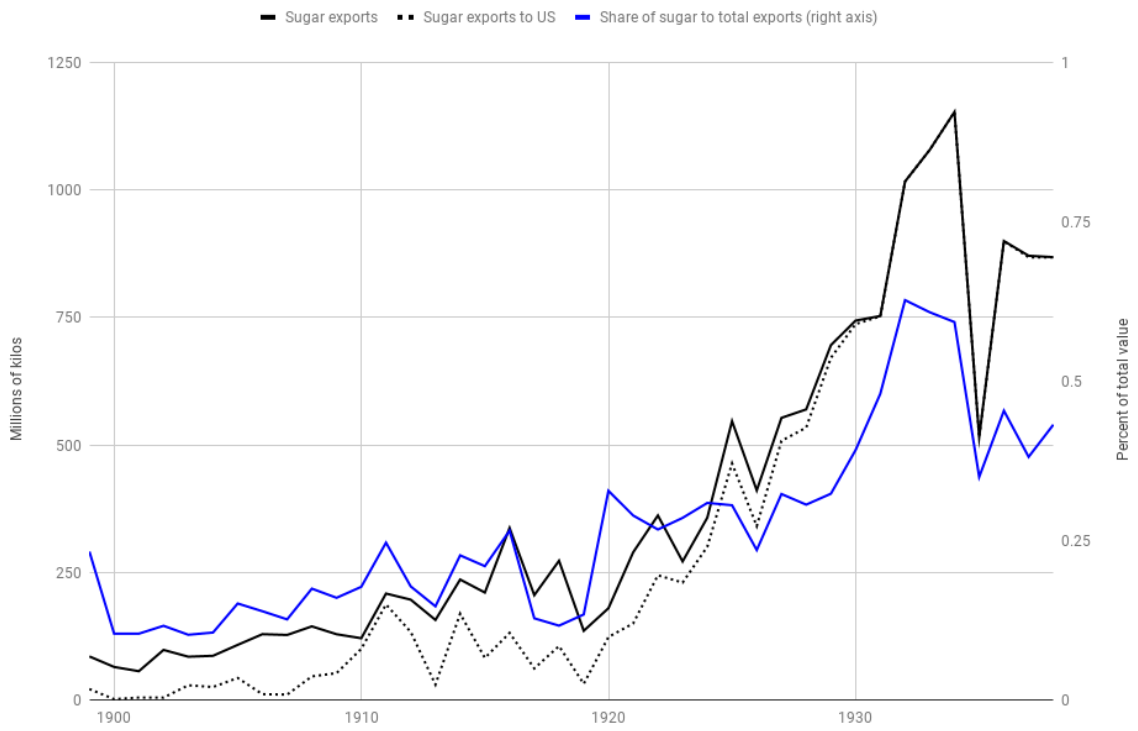
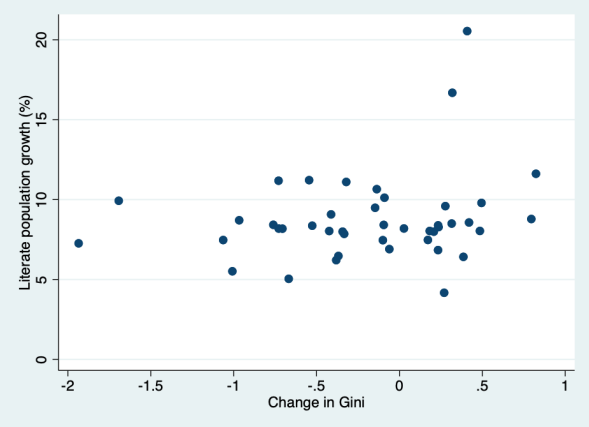
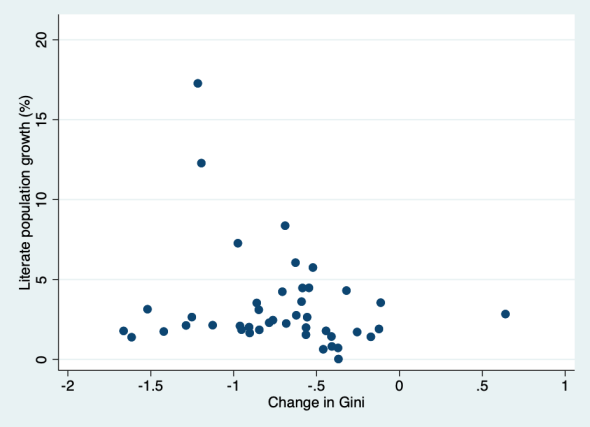


Figure 1: Sugar exports by weight, 1899–1939
Source: *Bureau of Customs Report* 1940

Figure 2: Real GDP growth rate, 1903–40
Source: Hooley (2005)

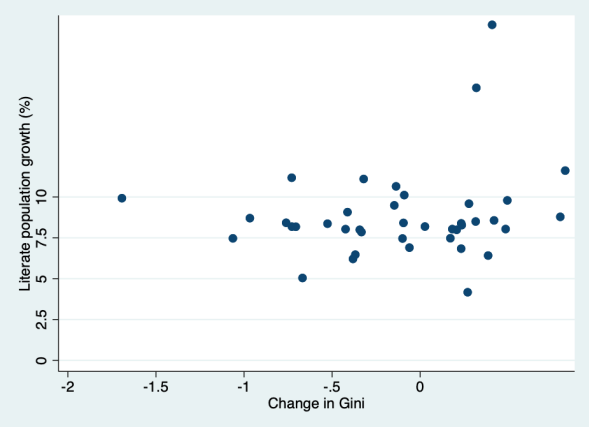


(a) Occupation period

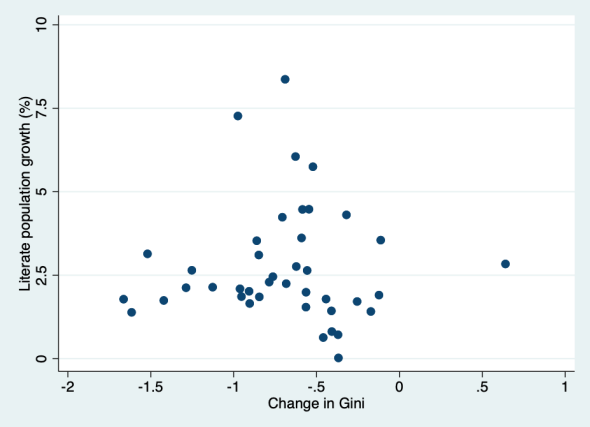


(b) Democratic period

Figure 3: Scatterplots



(a) Occupation period



(b) Democratic period

Figure 4: Scatterplots without outliers

Table 1: List of variables

Variable	**Year/s**	**Source**	**Remarks**
Population	1903	Census 1903, Vol. 2, Table 1	
	1918	Census 1918, Vol. 2, Table 1	
	1939	Census 1939, Vol. 2, Pt. 1, Ch. 2, Table 6	
Population growth rate per annum	1903–18 1918–39		Compounded average annual growth rate
Population 10 years and older	1903	Census 1903, Vol. 2, Tables 1, 40	Census only counts "civilized" persons, so total count estimated from ratio of civilized to uncivilized in Table 1
	1918	Census 1918, Vol. 2, Tables 1, 25	Census only counts "Christian" persons, so total count estimated from ratio of Christian to non-Christian in Table 1
	1939	Census 1939, Vol. 2, Pt. 1, Ch. 6, Table 3	
Literate population	1903	Census 1903, Vol. 2, Table 40	
	1918	Census 1918, Vol. 2, Tables 25	
	1939	Census 1939, Vol. 2, Pt. 1, Ch. 6, Table 3	
Literate population growth rate per annum	1903–18 1918–39		Compounded average annual growth rate
Literacy rate	1903 1918 1939		Literate population / Population 10 years and older
Number of farms by size	1903	Census 1903, Vol. 4 Agriculture, Tables 15, 16	Marinduque taken from Table 16
	1918	Census 1918, Vol. 3, Table 9	
	1939	Census 1939, Vol. 2, Pt. 2, Ch. 2, Table 6	
Cultivated hectares by size	1903	Census 1903, Vol. 4 Agriculture, Tables 17, 18	Marinduque taken from Table 18
	1918	Census 1918, Vol. 3, Table 10	
	1939	Census 1939, Vol. 2, Pt. 2, Ch. 2, Table 6	
Gini	1903 1918 1939		Computed from Number of farms and Cultivated hectares according to methodology described below
Change in Gini	1903–18 1918–39		Gini 1918 − Gini 1903 Gini 1939 − Gini 1918

Table 2: Summary statistics

		Obs.	Mean	St. Dev.	Min	Max
Land Gini	1903	43	56.00493	9.961479	33.77233	79.27609
	1918	43	53.12452	9.308856	21.57148	72.41993
	1939	43	37.90662	6.700114	27.45539	63.83769
Literacy rate (%)	1903	43	16.63679	7.561513	.6091058	35.33157
	1918	43	43.40242	18.26955	.281795	71.11245
	1939	43	47.98228	11.71691	18.46201	67.92488
Change in Gini,	1903–1918	43	−.1920277	.6016798	−1.935209	.8235916
annual average	1918–1939	43	−.7246618	.4473491	−1.664082	.6396176
	All	86	−.4583448	.5912042	−1.935209	.8235916
Literate population,	1903–1918	43	8.770679	2.755293	4.169353	20.54277
growth p.a. (%)	1918–1939	43	3.300059	3.126326	.0216673	17.27251
	All	86	6.035369	4.018777	.0216673	20.54277
Total population,	1903–1918	43	1.97387	1.550082	−3.644037	6.435113
growth p.a. (%)	1918–1939	43	2.137787	1.057554	.3858332	4.850249
	All	86	2.055828	1.321617	−3.644037	6.435113

Source: Census 1903, 1918, 1939.

Table 3: Landed elites, democracy, and human capital accumulation

	Dependent variable: Literate population growth p.a. (%)					
	OLS	OLS	OLS	OLS	OLS	OLS
	(1)	(2)	(3)	(4)	(5)	(6)
Change in Gini	0.960	1.109	0.753	2.278*	2.099**	1.566*
	(0.680)	(0.683)	(0.461)	(1.280)	(0.965)	(0.811)
t	−6.645***	−3.413***	−3.877***	−7.548***	−4.139**	−3.286**
	(0.780)	(0.585)	(0.593)	(0.967)	(1.669)	(1.388)
$t \times$ Change in Gini	−2.326*	−3.280***	−2.818***	−4.541*	−4.841**	−4.258**
	(1.335)	(1.000)	(0.879)	(2.566)	(1.987)	(1.890)
Initial literacy rate (%)		−0.144***	−0.127***		−0.139*	−0.172**
		(0.0258)	(0.0252)		(0.0728)	(0.0646)
Population growth (%)			1.016***			0.979***
			(0.176)			(0.308)
Province fixed effects	No	No	No	Yes	Yes	Yes
Observations	86	86	86	86	86	86
R^2	0.490	0.733	0.839	0.823	0.862	0.907

Robust standard errors in parentheses. Dummy variable $t = 1$ for Democratic Period (1918–39) and 0 otherwise.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4: Summary statistics for truncated dataset

		Obs.	Mean	St. Dev.	Min	Max
Land Gini	1903	40	55.21878	9.378977	33.77233	79.27609
	1918	40	53.43027	7.918132	36.34494	72.41993
	1939	40	38.00102	6.917163	27.45539	63.83769
Literacy rate (%)	1903	40	17.47346	6.905548	1.191617	35.33157
	1918	40	45.9824	15.81283	7.539803	71.11245
	1939	40	49.4884	10.13503	29.07	67.92488
Change in Gini,	1903–1918	40	−.1192343	.5350345	−1.693299	.8235916
annual average	1918–1939	40	−.7347261	.3947445	−1.664082	−.1129808
	All	80	−.4269802	.5604917	−1.693299	.8235916
Literate population,	1903–1918	40	8.828693	2.772769	4.169353	20.54277
growth p.a. (%)	1918–1939	40	2.737801	1.766845	.0216673	8.367124
	All	80	5.783247	3.837801	.0216673	20.54277
Total population,	1903–1918	40	1.902382	1.558455	−3.644037	6.435113
growth p.a. (%)	1918–1939	40	2.165973	1.073603	.3858332	4.850249
	All	80	2.034177	1.336273	−3.644037	6.435113

Source: Census 1903, 1918, 1939. This replicates Table 1 excluding Abra, Cotabato, and Sulu.

Table 5: Robustness check

	Dependent variable: Literate population growth p.a. (%)					
	OLS	OLS	OLS	OLS	OLS	OLS
	(1)	(2)	(3)	(4)	(5)	(6)
Change in Gini	0.896	0.817	0.143	0.774	0.887	−0.106
	(0.830)	(0.775)	(0.340)	(0.694)	(0.648)	(0.361)
t	−6.196***	−3.889***	−4.790***	−6.588***	−5.883***	−5.727***
	(0.724)	(0.549)	(0.422)	(0.636)	(1.703)	(0.945)
$t \times$ Change in Gini	−0.894	−1.984**	−1.389**	−1.324	−1.641	−0.748
	(0.978)	(0.992)	(0.574)	(0.815)	(0.986)	(0.616)
Initial literacy rate (%)		−0.111***	−0.0889***		−0.0305	−0.0443
		(0.0212)	(0.0149)		(0.0623)	(0.0319)
Population growth (%)			1.137***			1.080***
			(0.190)			(0.161)
Province fixed effects	No	No	No	Yes	Yes	Yes
Observations	80	80	80	80	80	80
R^2	0.645	0.761	0.906	0.908	0.910	0.969

Robust standard errors in parentheses. This replicates the regressions in Table 3 excluding Abra, Cotabato, and Sulu.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

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Appendices

A Provinces

Data are adjusted to reflect as nearly as possible the same geographic boundaries.

Dataset		1903	1918	1939
1	ABR	Abra	Abra	Abra
2	ALB	Albay	Albay Catanduanes	Albay
3	ANT	Antique	Antique	Antique
4	BAT	Bataan	Bataan	Bataan
5	BTG	Batangas	Batangas	Batangas
6	BOH	Bohol	Bohol	Bohol
7	BUL	Bulacan	Bulacan	Bulacan
8	CAG	Cagayan	Cagayan Batanes	Cagayan Batanes
9	CAM	Ambos Camarines	Ambos Camarines	Camarines Norte Camarines Sur
10	CAP	Capiz	Capiz	Capiz
11	CAV	Cavite	Cavite	Cavite
12	CEB	Cebu	Cebu	Cebu
13	COT	Cotabato	Cotabato	Cotabato
14	DAV	Davao	Davao	Davao
15	ILN	Ilocos Norte	Ilocos Norte	Ilocos Norte
16	ILS	Ilocos Sur	Ilocos Sur	Ilocos Sur
17	ILO	Iloilo	Iloilo	Iloilo
18	ISA	Isabela	Isabela	Isabela
19	LAU	La Union	La Union	La Union
20	LAG	Laguna	Laguna	Laguna
21	LEY	Leyte	Leyte	Leyte
22	MAR	Marinduque	Marinduque	Marinduque
23	MAS	Masbate	Masbate	Masbate
24	MIN	Mindoro	Mindoro	Mindoro
25	MIS	Misamis	Misamis	Misamis Occidental Misamis Oriental
			Bukidnon	Bukidnon
26	MTP	Lepanto-Bontoc	Lepanto-Amburayan Apayao Kalinga	Mountain Province
		Benguet	Benguet	
27	NOC	Negros Occidental	Negros Occidental	Negros Occidental

28	NOR	Negros Oriental	Negros Oriental Siquijor	Negros Oriental
29	NUE	Nueva Ecija	Nueva Ecija	Nueva Ecija
30	NUV	Nueva Vizcaya	Nueva Vizcaya	Nueva Vizcaya
31	PAL	Paragua Paragua Sur	Palawan	Palawan
32	PAM	Pampanga	Pampanga	Pampanga
33	PNG	Pangasinan	Pangasinan	Pangasinan
34	RIZ	Rizal	Rizal	Rizal
35	ROM	Romblon	Romblon	Romblon
36	SAM	Samar	Samar	Samar
37	SUL	Jolo Siassi Tawi Tawi	Sulu	Sulu
38	SOR	Sorsogon	Sorsogon	Sorsogon
39	SUR	Surigao	Surigao Agusan	Surigao Agusan
40	TAR	Tarlac	Tarlac	Tarlac
41	TAY	Tayabas	Tayabas	Tayabas
42	ZBS	Zambales	Zambales	Zambales
43	ZBG	Zamboanga	Zamboanga	Zamboanga

B Computing Ginis

This section describes the methodology we use to compute Gini coefficients measuring land inequality for each province. For concreteness, we illustrate using the case of Bulacan in 1918, which had 43,639 farms that in total had 70,837 cultivated hectares. We also take the following data from the census:

	Size bracket	Number of farms (I)	Cultivated hectares (II)	Average size (II)/(I)
A	Under 0.35	22,324	3,140	0.14
B	0.35 to under 1	7,390	5,310	0.72
C	1 to under 2	5,952	9,630	1.62
D	2 to under 5	5,565	16,863	3.03

We make the assumption that each farm in a size bracket is exactly the average size. Thus, Bulacan would have 22,324 farms of exactly 0.14 hectares, 7,390 farms of exactly 0.72 hectares, and so on. We then arrange them into deciles of 4,364 farms and sum up the number of cultivated hectares in each decile. Cumulative hectares and their shares of the total are then straightforward to compute. These are summarized in the following table:

Decile	Bracket/s		Hectares	Cumulative hectares	Share of total (%)
1	A	$4364 \times 0.14 = 613.82$	613.82	613.82	.0087
2	A	$4364 \times 0.14 = 613.82$	613.82	1,227.64	.0173
3	A	$4364 \times 0.14 = 613.82$	613.82	1,841.47	.0260
4	A	$4364 \times 0.14 = 613.82$	613.82	2,455.29	.0347
5	A	$4364 \times 0.14 = 613.82$	613.82	3,069.11	.0433
6	A	$504 \times 0.14 = 70.89$			
	B	$3,860 \times 0.72 = 2,773.56$	2,844.45	5,913.56	.0835
7	B	$3,530 \times 0.72 = 2,536.44$			
	C	$834 \times 1.62 = 1,349.36$	3,885.81	9,799.36	.1383
8	C	$4,364 \times 1.62 = 7,060.71$	7,060.71	16,860.07	.2380
9	C	$1,588 \times 1.62 = 2,569.29$			
	D	$2,776 \times 3.03 = 8,411.80$	10,981.10	27,841.17	.3930

Let j index the deciles and let Sh_j be the value of the last column above for decile j. The Gini coefficient for province i in census year s is computed as

$$G_{i,s} = 100 \times \sum_{j=1}^{9} \frac{0.1j - Sh_j}{5.5} \tag{2}$$

For Bulacan,

$$G_{\text{Bulacan},1918} = 100 \times \frac{(.1 - .0087) + (.2 - .0173) + ... + (.9 - .393)}{5.5} = 63.95$$