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Poverty and the Colonial Origins of Elite Capture: Evidence from Philippine Provinces

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Abstract

This paper offers new evidence on the causal link between poverty and elite capture within a democratic country. The extent of elite capture was derived from the names of 64,152 elected officials in four election cycles at the provincial and municipal levels in the Philippines. To identify the causal relationship between elite capture and poverty, this study exploits the exogenous variation in the number of churches constructed in the Philippines during the Spanish colonization period (1521-1898). These structures were built in locations where political families developed and persisted to the present. Using the number of colonial churches as an instrument in a two-stage least-squares regression, this study finds that poverty in Philippine provinces is inversely proportional to the percentage of positions controlled by elites and directly proportional to decreased competition among elites. Results are robust to the measure of poverty used as well as controlling for other plausible channels through which the presence of colonial churches may influence poverty in the Philippine provinces.

Keywords: Political elites, poverty, institutions

JEL: D72, F54, I32

1. Introduction

How political institutions evolve and their importance in charting the course of economic development is always of great interest to scholars. There is an argument that the quality of political institutions matter; that is, institutions which allows free elections and fair distribution of political power clears a path for favorable economic outcomes. However, many democracies, particularly in the developing world, have become

“captured” by powerful political families and interest groups (Acemoglu and Robinson, 2008). Oftentimes these political families and interest groups or *elites* retain a disproportionate amount of influence over the policy-making process. Favoring the status-quo, elites often oppose economic or political reforms thereby undermining the quality of democracy and economic development (Querubin, 2011; Besley et al., 2010; Acemoglu et al., 2008).

While the foregoing argument have been widely studied in a cross section of countries, empirical evidence at the sub-national level and, importantly, within developing countries is quite scarce.¹ The current study fills this lacuna by ex-

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¹There are empirical studies that examine the relationship between economic development and political institutions across countries, for instance see Sochirca et al. (2016), Leonida et al. (2015), Man (2014), and Acemoglu et al. (2001). There are studies which examined this relationship using sub-national data: for the US see Besley et al. (2010), for India see Dash and Mukherjee (2015), and for Colombia see Acemoglu et al. (2008).

amining the causal relationship between poverty and elite capture at lower levels of government. The Philippines was specifically chosen for this study because dominance of elites in its local politics is well documented. For instance, more than fifty percent of elected congressmen and governors in the Philippines have a relative who has held elected office previously (Querubin, 2011).

A unique dataset containing measures of distribution of political power as the main explanatory variable and three measures of poverty as the dependent variable was assembled. Specifically, the following measures of elite capture were used: the percentage of elected positions controlled by political elites and an index of concentration of political power. These measures were derived from the names of 64,152 elected officials in four election cycles (2004, 2007, 2010, and 2013) from 81 provinces in the Philippines.

To estimate the causal relationship between elite capture and poverty, there must exist a variable that could elicit an exogenous variation in the distribution of political power. Given its pivotal role in the formation of early political elites in Philippine provinces, this paper finds that Spanish colonization policies, represented by the number of churches built during the period of colonization, is a variable that could elicit this exogenous variation. Spanish colonization policies were largely influenced by the feasibility of settlements which, in turn, depended on cooperation from the natives (Pearson, 1969). The Spanish colonization strategy was to pacify the natives through conversion to Christianity. The Spanish constructed churches in *pueblos* which became focal points of the local colonial administration. Along with converting natives to Christianity, the Spanish implemented a policy of empowering local chieftains thereby ruling the natives indirectly. This policy replaced the pre-colonial political norms and helped create a larger class of local elites which survived to the present. Not all of the Philippine islands, however, were colonized successfully. Colonial influence is little to none in island groups where the Spanish faced fierce native resistance as exemplified in some landlocked provinces in the north and most of southern Philippine islands.

The first stage regressions indicate that as

much as 21% of the variation in the extent of elite capture is explained by the number of churches built during the colonization period. The first stage regressions also show two interesting results: First, the number of colonial churches is positively correlated with the percentage of elected positions controlled by political elites; and second, the number of colonial churches is negatively correlated with the index of concentration of political power.

The two-stage least-squares estimate of the marginal effect of elite capture to poverty is statistically significant. I find that poverty incidence in Philippine provinces is inversely proportional to the percentage of positions controlled by elites and directly proportional to decreased competition among elites. These results are consistent with other studies on the adverse effects of political inequality to economic outcomes at the sub-national level (Acemoglu et al., 2008).

Depicted in Figure 1, the exclusion restriction assumption relies on the idea that (conditional on the controls in the regressions) the number of churches built from 1521-1898 have no effect on current poverty other than its effect on the distribution of political power. This is a strong assumption given that there may be other channels through which the number of churches could influence current poverty rates. The potential violation of the exclusion restriction was addressed by checking whether the following variables have a comparable effect on poverty:

- (a) Temperature
- (b) Rainfall
- (c) Presence of building materials
- (d) Percentage of Catholics
- (e) Distance from the capital
- (f) Literacy
- (g) Family income growth
- (h) Island group fixed effects

Inclusion of these variables did not overturn the effects of elite capture on poverty. Remarkably, controlling for the extent of elite capture, none of these variables are significant in explaining poverty incidence in Philippine provinces.

The results of this study have important implications for democratic reform in “captured democracies”. For instance, there have been efforts in the Philippine legislature to pass laws to curb or dismantle political dynasties but these proposals were always met with resistance from political elites who favor the status quo². It is unclear, until now, how large the quantifiable benefits of dismantling political elites are. Results from the second-stage regressions reveal that a one percent reduction in the concentration of political power decreases poverty incidence in the Philippine provinces by at least 1 percent, all else equal. To put the results into perspective, the number of families living with less than \$1.25 per day in the Philippines’ poorest province will be fewer by around 1,500 as its political institution becomes more competitive and inclusive.

The rest of this paper proceeds as follows. Section 2 describes the institutional background. Section 3 presents the data and stylized facts on elite capture in the Philippines. Section 4 presents the empirical results on the relationship between poverty and political elites. The proposed instrument, the number of churches built during the Spanish colonization, is discussed in section 5. Section 6 presents the results from the two-stage least-squares regressions. Robustness tests to support the exclusion restrictions assumption are presented and discussed in section 7. Section 8 discuss the implications of this study on democratic reform in the Philippines. Section 9 concludes.

2. Institutional background

The Republic of the Philippines is an archipelago of about 7,100 islands divided into three major geographic regions namely Luzon, Visayas, and Mindanao. Prior to the arrival of the Europeans, the Philippines consists of several maritime states governed by class of hereditary nobles. Political leadership was vested in chief-

²A recent example is Rodrigo Duterte, the current Philippine president, who opposed legislation to curb political dynasties. According to Duterte, the proposed law that “prohibits first degree family members from running for public office is undemocratic since it is hindering their rights to become a candidate” (Adel, 2015).

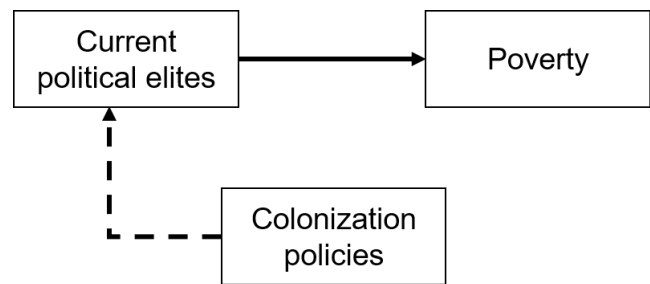


Figure 1: Causal channel between current political elites and poverty.

ains called *Datus* and *Rajahs*. The arrival of Ferdinand Magellan in 1521 marked the beginning of the Spanish colonial period which lasted 377 years. The Philippines, just like other colonies, was governed by the Spanish crown through an appointed governor general. Following their defeat in the Spanish-American war, the Spanish ceded the Philippines to the United States in 1898. In 1935, the Philippines was granted commonwealth status by the United States and free elections were held. The country was also occupied briefly by Japan during World War 2. The Philippines achieved full independence in 1947.

Currently, the Philippines is governed at the national level by the following elected officials: a president who is both the head of state and head of government, a vice president who is elected separate from the president, and 24 senators elected at large. In terms of local political structure, the Philippines is currently divided into 81 provinces each of which is further divided into congressional districts. There are 234 congressional districts each of which consists of several municipalities and cities. There are 144 cities and 1,490 municipalities to date. Elected officials in a province consists of a governor, a vice governor, and eight provincial board members. Municipalities and cities follow the same structure: a mayor, a vice mayor, and eight town councilors (populous cities have more councilors). Congressmen are elected by districts and represent their constituencies in the national House of Representatives. Local officials serve for a term of three years and term limits prohibit more than three consecutive terms. However, these officials can be re-elected to their previous positions at least three years after their three consecutive terms have expired or they can run for a different po-

sition.

3. Data and stylized facts

3.1. Distribution of political power

In this study, a family is considered a political elite if any of its members occupy at least two positions simultaneously for a given province and election cycle. The more positions a family occupies the more powerful it is. To construct measures of elite capture, the identities of 64,152 elected officials from the 2004, 2007, 2010, and 2013 election cycles were compiled from the Philippine Commission on Elections (COMELEC). Following Querubin (2016), Labonne (2016), and Fafchamps and Labonne (2016), paternal and maternal connections were established by analyzing middle and last names of elected officials. The naming convention in the Philippines take the form:

first name,
mother's last name,
father's last name

where mother's last name corresponds to the individual's middle name and the father's last name is the individual's last name. Married females traditionally attach the last name of their husbands into their own last names. Relatives were identified by finding a match of the middle name, last name, or both. For instance, individuals with the same middle and last names are most likely siblings. Individuals with the same middle (last) names are related maternally (paternally).³ The matching was conducted for each election cycle within each province to produce estimates for the percentage of elected positions controlled by local political families. It should be emphasized that this approach produces a lower bound estimate as it cannot account for a small number of political families who only have a pair of members that get elected to a particular position one at a time. For instance, a son who replaces his father retiring from politics will not be covered except if they have relatives who were also concurrently elected in other positions.⁴

A problem in this kind of approach is the existence of false positives, or matches that do not correspond to actual relatives. Fafchamps and Labonne (2016) provide three explanations, mostly unique to the Philippines, as to why false positives are unlikely: First, names used in the Philippines were imposed by the Spanish colonial government with the goal to distinguish families at the municipal level for the purpose of census-taking and tax collection. In 1849, Governor Narciso Claveria issued the *Catalogo Alfabetico de Apellidos* containing a list of thousands of Spanish family names natives can choose from. In each town, a particular family name was given only to one family which led to local heterogeneity of family names, reducing the concern for false positives. Second, using administrative data, Fafchamps and Labonne (2016) found that the most common surname in the Philippines is De La Cruz and is used by only 0.32 percent of individuals. By contrast, they show that the prevalence of common names is much higher in other countries in the region. The percentage of the population that uses the most common surname is 7.25% in China, 5.5% in India, 11% in Taiwan and 38% in Vietnam. And third, the formal process to change one's middle or last name is long, tedious, expensive, and the probability of success is low in the Philippine legal system. This reduces concerns about strategic name changes. Given the foregoing reasons, the method of matching middle and last names should generate reliable estimates of distribution of political power.

3.2. Example: Political elites in Matuguinao

To illustrate the method for identifying political elites, let us consider the case of Matuguinao. This municipality was formally created in 1965 and is located in Samar Province, about 500 kilometers southeast of Manila, the capital of the Philippines. According to the 2010 Philippine census, Matuguinao is mostly agricultural and has a population of 6,746. Elections in this

capture are reported in the Appendix.

⁴Mendoza et al. (2012) estimated only 4.36% of political families belong to this type for members of the Philippine House of Representatives. Elite capture of this type is the classic definition of a political dynasty.

³Descriptive statistics for these two measures of elite

Table 1: Elected officials in the municipality of Matuguinao, Samar Province.

Election cycle: 2004		Election cycle: 2007	
Mayor	Dy, Jocella Milka	Mayor	De La Cruz , Carlos Adel
Vice-Mayor	De La Cruz , Carlos Adel	Vice-Mayor	Boller, Aran De La Cruz
Councilor	Boller, Aran De La Cruz	Councilor	Martin, Nelson Sr. Diaz
Councilor	Mesario, Emelita De La Cruz	Councilor	Diaz , Aaron Gadin
Councilor	De La Cruz , Lourdes Diaz	Councilor	Bongon, Leo Baldonado
Councilor	Floquencio, Salvador Baldonado	Councilor	Mesario, Emelita De La Cruz
Councilor	De La Cruz , Dionesio Diaz	Councilor	De La Cruz , Christopher Beduya
Councilor	De La Cruz , Erlinda Abrazaldo	Councilor	De La Cruz , Erlinda Abrazaldo
Councilor	Labian, Peperion Jr. Oraya	Councilor	Floquencio, Salvador Baldonado
Councilor	Diaz , Aaron Gadin	Councilor	Velarde, Bienvenida Sumagdon
Election cycle: 2010		Election cycle: 2013	
Mayor	De La Cruz , Melissa Abrazaldo	Mayor	De La Cruz , Melissa Abrazaldo
Vice-Mayor	Floquencio, Salvador Baldonado	Vice-Mayor	Floquencio, Salvador Baldonado
Councilor	Velasco, Gina Araza	Councilor	Mahinay, Felicisimo Prudenciado
Councilor	Manas, Bernardo Ramones	Councilor	Elizalde, Romualdo De La Cruz
Councilor	Diaz , Paquito, Jr. Velarde	Councilor	Morillo, Lorraine Mustacisa
Councilor	Elizalde, Romualdo De La Cruz	Councilor	Diaz , Delia De La Cruz
Councilor	De La Cruz , Christopher Beduya	Councilor	Durmiendo, Mike Delizo
Councilor	Labian, Peperion, Jr. Oraya	Councilor	Ma, Bernardo Ramones
Councilor	Velarde, Bienvenida Sumagdon	Councilor	Labian, Peperion Jr. Oraya
Councilor	Mesario, Emelita De La Cruz	Councilor	Diaz , Paquito Velarde

Note: Election data was sourced from the Philippine Commission on Elections.

municipality are characterized by the presence of rivalries among powerful and well-entrenched political families which often leads to election-related violence. In fact, Matuguinao is almost always included in the list of municipalities considered as “hot spots” during elections. These characteristics make Matuguinao a good laboratory to explore the method for computing the distribution of political power discussed in the previous section. Listed in Table 1 are the last, first, and middle names (in that order) of elected officials in the municipality of Matuguinao from 2004, 2007, 2010, and 2013 election cycles. Using the method of matching last and middle names, there appears to be three powerful political clans in Matuguinao: De La Cruz, Diaz, and Baldonado families. Matching of last and middle names reveal the percentage of positions controlled by political elites: 70% in 2004 and 2007, 50% in 2010 and 40% in 2013.

3.3. Elite capture in the Philippine regions

Table 2 present some stylized facts about elite families for each region in the Philippines. Overall, the average number of positions held by elite families is 2.6. Region 3 holds the distinction

of having the most number of elite families at 222. Region 3 is the home of the Aquino and Cojuangco families who are influential in both national and local politics.⁵ The region with the least number of elite families is Region 12 with 47. The region with the highest average number of positions held by elite families is the Autonomous Region for Muslim Mindanao (ARMM) with 3.3 positions. The political family with the most number of occupied positions in the ARMM is Ampatuan with 24 positions, and is followed closely by the Mangudadatu and Midtimbang families with 12 and 11 positions, respectively (based on the 2013 election results).

Included in Table 2 are measures of elite capture for each region. The percentage of positions occupied by elite families is computed for each region and election cycle, and then averaged across the four election cycles. The region with the most number of positions controlled by po-

⁵The Philippines had two presidents from the Aquino-Cojuangco clan: Corazon Cojuangco Aquino who served from 1986-1992 and Benigno Simeon Cojuangco Aquino III who served from 2010-2016. This family also produced five senators, and several congressmen, governors, and mayors.

Table 2: Political elites in the Philippine regions.

Geographic location	Number of elite political families	Average positions per elite family	Percentage of positions controlled by elite families
Philippines (all regions)	2,322	2.6	0.39
<i>Philippine regions</i>			
Region 1	195	3.0	0.53
Region 2	141	2.7	0.43
Region 3	222	3.2	0.51
Region 4A	221	3.0	0.50
Region 4B	115	2.5	0.37
Region 5	152	2.5	0.38
Region 6	189	2.8	0.43
Region 7	181	2.4	0.46
Region 8	201	2.7	0.42
Region 9	88	2.3	0.28
Region 10	115	2.6	0.35
Region 11	47	2.3	0.27
Region 12	55	2.3	0.20
Region 13	94	2.6	0.33
National Capital Region	52	2.4	0.46
Cordillera Autonomous Region	86	2.3	0.27
Autonomous Region for Muslim Mindanao	168	3.3	0.47

Note: A family is considered a political elite if it occupied at least two elected positions within a province and election cycle. *Number of elite political families* is the number of politically elite families aggregated for each region based from the results of the 2013 elections. *Average positions per elite family* is the average number of positions held by politically elite families within each region based from the 2013 elections. *Percentage of positions controlled by elite families* is the percentage of positions occupied by elite families using middle and last names as a measure of family connections within each region averaged from the 2004, 2007, 2010, and 2013 election cycles. Election data was sourced from the Philippine Commission on Elections.

litical elites is Region 1 at 53 percent. Region 1 is the home of the influential Marcos and Singson political families.⁶ The region with the least number of positions controlled by elites is Region 12 at 20 percent. Nationally, about 40 percent of locally-elected positions are controlled by elites.

4. Do political elites bring about more poverty?

The main objective of this paper is to examine the effects of elite capture to poverty in Philippine

provinces. To this end, the following benchmark model is estimated:

$$\text{poverty}_p = \alpha \times \text{elite}_p + \mathbf{X}'_p \times \gamma + \varepsilon_p \quad (1)$$

where poverty_p is a measure of poverty in province p , elite_p is a measure which captures the extent of elite capture expressed as percentage of positions controlled by political families in province p , control variables are given by $\mathbf{X}_p$, and ε_p is the error term. A dummy variable for the ARMM provinces and a constant are included in $\mathbf{X}_p$ for the baseline estimates. The ARMM dummy variable captures the structural differences between the ARMM region with the rest of the provinces.

Three measures of poverty were considered, all sourced from the Philippine Statistics Authority for the year 2015, and follow the World

⁶Ferdinand Marcos was the president of the Philippines from 1969 up until his ouster in 1986 by a popular revolution. The wife of Marcos, Imelda Romualdez, is currently a congresswoman and her children became governor (Imee Marcos) and senator (Bong Bong Marcos). The patriarch of the Singson political family is Luis Singson who was governor of Ilocos Sur province for almost 30 years.

Table 3: Political elites and measures of poverty.

Dependent variables:	Poverty gap	Severity of poverty	Poverty incidence
Percentage of positions occupied by elites	-0.082** (0.033)	-0.035** (0.015)	-0.249** (0.102)
ARMM dummy	5.348 (3.446)	1.759 (1.440)	21.308** (10.163)
Constant	8.556*** (1.439)	3.326*** (0.688)	31.824*** (4.203)
Number of observations	80	80	81
Adjusted R^2	0.12	0.09	0.14

Note: A family is considered an elite if any of its members controlled at least two elected positions within a province and election cycle. Poverty gap is the mean shortfall of the total population from the poverty line expressed as a percentage of the poverty line. Severity of poverty averages the squares of the poverty gaps relative to the poverty line. Poverty incidence measures the proportion of the population that is counted as poor. Poverty data was sourced from the Philippine Statistics Authority. The province of *Dinagat Islands* does not have two of the poverty measures in 2015 (poverty gap and severity of poverty). ARMM equal to 1 if the province belongs to the Autonomous Region for Muslim Mindanao, 0 otherwise. Heteroscedasticity robust standard errors in parentheses. *** significant at 1%, ** significant at 5%, and * significant at 10%.

Bank (2005) definitions. The first of these measures is the poverty gap which refers to the income shortfall (expressed in proportion to the poverty threshold) of families with income below the poverty threshold, divided by the total number of families. Second is the severity (or depth) of poverty which is the squared income shortfall of families with income below the poverty threshold divided by the total number of families. The last measure is poverty incidence, also called the head count ratio, expressed as the percentage of the population that is poor.

Table 3 presents the results of the baseline regressions with the share of positions occupied by political elites as the main explanatory variable and the three poverty measures as dependent variables. The baseline regressions demonstrate negative correlations between the poverty measures and the percentage of positions controlled by political elites, and these estimates are statistically significant at the 5% level. The adjusted R^2 in these regressions indicate that, depending on the poverty measure, the percentage of positions held by political elites account for up to 14% of the variation in the poverty measures.

Although statistically significant, there are reasons to believe why the results in Table 3 cannot be considered causal. First, and most importantly, the prevalence and persistence of elite

capture are closely related to the poverty situation of the voters. It has been shown that political competition in the Philippines, as is true in most developing countries, is characterized by strong clientelistic practices (Querubin, 2016). Politicians engage in forms of exchange to win elections such as vote-buying and jobs in exchange for votes (Labonne, 2016). In an environment with a virtually nonexistent welfare system, the poor have little recourse but to seek support from these politicians (Mendoza et al., 2012). Second, there are many omitted determinants of poverty that will naturally be correlated with the power of political elites. Finally, the measure of power of political elites may not be able to capture all of the powerful families that exist in a particular province leading to some degree of measurement error. All of these concerns could be addressed if there is an instrument for the measure of elite capture. This instrument must be correlated with the extent of elite capture but have no direct effect on poverty. This study proposes that the number of churches built during the Spanish colonization of the Philippines can serve as a potential instrument and its feasibility is discussed in the following section.

5. Colonization and the current local political elite

5.1. Political institutions during and after Spanish colonization

The origins of the current political institutions in the Philippines can be traced back to the Spanish colonial regime. To properly understand the connections between current political institutions and the institutions established by the Spanish, a brief discussion of the colonial political institution is in order. The Spanish crown was represented in the Philippines by a Spanish Governor General who resided in Manila. Each of the twelve original provinces was ruled by a Spanish *alcalde mayor* and was directly responsible to the Gobernador General. The *alcalde mayors*, who resided in provincial capitols called *cabecerras*, exercised great powers as they were the supreme executives, judges, and commanding officers in their respective provinces. Below the *alcalde mayor* is a host of chosen Filipino officials. Upon arrival, the Spanish took advantage of the existing traditional socio-political organization and empowered local leaders thereby ruling the natives indirectly (Pearson, 1969). The system of indirect rule helped create an early upper class called the *principalias* which was larger and more influential than the pre-colonial ruling class.⁷ Among the *principalias* were the village chiefs, called *cabeza de barangay*, the chief magistrate of the town, and other local officials (Pearson, 1969). Indirect rule by the Spanish enabled and perpetuated an oligarchic system of local control (Blair and Robertson, 1903).

There are numerous studies which suggested the persistence of political dynasties in both developed (Dal Bo et al., 2009; Asako et al., 2015) and developing countries (Querubin, 2016; Camp, 1995). The Philippines was no exception as political elites endured after the Spanish left.⁸ Many of the incumbent political elites are in fact descendants of the *principalias*. There are

several reasons why the political elites persisted to the present. First, many of the Filipino ruling elites immediately and willingly collaborated with the Americans when the United States took over the colony from Spain. This is not surprising as collaboration with the Americans guaranteed that the local power of elites will be preserved (Cullinane, 2003). Second, being a predominantly agricultural society, a feudal relationship prevailed and persisted in rural areas. Many of the post-colonial politicians inherited the lands of their *principalia* ancestors thus transmitting power and influence from the previous generation to the next.

5.2. The church and political elite

One of Spain's objectives in the colonization of the Philippines was the conversion of natives to Christianity. To facilitate efficient conversion, the Spanish introduced *reduccion* which resettled natives into small compact communities (De Viana, 2011). These communities, called *pueblos*, included residences for the *principalias*, and churches and convents for the Spanish missionaries. While the *alcalde mayor* resided in the provincial capitol, the only Spanish in the *pueblos* were the missionaries. The Spanish missionaries exercised a great deal of power in the administration of these communities. They had authority in civil administration, created and certified all census lists, certified election results, and had the final say on positions held by the *principalias* (Cruz, 2014). In other words, the influence of the church was a critical turning point in the development of archetype political elites in the *pueblos*.

Figure 2 shows that there is a positive correlation between the number of churches built by the Spanish and the percentage of positions controlled by elites in Philippine provinces. From the figure one can surmise that in provinces with significant presence of Spanish clergy, there should be numerous and powerful local political elites. Given that political elitism persisted then these locations *currently* should also have numerous and powerful political elites. To proxy for the influence of the Spanish in a particular

⁷The *principalia* was the social and educated class during the Spanish colonization. They were exempted from forced labor, were allowed suffrage, can be elected to public office, and be formally addressed as *Don* or *Doña*. Certain roles in the church were given to them such as assisting the clergy during religious services.

⁸There is a big body of literature about how institutions

set up in the colonies during the era of colonization persisted to the present (Acemoglu et al., 2001; La Porta et al., 1998).

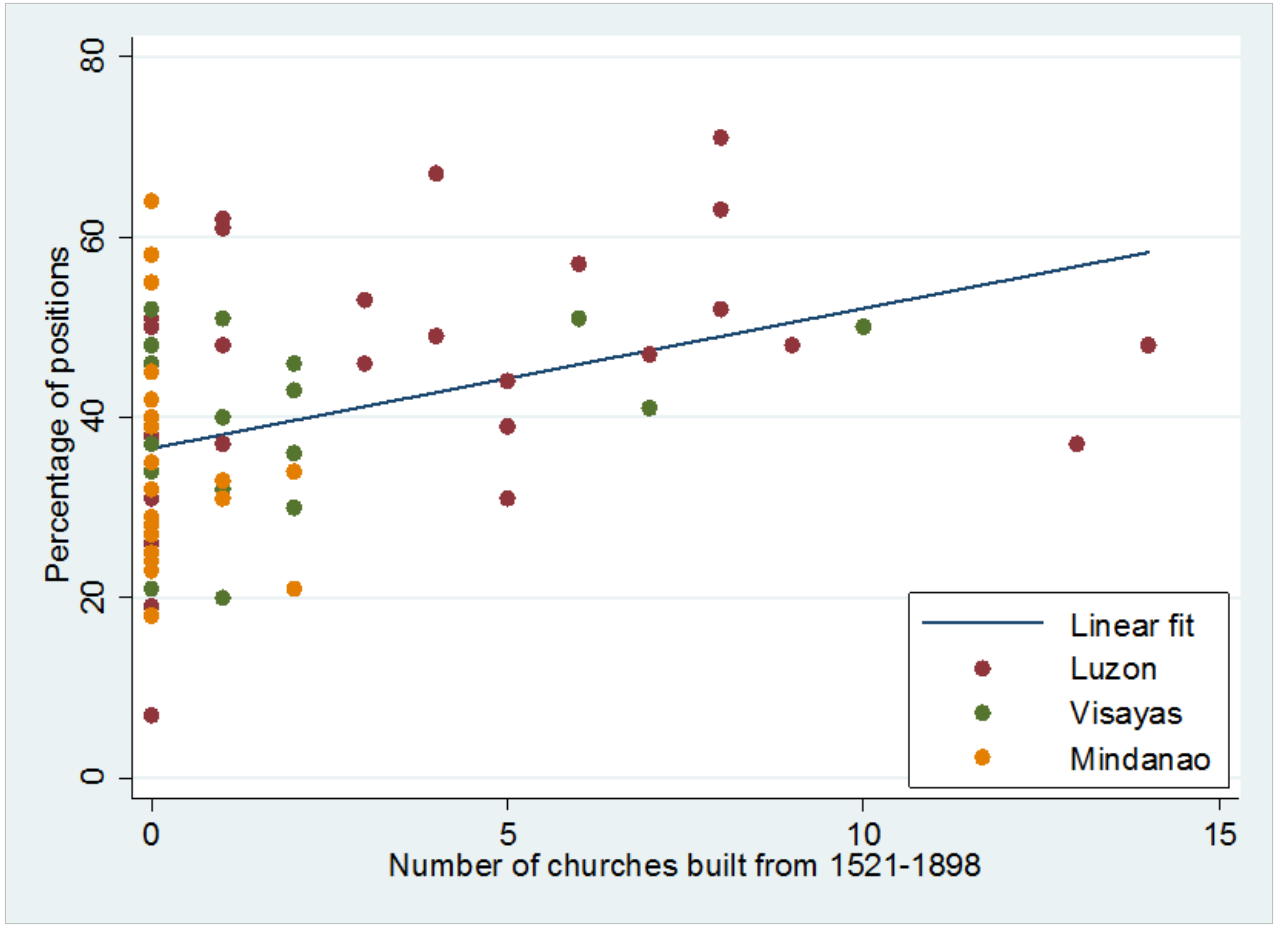


Figure 2: Percentages of positions controlled by local elites and number of churches built during the Spanish colonization.

province, this study makes use of the number of churches built during the period of colonization (1521-1898). The intuition is that the locations and numbers of colonial churches indicate their importance in ensuring successful colonization. Most importantly, local leaders were readily available in these locations.

The following regression model is estimated to test whether the number of churches is correlated with elite capture:

$$\text{elite}_p = \beta \times \text{churches}_p + \mathbf{X}'_p \times \delta + v_p \quad (2)$$

where elite_p is the percentage of positions controlled by political families in province p , churches_p is the number churches built during the Spanish colonization, control variables are given by $\mathbf{X}_p$, and v_p is the error term. Only churches that have historical markers and cataloged by National Historical Commission of the Philippines

(NHCP) were considered.⁹ Descriptive statistics for the number of churches are reported in the Appendix.

Column (1) in Table 4 present the results of a bivariate regression on the number of colonial churches and the share of positions occupied by political elites in Philippine provinces. The results show a positive and statistically significant correlation between the number of churches and the political elite. These results confirm that political elites flourished and persisted in locations with significant Spanish influence.

There were regions in southern Philippines that were hostile to the Spanish. Populations in these

⁹The National Historical Commission of the Philippines (NHCP) has information on historical sites, such as churches, garrisons, and forts, built during the Spanish colonization. The information include the year the site was built, a description of the site, as well as its current status. The data was taken from the NHCP website www.philhistomarkers.nhcp.gov.ph.

Table 4: Current political elites and churches built by the Spanish from 1521-1898.

Dependent variable: Percentage of positions occupied by elites	(1)	(2)
Number of Spanish-built churches	1.557*** (0.449)	1.725*** (0.466)
ARMM dummy		14.498** (5.658)
Constant	36.506*** (1.620)	35.302*** (1.603)
Number of observations	81	81
Adjusted R^2	0.14	0.21

Note: Data for churches was obtained from the National Historical Commission of the Philippines. ARMM equal to 1 if the province belongs to the Autonomous Region for Muslim Mindanao, 0 otherwise. Heteroscedasticity robust standard errors in parentheses. *** significant at 1%, ** significant at 5%, and * significant at 10%.

regions are predominantly Muslim and resisted efforts by the Spanish to subdue them. Churches were never built in these areas as a result of the hostility. The ARMM encompass what these regions are today. Controlling for the ARMM provinces, the estimate for the correlation between the number of churches and elite capture increased by a little bit, from 1.557 to 1.725. The estimated coefficient remain statistically significant.

5.3. Spanish-built churches as an instrument for political elite

The correlations between poverty and elite capture in Philippine provinces cannot be considered causal due to concerns such as reverse causality, omitted variables, and measurement errors. These concerns could be addressed using an instrument variable (IV) approach. To this end, this study exploits the exogenous variation in the number of churches built during the Spanish colonization and use it in a two-stage least-squares regression as an instrument for our measure of elite capture.

In order for the number of Spanish-built churches to be a valid instrument it must satisfy two properties. First, the instrument must be correlated with elite capture. Figure 2 and the regression results in Table 4 clearly demonstrates a positive correlation between the number of churches and the percentage of elected positions controlled by elites. The second property is that the instrument must be correctly excluded from the equation of interest; that is, the number

of churches must not be correlated with the error term of the regression in equation (1). Other channels through which the number of churches may influence poverty in Philippine regions are explored in Section 7.

Table 5 present the results from the second stage regression of the exogenous component of percentage of positions controlled by political elites and the different measures of poverty. The first-stage results are also reported and they are nearly identical to those in Table 4. The F statistics in the first-stage regressions in columns (1) to (6) are all greater than 10 which effectively rules out the colonial churches as a weak instrument. In the second stage regressions, the estimated coefficients for the measure of political elite are negative and statistically significant at the 1% level. The estimated coefficients are also remarkably larger than those in the regression results in Table 3 suggesting the presence of downward bias in the OLS estimates. The results of the bivariate regressions in columns (1), (3), and (5) of Table 5 indicate that for every one unit increase in the percentage of positions occupied by political elites the poverty gap, severity of poverty, and poverty incidence decreases by 0.327, 0.128, 1.278 percentage points, respectively. The magnitude of these coefficients become smaller as control variables are added in the regression. Although the reductions in the size of the coefficients are somewhat substantial, they are still statistically significant at the 1% level.

These results can be interpreted in several ways. The negative relationship between poverty

Table 5: Political elites and measures of poverty (two-stage least-squares regressions).

Dependent variable:	Poverty gap		Severity of poverty		Poverty incidence	
	(1)	(2)	(3)	(4)	(5)	(6)
Second stage results						
Percentage of positions occupied by elites	-0.327*** (0.097)	-0.271*** (0.073)	-0.128*** (0.038)	-0.109*** (0.029)	-1.278*** (0.368)	-1.053*** (0.279)
ARMM dummy		7.467* (4.287)		2.586 (1.768)		30.246** (13.788)
Constant	18.561*** (4.108)	15.893*** (2.992)	7.112*** (1.619)	6.188*** (1.219)	73.646*** (15.588)	62.931*** (11.462)
Endogeneity test (χ^2)	7.79***	8.13***	7.48***	8.26***	9.76***	9.32***
Number of observations	80	80	80	80	81	81
First stage results						
Number of Spanish-built churches	1.570*** (0.452)	1.742*** (0.469)	1.570*** (0.452)	1.742*** (0.469)	1.557*** (0.449)	1.725*** (0.466)
Controls	No	Yes	No	Yes	No	Yes
First stage partial F stat.	12.05***	13.77***	12.05***	13.77***	12.01***	13.70***
First stage R^2	0.13	0.19	0.14	0.19	0.14	0.19

Note: A family is considered an elite if any of its members controlled at least two elected positions within a province and election cycle. Poverty gap is the mean shortfall of the total population from the poverty line expressed as a percentage of the poverty line. Severity of poverty averages the squares of the poverty gaps relative to the poverty line. Poverty incidence measures the proportion of the population that is counted as poor. Poverty data was sourced from the Philippine Statistics Authority. ARMM equal to 1 if the province belongs to the Autonomous Region for Muslim Mindanao, 0 otherwise. The province of *Dinagat Islands* does not have two of the poverty measures in 2015 (poverty gap and severity of poverty). Heteroscedasticity robust standard errors in parentheses. *** significant at 1%, ** significant at 5%, and * significant at 10%.

and elite capture can be explained by the so-called “legacy” argument. Political elites may have legacy-related motivations which afford a more effective planning and implementation of policies with long-term goals (Mendoza et al., 2012). The results also suggest that politicians who do not belong to the elite may have failed to offer better governance. According to Mendoza et al. (2013) political parties in the Philippines failed to offer policies that benefit the poor and introduced policies in order to preserve their political influence and power. Although provocative, results from Table 5 do not offer a direct test of these arguments. Whether these perspectives are useful for understanding the relationship between poverty and the presence of political elites remain an open research question.

6. Do increased competition among political elites bring about more poverty?

Another possible explanation is that poverty in the provinces is affected by involvement of po-

litical elites in the provision of public services. The poor are drawn into political elites as a pragmatic means to find solutions to their everyday needs (Auyero, 2001). In a clientelistic society like the Philippines, it is not uncommon for political elites to compete for the provision of basic public services specially during elections. Ironically, this competition creates a desired outcome as public services are provided in locations where otherwise it would have been lacking.¹⁰ This section examines whether there is empirical evidence to support the competition argument. To conduct this examination, a measure of political competition using the Herfindahl-Hirschman Index (HHI) was constructed. The HHI_p , which measures the extent to which political offices

¹⁰According to Ashworth et al. (2014) political competition is a mechanism that disciplines the political leadership in much the same way in the private sector. Politicians that do not face a credible threat of removal from office (i.e., lack political competitors) might feel more prone to serve narrow economic or selfish interests.

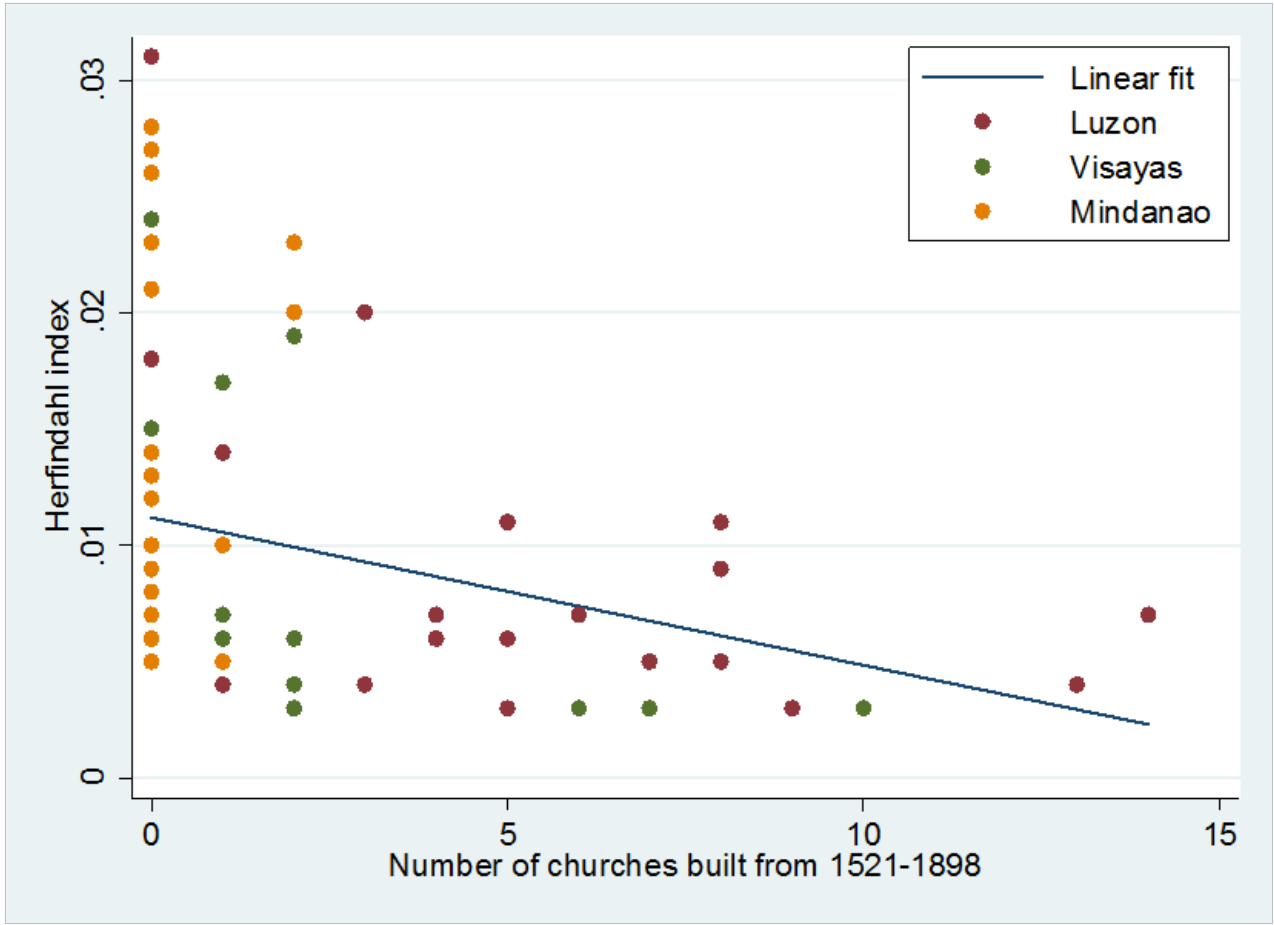


Figure 3: Power concentration and number of churches built during the Spanish colonization.

have been captured by political elites, is computed using the formula:

$$HHI_p = \sum_{i=1}^N s_{i,p}^2, \quad (3)$$

where $s_{i,p}$ is the share of positions occupied by an elite family i for each province p . This index is an appropriate measure of political concentration as it gives greater weight on elites with large shares of total positions. For the regressions, the index is normalized to the province with the highest index value. The higher (lower) the value of the index, the more (less) concentrated political power is to a small number of elites.

One can simply estimate a regression model similar to equation (1) with the computed HHI as the main explanatory variable but this will introduce bias in the estimated marginal effect of political concentration to poverty. There are three possible sources of this bias. First, is that poverty is endogenous to the measure of political concentration as shown by Mendoza et al. (2013) where

they found that poverty incidence is correlated to the HHI measure. Second, there are many omitted determinants of poverty that are correlated with the HHI measure and the other way around. Finally, the HHI measure may not be able to capture all of the powerful families that exist in a particular province leading to some degree of measurement error. These concerns can be addressed through an IV approach with the number of churches built during the Spanish colonization as the instrument.

Figure 3 shows the negative correlation between the HHI and the number of colonial churches. The negative correlation suggests that political competition among elites is weak in provinces with few Spanish-built churches. In other words, provinces with little or no Spanish influence, local politics have been monopolized by a small number of families. Notable in Figure 3 (and also in Figure 2) is that most of the provinces with little or no Spanish-built churches can be found in the island of Mindanao. Iso-

Table 6: Concentration of political power and measures of poverty (two-stage least-squares regressions).

Dependent variable:	Poverty gap		Severity of poverty		Poverty incidence	
	(1)	(2)	(3)	(4)	(5)	(6)
Second stage results						
HHI	0.267*** (0.083)	0.278*** (0.095)	0.105*** (0.032)	0.112*** (0.037)	0.972*** (0.277)	0.990*** (0.310)
ARMM dummy		-1.853 (5.141)		-1.160 (2.111)		-3.113 (15.911)
Constant	-2.774 (2.428)	-3.016 (2.695)	-1.260 (0.933)	-1.412 (1.045)	-8.147 (8.529)	-8.524 (9.245)
Endogeneity test (χ^2)	8.89***	9.09***	8.71***	9.07***	9.43***	9.50***
Number of observations	80	80	80	80	81	81
First stage results						
Number of Spanish-built churches	-1.927*** (0.468)	-1.701*** (0.448)	-1.927*** (0.468)	-1.701*** (0.448)	-2.047*** (0.486)	-1.836*** (0.470)
Controls	No	Yes	No	Yes	No	Yes
First stage partial F stat.	16.94***	14.40***	16.94***	14.40***	17.78***	15.23***
First stage R^2	0.08	0.14	0.09	0.14	0.09	0.14

Note: A family is considered an elite if any of its members controlled at least two elected positions within a province and election cycle. Poverty gap is the mean shortfall of the total population from the poverty line expressed as a percentage of the poverty line. Severity of poverty averages the squares of the poverty gaps relative to the poverty line. Poverty incidence measures the proportion of the population that is counted as poor. Poverty data was sourced from the Philippine Statistics Authority. ARMM equal to 1 if the province belongs to the Autonomous Region for Muslim Mindanao, 0 otherwise. The province of *Dinagat Islands* does not have two of the poverty measures in 2015 (poverty gap and severity of poverty). Heteroscedasticity robust standard errors in parentheses. *** significant at 1%, ** significant at 5%, and * significant at 10%.

lation from the Spanish led to the preservation of precolonial political institutions in these areas, specifically the hereditary rule of elites called *Datu* or *Rajah* which persisted to the present. Hereditary rule makes it difficult for new entrants to get elected because voters almost always choose candidates who are *Datu*, *Rajah* or their relatives resulting to the perpetuation of their power and influence. For instance, the powerful political elites in the province of Maguindanao (which is located in Mindanao) are all *Datus* and *Rajahs* or related to them.¹¹ Aside from Mindanao, there are landlocked provinces in the Luzon island group that were not fully colonized by the Spanish. For instance, the Spanish achieved partial success in colonizing Abra, Apayao, Benguet, Ifugao, Kalinga, and Moun-

tain Province. Similar to many provinces in Mindanao, these six provinces were able to preserve their precolonial political institutions which, in turn, could be responsible for a small number of political elites that control a large percentage of these province's elected positions.

Table 6 reports the results of the two-stage least squares regressions with measures of poverty as the dependent variable and the HHI as the main explanatory variable. As before, the instrument in these regressions is the number of churches built during the Spanish colonization. The results of the first-stage regression suggest a strong and significant negative relationship between HHI and the number of churches. The first-stage results serve to confirm what we have learned from Figure 3 that elite capture is severe in provinces with little or no Spanish influence. The second stage regressions reveal a positive causal relationship between HHI and poverty. Precisely, the more concentrated political power is to elites the

¹¹ At some point, the *Datus* Ampatuan, Sangki, Midtimbang, Mangudadatu, and Sinsuat and their relatives control as much as 70% of elected positions in the province of Maguindanao.

greater the poverty in the provinces. It should be noted that these results are insensitive to the measure of poverty and the inclusion of ARMM region fixed effect.

7. Robustness

The identification strategy in this study primarily relies on the assumption that colonization policies have no direct effect on current poverty rates in Philippine provinces other than its effect through elite capture. Admittedly, this assumption is quite strong as there might be other plausible channels through which colonization policies can influence current poverty rates. The objective in this section is to provide further evidence to support the validity of the chosen instrument. For reasons of space, only the robustness checks for poverty incidence as the outcome variable and percentage of positions controlled by elites as the main explanatory variable are presented in this section. Robustness checks for the other outcome variables are available in the supplementary material.

7.1. Temperature and rainfall

Weather-related variables, such as temperature and rainfall, can affect economic performance directly (Dell et al., 2012). Sufficiently high levels of rainfall should generate a stable water supply for irrigation, a sufficient food supply, and ultimately help lower poverty rates. Thus, in locations where rainfall is low a higher incidence of poverty is expected. The opposite can be said about temperature. In locations where temperature is high, high rates of water evaporation and drought is expected, leading to lower harvests and higher poverty rates. It could be that the Spanish decided to build churches in locations with favorable weather and, if true, this can pose a threat to the exclusion restriction assumption. Temperature and rainfall, therefore, were included in the regressions as shown in columns (1) and (2) of Table 7.¹² Rainfall and temperature failed to produce any effect on poverty incidence, controlling

for percentage of positions occupied by elites and the ARMM dummy. Moreover, the estimated coefficients for the weather variables are not statistically significant.

7.2. Presence of building materials

Proximity of natural resources could be a factor driving the relationship between colonial churches and poverty. There is merit to this argument considering that the Spanish decided to build churches in locations where raw materials such as limestone, basalt, marble or coral are easily accessible (Jose, 1987). These building materials were valuable and its presence affected the local economy not only during the colonization period but even up to the present.¹³ I use the number of non-metallic mines in each province to test whether adding the presence of building materials as an explanatory variable in the regressions could overturn the results in Tables 5 and 6. Column (3) in Table 7 report the regression results with building materials added in the model. Inclusion of this variable produced little effects on the previous results: the estimated coefficient for percentage of positions controlled by elites remain negative and statistically significant at the 1% level.

7.3. Religion

The presence of Spanish-built churches might affect poverty in the provinces directly and independently of the measures of political power through religiosity. Scholars have long considered that, at the level of individuals and households, economic behavior and outcomes are correlated with religion (Guiso et al., 2003; Noland, 2005).¹⁴ Religion can affect poverty through its

GASA (2011). The average rainfall and temperature for the 72 provinces were used to impute climate data for eight provinces that do not have it. Climate data was sourced from the Philippine Weather Bureau, locally known as the PAGASA.

¹³The type of quarry include limestone, shale, silica, basalt, dolomite, marble, sand, and gravel. The data was sourced from the Mines and Geosciences Bureau of the Philippines: <http://www.mgb.gov.ph/2015-05-13-01-44-56/mining-projects-directory>.

¹⁴There is a huge literature on this subject. Iannaccone (1998) provides an extensive review of the literature for the interested reader.

¹²Rainfall is the observed quarterly average rainfall in millimeters for each province p from 1971 to 2000. Temperature is the observed quarterly average temperature readings in degrees Celsius for each province p from 1971 to 2000. Only 72 provinces have climate data from PA-

Table 7: Political elites and poverty incidence with additional controls (two-stage least-squares regressions).

Dependent variable: Poverty incidence	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Percentage of positions occupied by elites	-1.097*** (0.279)	-1.054*** (0.283)	-1.094*** (0.330)	-1.326*** (0.498)	-0.767** (0.348)	-0.965*** (0.305)	-0.903*** (0.275)	-0.939** (0.372)
Temperature (degrees Celsius)	1.661 (1.891)							
Rainfall (in mm)		0.004 (0.016)						
Non-metallic quarries			0.241 (0.524)					
Catholic adherents (%)				0.285 (0.335)				
Distance from Manila (km)					0.008 (0.006)			
Functional literacy (%)						-0.349 (0.420)		
Family income growth							-0.006 (0.044)	
Luzon dummy								-3.684 (6.753)
Visayas dummy								0.906 (6.045)
ARMM dummy	31.004** (14.172)	30.448** (13.933)	30.899** (14.192)	53.652 (32.735)	21.281 (14.155)	23.330 (16.082)	38.431*** (12.773)	27.577* (15.076)
Constant	20.266 (52.287)	60.706*** (12.015)	64.295*** (13.121)	50.991*** (17.366)	46.217*** (17.351)	90.626*** (32.052)	57.219*** (10.143)	59.904*** (11.977)
Number of observations	81	81	81	81	81	81	81	81

Note: Reported coefficients are from second-stage regressions. A family is considered an elite if any of its members controlled at least two elected positions within a province and election cycle. Poverty incidence measures the proportion of the population that is counted as poor. Poverty data was sourced from the Philippine Statistics Authority. ARMM equal to 1 if the province belongs to the Autonomous Region for Muslim Mindanao, 0 otherwise. Heteroscedasticity robust standard errors in parentheses. *** significant at 1%, ** significant at 5%, and * significant at 10%.

influence on orientations toward the family, work, and saving. To explore this channel, religiosity measured by the percentage of Roman Catholic adherents in each province was added as a control variable in the regressions.¹⁵ The addition of Roman Catholic adherents failed to overturn the previous results: the estimated coefficient for the measure of elite capture in column (4) of Table 7 remain negative and statistically different from zero. Equally remarkable is that the estimate for Catholic adherents is not statistically significant.

7.4. Distance from the core

Previous research have identified that geography, particularly distance from the core, can affect economic performance directly (Gallup et al., 1999). Provinces are more urbanized the closer they are to the core and this may have influenced the Spanish in choosing the location of the churches. To test this hypothesis, the distance between the capital of province p and the capital of the Philippines (Manila) in kilometers was used as an additional control variable. The distance variable was sourced from Google maps. The expected sign for distance is positive which means that higher poverty rates are observed the farther the province is from the capital. Inclusion of the distance variable, as shown in column (5) of Table 7, failed to change the signs of the coefficient for the percentage of positions held by elites. Similar to the results in Tables 5 and 6, the coefficients for positions held by political elites remain statistically significant. The estimated coefficient for the distance variable is positive but small and not significant.

7.5. Education

One of the legacies of Spanish colonization in the Philippines is education. Along with churches, the Spanish built schools in *cabeceras* and *pueblos* to educate the natives through religion with the objective of converting natives to the Catholic faith. The link between education and better economic outcomes is well known (Yang, 2004). Thus, it is possible that the negative effect churches have on poverty is due to

the proximity of schools to Spanish churches. To check if the foregoing argument is true, functional literacy rate across provinces (taken from the Philippine Statistical Yearbook) were added in the regressions. Adding functional literacy in the regressions, as shown in column (6) of Table 7, failed to change the sign of the coefficient for the percentage of positions held by elites. Moreover, the estimated coefficient for functional literacy is negative and not significant.

7.6. Income growth

It is tempting to conjecture that growth in income could be a channel through which colonial churches affect poverty incidence in the provinces. Colonial churches may have been built in locations that experienced significant income growth, thus explaining the negative relationship between elite capture and poverty. Income growth, therefore, was added in the regressions to see if it is a threat to the exclusion restriction assumption. Family income growth for each province was computed using data from the Philippine Family Income and Expenditure Surveys for 2000 and 2009. The result of the regression model with family income growth is reported in column (7) of Table 7. The result indicates that family income growth is not a significant predictor of poverty incidence while controlling for elite capture. In addition, inclusion of family income growth in the regressions failed to overturn the previous results that showed a significant inverse relationship between poverty incidence and elite capture. Therefore, growth in income does not pose a threat in the identification strategy in this study.

7.7. Location of churches

A closer look at the distribution of churches across provinces (relative to poverty measures) indicate that it can be considered as close to as being random. Churches built during the Spanish colonization can be found in provinces with little poverty and also in those provinces where poverty is widespread. For instance, the provinces with the highest poverty incidence rates in 2015 were Siquijor and Northern Samar at 49% and 48%, respectively. Each of these provinces have two colonial churches. The

¹⁵The adherents data was sourced from the Philippine Statistical Yearbook.

province of Bataan, which registered the lowest poverty incidence rate in 2015 (at 1.6%), have five churches built during the colonial period. The same idea can be said for those provinces without Spanish-built churches. To check whether location drives the relationship between poverty and political elites, island group dummies were included in the regression results in Table 7. The regression result in column (8) indicate that the estimated marginal effect of elite capture remain with its correct sign and statistically significant.

7.8. Overidentification tests

The Spanish colonized the Philippines primarily for commercial and trading purposes. To engage in commerce with the Philippines and its neighbors, particularly China, Spain launched trading ships that made round-trip voyages across the Pacific Ocean from Acapulco (in present-day Mexico) to Manila in the Philippines. The ships, called “Manila Galleons”, carried goods that were valuable at the time such as spices, silk, and China porcelains from Manila to Acapulco. Having a very long coastline, the Philippines required navigational aids and warning devices to ensure safe voyage for these trading ships. Thus, the Spanish constructed lighthouses to serve as a stationary point and provided information to navigators regarding treacherous condition of the seas (Noche, 2005).

Services of the *principalias* were invaluable in the operation of these lighthouses. Local elites provided the manpower to build, maintain and protect the structures. Therefore, the lighthouses can also serve a variable, in addition to churches, that can explain elite capture in Philippine provinces. The data on the lighthouses were obtained from the *Faros Españoles de Ultramar* (Sanchez, 1992). This book listed 27 major light stations, 17 *luces locales*, and 14 additional lighthouses in the Philippines built during the Spanish colonization.

With the number of lighthouses as an additional instrument, the identification strategy in this study can be examined using an overidentification test. The selection of this additional instrument rests on the assumption that it is truly exogenous. However, it possible that the light-

house variable is an invalid instrument so the results of this overidentification test should be interpreted with caution. The results of the overidentification test using the number of lighthouses as an additional instrument is presented in Table 8. The high p values of the J statistic suggest that the identification strategy proposed in this paper is valid (i.e., neither the number of churches nor the number of lighthouses is correlated with ε_p).

8. Implications for democratic reform

Although snail-paced, efforts are being made to limit elite capture in the Philippines. For example, Article II, Section 26 of the 1987 Philippine Constitution included a clause aimed at decreasing the power of political dynasties:

“The State shall guarantee equal access to opportunities for public service and prohibit political dynasties as may be defined by law.”

Querubin (2011) notes that, despite the above mandate, no legislation has been passed that defines or prohibits political dynasties to date. The closest mention of elite capture in Philippine law is in the Local Government Code which imposed term limits for local government officials. However, it does not include any limitations on the running of the incumbent’s family relatives or on the holding of multiple political positions by members of the same family. Several bills have been filed related to curbing elite capture, and are currently pending to be approved by the legislature.

The slow pace of reforms can be attributed in part to lack of awareness on the benefits of institutional reform. It is unclear, until now, how large the measurable benefits of dismantling political elites are. Results from the two-stage least-squares regressions shown in columns (5) and (6) of Table 6 suggests that a one percent reduction in the concentration of political power decreases poverty incidence in the Philippine provinces by at least 1 percent, *ceteris paribus*. To put these results into perspective, let us consider Lanao Del Sur which is the Philippines’ poorest province. The number of families below the poverty line

Table 8: Overidentification tests.

Dependent variables:	Poverty gap		Severity of poverty		Poverty incidence	
	(1)	(2)	(3)	(4)	(5)	(6)
Percentage of positions occupied by elites	-0.278*** (0.065)		-0.113*** (0.026)		-1.047*** (0.252)	
Hirschman Herfindahl Index		0.211*** (0.063)		0.087*** (0.024)		0.718*** (0.191)
Instruments						
Number of Spanish-built churches	Yes	Yes	Yes	Yes	Yes	Yes
Number of Spanish-built lighthouses	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes
<i>J</i> statistic	0.04	2.51	0.00	2.13	0.26	0.55
<i>J</i> statistic <i>p</i> value	(0.83)	(0.11)	(0.96)	(0.14)	(0.61)	(0.46)
Number of observations	80	80	80	80	81	81

Note: A family is considered an elite if it controlled at least two elected positions within a province and election cycle. Poverty gap is the mean shortfall of the total population from the poverty line expressed as a percentage of the poverty line. Severity of poverty averages the squares of the poverty gaps relative to the poverty line. Poverty incidence measures the proportion of the population that is counted as poor. Poverty data was sourced from the Philippine Statistics Authority. The instrument in the regressions is the number of churches built during the Spanish colonization (1521-1898) for each province. Church data was sourced from the National Historical Commission of the Philippines. Election data was sourced from the Philippine Commission on Elections. Distance from Manila was sourced from Google maps. Non-metallic mines data was sourced from the Philippine Mines and Geosciences Bureau. Weather data was sourced from the Philippine Weather Bureau (PAGASA). The province of *Dinagat Islands* does not have two of the poverty measures in 2015 (poverty gap and severity of poverty). Heteroscedasticity robust standard errors in parentheses. *** significant at 1%, ** significant at 5%, and * significant at 10%.

will be fewer by around 1,500 as the political institution in that province becomes more competitive and inclusive.

9. Concluding remarks

There is little doubt that the quality of political institutions and economic outcomes are closely related. The common wisdom is that the presence of dominant political elites could undermine the quality of democracy and economic development. But there are challenges to any empirical study to uncover a causal connection between the quality of political institutions and economic outcomes. One of these challenges lie on identifying an exogenous variation in the quality of political institutions and how it relates to economic performance.

This paper examines how Spanish colonization policies affected the evolution of political institutions which, in turn, affected current levels of poverty in Philippine regions. The Philippines was chosen for this study because of the dominance of a few and powerful families in its local politics. I propose Spanish colonization policies in the Philippines represented by the number of churches built from 1521-1898 could elicit an exogenous variation in local political inequality.

The arrival of the Spanish was a critical turning point in the evolution of political institutions in the Philippines. The Spanish colonization strategy was to indirectly rule the colony by empowering local elites. Moreover, the strategy involved pacifying the natives through their conversation to Christianity. Results from the first-stage regressions reveal a very strong positive relationship between the number of churches built during the colonization period and the distribution of political power in the present time.

The estimates from the two-stage least-squares regressions reveal two interesting results. First, political inequality measured in terms of percentage of positions controlled by political elites is inversely proportional to poverty. Second, political inequality measured in terms of concentration of political power is directly proportional to poverty. These results suggest substantial economic benefits from making political institutions competitive and inclusive.

Although this study was able to establish a causal link between the quality of institutions and economic outcomes, there are still many unanswered questions. What are the mechanisms through which improvements in economic outcomes can be achieved by better political institutions? What is the optimal policy to curb or

dismantle political elites? Should there be term limits for politicians, specifically those identified as elites? I leave the answers to these questions to future research.

Appendix Table: Descriptive statistics.

Variable	Obs	Mean	Std. Dev.
Poverty gap in 2015	80	5.7	4.4
Severity of poverty in 2015	80	2.1	1.9
Poverty incidence in 2015	81	23.3	14.6
Percentage of elites			
using last name	81	24.6	8.8
using last or name	81	39.4	13.2
HHI (normalized)	81	32.4	21.2
Number of churches	81	1.8	3.2
Number of lighthouses	81	0.7	1.3
Distance from Manila (km.)	81	749.9	505.5
Temperature (deg. celsius)	81	26.7	1.3
Rainfall (mm.)	81	582.2	126.5
Roman Catholic (%)	81	74.6	22.1
Non-metallic mines	81	0.8	2.9
Functional literacy (%)	81	88.1	6.4
Family income growth (%)	81	71.3	33.9

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