Office-Selling, Corruption and Long-Term Development in Peru[*]

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Abstract

This paper investigates the private returns to colonial offices and how these affect long-term economic and political outcomes across sub-national provinces in Peru. To estimate the private returns to office I use a unique dataset of the prices at which colonial government positions were auctioned off by the Spanish Crown between 1674 and 1751. I first show how the gap between the prices paid for office and expected wages is significantly larger in provinces with greater access to rents from agricultural, commercial and exploitative activities, thus consistent with extractive activities offering greater returns to political office. I then present evidence demonstrating that the gap between prices and wages is associated with a long-term economic downturn: places offering greater side gains from office in the 18th century today have higher poverty rates, lower public good provision and lower household consumption. Bootstrap estimates confirm that while the variation in office prices driven by "fundamentals" is associated with better economic outcomes today, the residual variation in prices – potentially associated with corruption – leads to worse development outcomes today. I then argue that one reason for such reversal is political conflict: provinces in which offices offered higher returns exhibited frequent anti-colonial rebellions and heightened anti-government violence detrimental to growth. These results suggest that the motivation for accessing political office can have lasting negative consequences for economic and political development (JEL D73, N26, J15).

1 Introduction

Do access to political power in exchange for money affects the extent of private returns to office-holders? If so, how do private gains from political office affects the quality of governance and economic development over the long run? Throughout history, monetary motivations for occupying political positions have been thought at odds with good government. In particular, office-selling or the appointment to political office in exchange for money is thought to promote personal enrichment in turn affecting the quality of public service. Even in contemporary times, the extent to which certain political offices are open to the "highest bidder" (e.g. greater campaign spending) still raises suspicions as to the quality of government once in office. In this paper I investigate how the appointment of political officials in exchange for money affects the extent of private returns to be obtained from office and how these influence political and economic development over the long-run.

Specifically, I examine the long-term economic effects of the private returns to occupying a government position in the Spanish colonial government. I take advantage of a unique episode in Spanish colonial history – namely, the period between 1674 and 1751 during which the Spanish Crown routinely sold provincial offices[1] in the colonial governments of the Americas and the Philippines to obtain revenue during fiscal crises.[2] Since these sales were made via first-price sealed auctions[3], individuals paid for office based on their expected returns. In the absence of corruption or extraction from office, individuals should bid at most up to their expected wages. Yet, in reality, the prices individuals paid for colonial offices were much higher than wage earnings thus suggesting the presence of ulterior motivations for office such as rent-seeking. To assess whether this is case I examine whether greater access to rents from agricultural, commercial or exploitative activities is positively associated with the price-wage gap, or the difference in the price paid and wages received. If so, then the price-wage gap most likely reflects the gains from rent-seeking. In this paper I compare the price-wage gap across offices which only differ in their relative access to rents from agricultural, commercial and exploitative activities to quantify the expected private returns of certain positions relative to others. To the best of my knowledge, this is the first study to use the prices paid for office to measure the returns associated with political positions.

While the willingness to pay for office is certainly influenced by the individual's expected returns from office it can also reflect strategic manipulation by the seller, in this case the Crown. To control for the potential strategic timing in sales, I focus on exogenous variation in the needs of the Crown to sell offices induced by costly war-making in Europe[4]. External wars were driven

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[1] I will use interchangeably, local office, governor, governorship and provincial office as they all refer to the same position: "corregidores" in the case of Peru and Bolivia – Viceroyalty of Peru, or "Alcaldes Mayores" in Mexico – Viceroyalty of New Spain.

[2] This mechanism contrasts with other instances of sales of positions, such as that of China under the Qing dynasty, in which prices were fixed according to tabulates and seldom updated.

[3] Future vacant positions were announced using public criers and announced to which interested candidates would send a letter of interest specifying not just achievements, but willingness to pay for such position

[4] In the period my study covers, 1678-1751, Spain engaged in nine wars with a cumulative timespan of 41 of the 73 years.

by geopolitical concerns in Europe unlikely to be determined by the conditions prevailing in the Peruvian provinces. In addition, to avoid potential endogeneity whereby colonial officials affect the sources of rents themselves, I employ measures of rent-availability based on economic activities pre dating the period under study. I then estimate how exogenous fiscal crises due to wars in Europe affect the price-wage gap of provincial offices in colonial Peru conditional on their relative access to rents from agriculture, commerce and exploitative activities. The strategy provides a causal estimate of the difference in the price-wage gap of provincial offices in response to greater rent accessibility at times of fiscal strain in Spain.

Using this approach I find that the price-wage gap of colonial offices was driven by the private profits officials obtained from agricultural, commercial and exploitative activities thus consistent with corruption. Based on the prices paid and wages received for each of the 51 provincial governorships of Peru spanning 77 years (1674 to 1751), results show that when the fiscal needs of the Crown are greater, the difference between the prices paid and wages received increases differentially in provinces with greater potential rents from agriculture than otherwise. Specifically, a one-year increase in the number of years at war leads to an increase in the difference between prices paid and wages of around 240 pesos for the average agriculturally suitable province. Similar results are found for provinces under forced labor (130 pesos on average) and for commercial hubs (145 pesos on average). Although the effects appear small, given the average duration of years at war throughout the period is of 4.9, the increase in the difference between wages and prices paid for provinces with average agricultural potential is of 1176 pesos, around six times the yearly wage of a military captain at the time. The finding is robust to an array of different specifications and alternative explanations. Interestingly, other economic activities such as mining show no differential increase in the value of local office. Neither do explanations based on the prestige of certain offices relative to others or career concerns.

One reason why provincial officials could profit from office is that they faced little oversight from the colonial administration throughout the period under study. Specifically, the Crown allowed a large number of individuals with local connections (Andrien 1984) and clear conflicts of interest (Stein 1981; Lynch 1992) to occupy important positions in the colonial government in exchange for money. A direct consequence of this policy was that provincial governors would face little to no oversight by those in charge to monitor their activities. [5] Indeed, econometric results show that lower oversight from high-level colonial officials is associated with a differential increase in the price-wage gap for agriculturally suitable areas relative to those not suitable. In contrast, I find little evidence that positions with greater rent-availability attracted a certain *type* of officials – namely those with lower social costs from engaging in rent-seeking activities (e.g. those with no nobility title or connections). Hence, the price-wage gap pattern observed for local offices is more consistent with the decline in institutional oversight from the central

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[5]By central colonial government I refer to *audiencias* which were the highest court in the Spanish Empire dealing with numerous issues beyond those strictly judicial. Most audiencias would later become countries with little change in current borders. In the period under study the Spanish colonies were divided in four viceroyalties, four captaincies-general and thirteen audiencias. I will use the term central government to refer to *audiencias*

colonial government (*audiencia*) than with the self-selection of individuals with low punishment costs or greater rent-seeking ability.

After establishing how the difference between the prices paid for local offices and wages reflect rent-seeking activities in the 18th century, I examine the long-term consequences of these activities. Using both household and district-level data I trace the 51 Peruvian colonial provinces to their contemporary boundaries[6] and find that regions with greater differences between prices paid and wages in the 18th century are today poorer, have lower household consumption and fewer public goods than those in which the difference was smaller.

Specifically, district level data show that poverty rates are 0.47% higher for a 10% increase in the log ratio of the per capita price wage gap.[7] That is, the larger is the difference between prices and wages in the 18th century (weighted by population at the time) the higher is the poverty rate in that province today. In terms of public goods, a 10% increase in the difference between prices paid and wages received is associated with a 0.37% lower likelihood of having indoor sewage; a 0.34% lower likelihood of having electricity; and around 0.4% lower probability of having indoor running water. Similar results are found when looking at schooling outcomes, where an increase of 10% in the log ratio of the price-wage gap per capita leads to 0.4 less years of education, 0.26% more kids between 9 and 15 years old to fall behind in their education and 0.11% of kids (6-12 years old) that drop out from school. Results using household data – approximately 42,000 individuals – are consistent with those found at the district-level: a 10% increase in per capita average prices is associated with an average lower household consumption of around 0.7%. The results are robust to a host of geographic characteristics and individual-level traits (in the case of household consumption).

One concern with this approach is that wages may not be the only determinant of the willingness to pay for office. Therefore, I follow an alternative strategy to measure the extent profiting from colonial offices. I first remove variation in prices due to "fundamentals" which may determine prices but are unrelated to corruption (e.g. wages, prestige, population size, distance to the capital, location, etc.) and then collect the residual variation which would potentially reflect illicit activities. Using this approach and measuring the returns to office as the residual variation in prices I find a similar result: provinces which had "above normal" prices in the 18th century (or large positive residuals) are today worse-off in terms of economic development: less education and public goods and higher poverty rates. In contrast, the variation in prices driven by "fundamentals" (not corruption) has the exact opposite effect. These results suggest that while indeed certain "fundamentals" such as location or population, have a long-term positive impact on development, it is the variation in prices not accounted for which negatively impacts long-term development.

Finally, I argue that one reason why provinces with highly valued offices are poorer today is because they created an environment of polarized political conflict detrimental to long-term growth. The value of offices reflected a host of exploitative activities often sustained by violent

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[6]Geographically, a colonial province is larger than a current Peruvian district, including on average 20 current districts. The study therefore includes approximately 930 districts grouped into 51 provinces.

[7]This is, log(Price-Wage/Pop1754)

coercion, and these led to heightened political conflict between government officials and the local population which has persisted over time. In particular, highly valued offices increased the likelihood of rebellion in the 18th century and the number of anti-government guerrilla attacks in the 1980's. Specifically, a 10% increase in the log-ratio of the price-wage gap increases the likelihood of anti-colonial rebellions by around 3.53% while increasing in 4.81% the number of violent actions precisely against governors, or those officials who have previously bought their position.[8] In addition, the effect of the prices paid for office on violence persisted over time, with a larger price-wage ratio predicting greater violence intensity during the Peruvian civil conflict of the 1980's. In particular, prices paid for office had a significantly higher impact on the number of attacks to political authorities rather than to those committed against peasants or by the army. These results are consistent with the well-established fact that violence exerts a negative impact on long-term development prospects (Heineman and Verner 2006).

In exploring the consequences of office-selling, I suggest a mechanism to explain local long-term development outcomes involving rent-seeking, political violence, and institutional oversight during colonial times. Hence the paper has direct implications for crucial questions in economic history such as, why Latin America fell behind the United States (Haber 2002) and why the periods after independence in all Latin American countries were "lost decades" in terms of economic growth (Bates et. al. 2006; Przeworski and Curvale 2005). This paper shows how the negative economic effect of rent-seeking activities at the local level and recurrent political conflict in the form of violence may have contributed to the country-level sluggish growth rates observed after independence across Latin America. The void left by the collapse of the colonial system was not substituted with political institutions that would process political conflicts nonviolently (Przeworski and Curvale 2005). The resulting volatile conditions prevented the investment of private capital that might have financed economic activities to achieve pre-independence levels of economic growth. The result was a widening gap between Latin America and growing economies, such as the United States.

Similarly, while landmark studies have documented the lasting economic consequences of country-level colonial institutions (Acemoglu, Johnson and Robinson 2001; Acemoglu and Robinson 2012; Engerman and Sokoloff 1997, 2002) these studies often mask the heterogeneous effects institutions may have over time and space induced by local-level differences. In this paper I provide evidence of how sub-national economic and political dynamics might explain cross-country patterns such as the decline in the economic prospects of previously buoyant regions. For instance, contrary to recent evidence of the persistence of pre-colonial sub-national patterns of economic development (Maloney and Valencia 2012), I provide evidence of economic reversal among previously buoyant provinces in Peru. While geography and location effects are important, these are unable to explain why highly demanded offices in provinces with important trade and agricultural activities in the 18th century are today significantly worse off than provinces with offices less in demand at the time.

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[8]Moreover, I find a similar result using the quasi-experimental framework of Dell (2010) increasing the validity of this mechanism. In the paper "Violence as a channel of persistence: Evidence from the Peruvian Mita" (Guardado 2013) I find that rent-extraction increased violence leading to worse development outcomes today.

Third, the paper highlights the importance for long-term development of the incentives faced by local tax-collection officials. For instance, under some circumstances the establishment of revenue-collection systems can lead to greater state capacity to promote economic development (Berger 2009; Tilly 1990; Besley and Persson 2010) while in others lead to worse development outcomes (Banerjee and Iyer 2005). The paper shows how the difference in the extent of oversight shape the incentives faced by local officials: when the right to collect taxes was delegated in exchange for a lump-sum payment with little to no oversight from the central colonial government, long-term development prospects were worse than when greater oversight was exercised.[9] Therefore, looking at the different incentives colonial officials faced will help explain variation in long-term economic outcomes within Peru and across Latin America more generally. Furthermore, the role of inter-sate wars has been often hailed as an important catalyst for the state-building processes, such as the establishment of universal revenue systems (Tilly 1992; Besley and Persson 2010). Yet, the case of Peru and the Spanish Empire more generally highlights the negative externalities inter-state wars had on state capacity among dependent territories overseas.

Fourth, these findings contribute to our broader understanding of the relationship between armed conflict, corruption and underdevelopment. The persistence of entrenched poverty in certain areas of Latin America and the Philippines is at least partly due to the effects of colonial rent-seeking on the patterns of interaction between the population and political authorities. Political conflict in the form of mistrust in government or even armed confrontation has detrimental effects for the formation of human capital, investment decisions and collective action. The implication is that the effects of corruption are not only the immediate economic loses, but that corruption also takes a toll on the degree of political conflict present in a society which in turns affects future economic prosperity.

Finally, the paper adds to the literature on corruption and bureaucratic performance by using the market of colonial offices to estimate the social costs of tying monetary payments to appointments. Such methodology is similar to other studies based on market mechanisms (Fisman 2001; Fisman et. al. 2006; Faccio 2006; Fisman et. al. 2012). Yet, these studies do not explore the economic costs associated with corruption even though some correlation exists between the two (Mauro 1995). To the best of my knowledge this is the first study to use actual payments for colonial offices to measure the determinants of rent-seeking and its long-term consequences.

The remainder of the paper is organized as follows: Section 2 provides historical background; Section 3 describes the empirical strategy and data; Section 4 describes the results while Section 5 discusses the findings and concludes.

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[9]Similarly, Iyer (2010) finds that Indian Prices subject to oversight from the British performed better those under direct British rule.

2 Historical Background - Sale of Public Offices

The sale of public offices was common during the 17th century in diverse settings such as France, England, the Ottoman Empire and China (Swart 1980). Office-selling entailed the appointment to central and provincial government positions in exchange for money – usually sizeable sums. However, prior to 1674 only minor offices (e.g. writers or *notarios*) and those in the treasury were sold in the Spanish colonies. Offices with a more political role in the government (e.g. provincial governors and central government officials) were granted only on the basis of scholarship and professional merits, particularly for the central government (*audiencia*).

By the end of the 17th century, however, the dire fiscal situation of the Spanish Crown led to the extraordinary decision to sell off appointments to provincial offices in 1674 and central government offices in 1687. Effectively, office-selling allowed anyone with the appropriate means and connections to purchase a five-year position in one of the numerous governorships or a lifetime seat in any of the thirteen central governments of the Empire. Although office-selling also had negative consequences for central rule, the possibility of military defeat in Europe and subsequent disintegration of the Spanish Empire led the King to sell off public offices to the highest bidder (Burkholder and Chandler 1977). Figures 1 and 2 show the number of Peruvian local offices and central government positions sold during the years Spain was involved in a European war (shaded areas). As displayed, surges in the sale of positions responded to the fiscal needs to the Spanish Crown during wartime. In 1751, Ferdinand VI stopped the sale of positions in an attempt to regain control of the colonial administration.

Figure 1: Governor Posts   Figure 2: Central Gov. (*Audiencia*) Posts
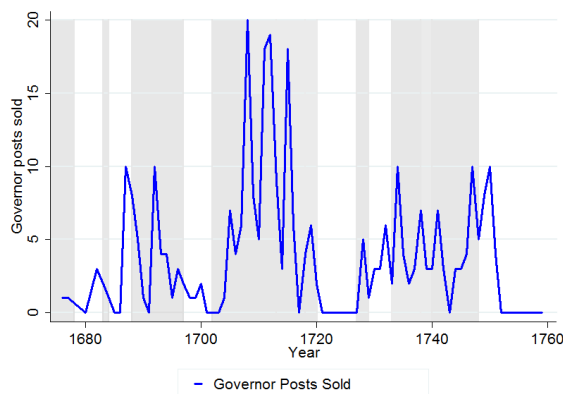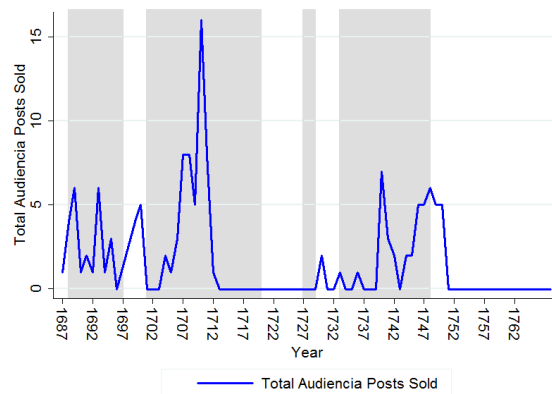
2.1 Local Officials - Provincial Governors

Among the offices sold, those in the provincial government – governorships – were highly demanded by individuals in search for a quick fortune in the Americas (Andrien 1984). Unlike positions in the central government (*audiencia*), provincial offices were not particularly prestigious positions, and no explicit ban based on birthplace excluded locals wanting to serve in the provincial government. Governors served as tax collectors and "justice administrators" thus

exerting considerable leverage among the indigenous population. Also, governors only served in office five years, a fact that usually induced worse policy outcomes. Given these characteristics, office-selling in the late 17th and early 18th century brought about a higher proportion of officials who did *not* belong either to the nobility or the military classes. Because these two groups were traditionally linked to the Spanish Crown, the increase in the number of local officials from *neither* of these groups shows that office-selling may have had an indirect effect on class mobility, as argued at the time by Montesquieu and Jeremy Bentham. However, it may have also raised concerns of less discipline and greater rent-seeking activities given these newcomers lack of previous experience in government (Swart 1980). As shown in Figure 3, the rise of non-noble and non-military individuals was halted by 1751, when the Bourbon Kings in an effort to undo former permissiveness, again appointed a greater number of local officials with a military background.

Figure 3: Governor Traits
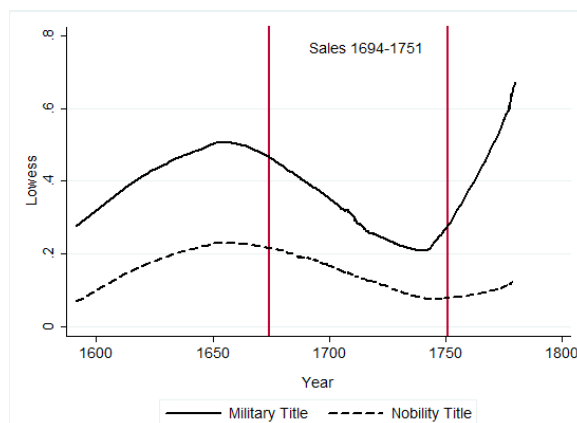
Office-selling worked by publicizing (via public criers) the positions soon to vacate. Interested candidates would then send sealed letters with a list of their achievements and the price offered for the position to the court in Madrid, where the monarch would generally choose the highest bidder. Prior to the 1680's Viceroys in the Americas could also sell positions – after being approved by the King. However, as a way to control appointments (and revenue) the Spanish King would soon monopolize all sales alleging malfeasance among officials in the Americas. Although no initial price was set, prices would increase exponentially during the episodes of sales.[10] One explanation for such increases was the potential side-gains from office. Rumors about potential profits circulated among aspiring officials thus guiding their bids for a particular province. For instance, provinces were classified according to their ability to deliver *repartimiento* profits into "buenos" (good), "excelente" (excellent) and "reasonable" based on the amount to be obtained and the ease of extraction (Moreno Cebrian 1977: 75). An alternative explanation is that prices paid for offices often increased in line with the expected wages

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[10]All prices went through a generalized decrease between 1700 and 1735, only to increase again.

from that office. Although there is a positive correlation between prices paid and expected wages, these remained stagnant throughout the period, since the Crown was in sufficient financial penury to not be able to raise them (Figure A.1, Appendix A). Moreover, wages were a rather small and insufficient amount for the task at hand (Moreno Cebrian 1977), subject to a one-time tax of half a salary (*media anata*), and the whole amount was susceptible to be retained by the monarch for "emergency" reasons. A third explanation for rising prices could lie in the differences in the prestige associated with certain offices compared to others. As we will see, this fails to explain why price escalation is differentially higher for positions with certain rent-producing activities given these were not particularly more prestigious than others.

2.2 Central Government Officials - Oversight Bodies

In addition to local offices, positions in the central government were also sold on a regular basis. Central colonial governments or *audiencias* enjoyed a wide powers over a geographic territory roughly equivalent to current countries. Central governments would rule in matters as diverse as taxation, mining rights and criminal or civil suits, and provide economic and political advice to the Viceroy. For these reasons, central government positions were particularly attractive to local economic elites banned from office under the Crown's unwritten rule of not appointing American-born or *creoles*[11] to any position of political significance. Therefore, an indirect consequence of office-selling was a change in the composition of the institutions in charge of overseeing colonial policy. Positions previously reserved to Spanish-born individuals with prior experience in government, were overwhelmingly bought by local wealthy elites (*creoles*). As shown in Figure 6, during the 18th century the central government in Peru became increasingly dominated by Peruvian and Spanish officials married to Peruvians – a symbol of local connections. Furthermore, this phenomenon was not exclusive of Peru; in fact, Figure 12 in the Appendix confirms visually the change in composition of oversight bodies in each of the 13 territories that constituted the Empire. While some territories had a large proportion of *creoles* sitting in the central government, in others the sale of such positions was restricted.[12]

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[11]American born from Spanish parents.

[12]For example, in the territories corresponding to current-day Bolivia, Chile, Lima, Panama and Ecuador there was a greater proportion of *creoles* in office than in Guatemala, Northern Mexico, Southern Mexico, and Colombia. Similarly, the Philippines and the Dominican Republic had very little to no *creole* presence.

Figure 4: *Creole* presence in Oversight Body
- Peru
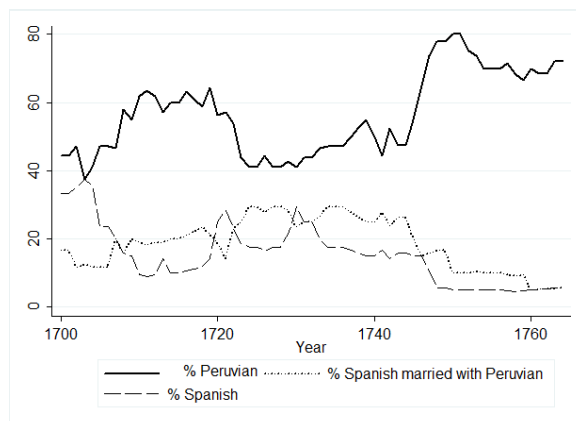
Given that central governments performed the crucial task of supervising the activities of governors,[13] it is possible that the advent of sales in the central government would create opportunities for local rent-seeking in at least two ways. On the one hand, incoming central government members may outright collude with local officials to engage in profitable side-businesses. In fact, historical accounts suggest that both local officials and central government members were involved in the lucrative business of forcing the indigenous population to purchase goods at inflated prices (Stein 1981; Lynch 1992). On the other, the recruitment of inexperienced officials via sales may reduce the ability of the central government to monitor provincial governments. Sheer inefficiency may create such a backlog of cases in the *audiencia*[14] that the threat of punishing exploitative local officials is no longer credible. In either of these cases, the result is an increased ability of local officials to profit from their position without any repercussion.

3 Private Returns to Colonial Offices

The difference in the price of the appointment created a deficit that is difficult to attribute to the buyer's desire to serve the Spanish Crown. This is particularly the case for local officials –governors –, given that they served fixed terms, wages were small and future appointments uncertain. Instead, as argued by many historians, governors would engage in profitable side activities such as the forced sales of merchandise, or *repartimiento*. This practice literally meant the forced distribution of goods at inflated prices which kept the population in heavy and permanent debt.[15] The profitability of *repartimiento* depended less on the size of the territory or overall population than on a more subtle ability to force such sales on the population unnoticed by the central government in Lima and, most importantly, the Crown in Spain. Moreover, the business of *repartimiento* could only flourish if the population was not on the

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[13]The so-called *juicio de residencia* or "judgment of residency"

[14]An example of this mechanism is illustrated by the sale of two fiscal positions, which led to an increase in uncollected debts and poor accounting in the Peruvian treasury (Andrien 1982)

[15]Although there is a debate as to whether *repartimiento* was a forced activity or not (Baskes 2000); yet, the fact is that it entailed monopolistic practices and steep markups on prices for goods and credit.

limit of subsistence and, significantly, if they are able to pay in cash. Provinces devoted to trade would have a larger circulation of currency, as would those near mines or haciendas where the population could exchange labor for cash wages. As shown in the case of Oaxaca (Baskes 2000), *repartimiento* yielded higher returns in provinces economically buoyant due to their participation in international markets (e.g. export of cochineal or red dye in southern Mexico). In Peru, the best provinces for *repartimiento* were those with a larger possibility for the population to produce work hours, resulting in more cash for the governor to extract (Golte 1980: 81; O'Phelan 1988).

According to historical accounts, the way for a governor to operate *repartimiento* was to use royal tax records to assign to each household a debt, which corresponded to a specific amount of merchandise which was then owed to him. If the people were unable to pay[16] in cash on the spot or at a fixed date in the future, they were forced by the local official to repay under the threat of jailing or confiscation of other goods and animals (O'Phelan 1988). The magnitude of rents obtained via forced sales are estimated to be at least twice the income obtained from forced labor (*mita*) and head taxes (*tributo*) from the Indian population (Golte 1980). Debt repayment was ensured by the fact that the local governor was not only the executive but also the judicial authority in his province.

Even if deemed unjust, those who defended *repartimiento* argued that it otherwise generated positive externalities. For instance, forced sales spurred economic activity by increasing the size of the labor market with workers who would be instead devoted to self-subsistence agriculture. Moreover, recent revisionist accounts argue that *repartimiento* was in fact a key factor in the production cycle and would alleviate credit constraints of the indigenous population (Baskes 2000). The coalition of advocates for this policy was therefore formed by merchants, because they had a secure market to place unsold goods; local officials, because it was a very profitable activity to top their meager salary; and more indirectly, hacienda and mine owners, because they could access cheap labor from those who would be otherwise unwilling to work there. In addition, members of the central government bureaucracy in Lima have been noted to benefit from forced sales. Viceroy Amat y Junient described in his memoirs how central government officials hugely profited from forced sales, given their own close ties to merchants and trade (Cebrian 1972: 169).

In sum, forced sales was an important activity by local officials to obtain side-gains from office. The practice would be outlawed in 1783, after the Tupac Amaru rebellion threatened not only the business of forced sales but overall colonial rule in Peru.

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[16]Sometimes the governor allowed payment in items, but these were used to be distributed via *repartimiento* until a monetary payment was obtained (Golte 1980).

4 Data and Estimation

4.1 Data

The data used in this paper comes from several sources. The time series for the prices of governor positions were coded from primary sources located at the Spanish Colonial Archives (*Archivo General de Indias*). I examine the prices of governorships from 1674 until 1751, when the last recorded sales were made. An example of the title of local governor can be found in Figure A.4 in the Appendix A where the price is added as a note of the front page in the left hand corner (in this case, 90000 *reales*[17]). Because prices were given in various denominations of Spanish currency, I use historical exchange rates described in Online Appendix. In addition, since inflation might have affected the willingness to purchase seats, all estimates approximate for yearly inflation using changes in the price of silver by Arroyo-Abad (2005) based on Hamilton (1964, 1969 and 1936).

To account for the Crown's fiscal needs, I use warfare in Europe involving Spain as a source of exogenous variation in the timing and number of necessary sales.[18] Hence, the War_t variable is coded as the duration of years in a given war, under the assumption that longer wars tend to drain more the treasury. For instance, the Nine Years' War lasted from 1688 until 1697; hence 1688 is coded as one, 1689 as a two, and so on, and the first year of peace is coded as a 0.

To evaluate the mechanisms that could have facilitated profiting from office I use two types of data. First, to capture changes in the Crown's ability to oversee the colonies, I use the time series for the sales of positions to the central government as provided by Burkholder and Chandler (1977). This variable includes a yearly distribution of members according to: (1) the proportion of Peruvians serving per year; (2) the proportion of members of Spanish origin; (3) the proportion of members sitting in the central government who have bought their appointment (either Peruvian or not). These measures capture to what extent officials without previous experience (mostly Peruvians) might weaken oversight and monitoring of the central government. Since it is also possible that an adverse selection mechanism is in place at the local level (e.g. those with lower social costs outbid those with higher social costs of corruption), I use a second set of data of the observable social status of local officials – whether they belong to the nobility, the military or neither. Given those belonging to the nobility or military classes were of a higher social status and the preferred choice of the Crown, I then estimate whether there is a differential effect in the observable traits of individuals purchasing local offices with greater access to rents.

Given the lack of time-varying information on the levels of economic activities per province during the late 17th and first half of the 18th century, I use two types of data. First, I use agro-climatic data provided by the UN's Food and Agricultural Organization (FAO 2012) which

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[17]The title corresponds to the position of governor (*corregidor*) of the province of Andahuaylas sold in 1729 to Francisco Venegas de Saavedra for 90000 *reales de vellon*.

[18]European wars during the period under study were: Nine Years' War (1688-1697), War of the Spanish Succession (1701-1714), War of the Quadruple Alliance (1718-1720), Anglo-Spanish War (1727-1729), War of the Polish Succession (1733-1738), War of Jenkins' Ear (1739-1742) and the War of the Austrian Succession (1740-1748).

constructed an index based on climate, soil and slope of the terrain for agricultural activities in general. Although this measure was coded for 2002, I argue that its components are slow-changing and hence not a source of bias in my estimates. Figure 1.7 shows the spatial distribution of agricultural potential in current districts. In addition, I use the historical land-cover data as provided by Ramankutty and Foley (1999) which starts in 1700. Although the information possesses lower resolution than FAO measures, it provides broad characterizations of cultivated and not-cultivated areas around the start time of my study (1700). To cross-check that agricultural suitability actually predicts economic activity, I constructed an indicator based on historical accounts describing different productive activities in the provinces. That is, I coded provinces identified by historians producing agriculturally related goods such as wine, salt, textiles, coca or flour production which mainly supplied mining centers and Lima. The information was obtained from O'Phelan (1988: 61) which contains a list of provinces that serve as agricultural suppliers to mining centers.

Figure 5: Colonial *Agri-cultural Constrained* provinces in current districts
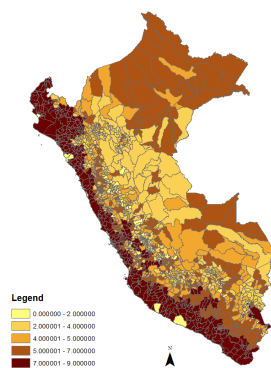
Figure 6: Provinces serving the *mita*
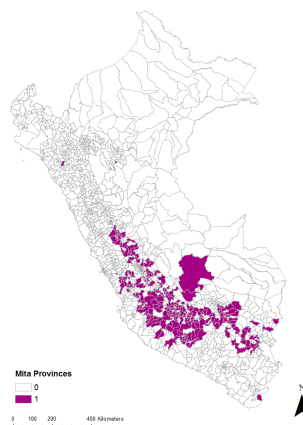
Another source of economic activity is whether the province was assigned since 1573 to participate in the mining *mita*, the system of forced labor. Under this system, indigenous communities had to send 1/7 of their adult male population to work in the Potosi and Huancavelica mines. The coding is based on the memoirs of the Peruvian viceroys (Rodriguez and Perez 1947), which list the provinces subjected to the *mita* assignment to either the Potosi or Huancavelica mines. Given the importance of the *mita* to explain current underdevelopment measures (Dell 2010), I assess whether forced sales and the sale of public offices contributed to the persistence of such effect. Figure 1.8 shows the spatial distribution of *mita* provinces according to current districts. Second, since it is possible that the prices for provincial offices reflect their governors' ability to profit not from forced sales but from their access to natural resources, I coded provinces in which the production of gold and silver was a main economic activity. Such information was provided by Golte (1980: Mapa 11) and helps disentangle whether post prices increased differentially in such provinces. Figure 1.9 shows the spatial distribution

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of mining centers according to current districts. Although there is some overlap in the provinces under each trait, the pairwise correlation between production provinces and other traits is quite low.[19] Figure 1.10 below shows the cross-sectional variation in the prices paid for local offices and show how higher prices (represented by darker colors) are not necessarily geographically clustered.

Figure 7: Provinces with gold and silver mines

Figure 8: Log-levels of governorship prices in current districts.
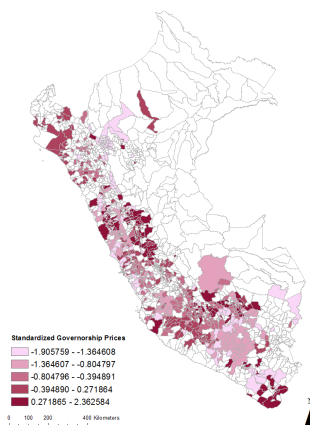
Additional provincial-level control variables include a time series for the number of indigenous rebellions against governors in each province for a given year (O'Phelan 1988; Golte 1980). Since spontaneous resistance was frequent in Peru, this variable will help weed out variation in governorship price levels associated with the risk of holding the post, from that due to the extraction opportunities offered. For instance, provinces with frequent rebellions may exhibit a lower price to account for the increased risk of holding office. This variable will then be used to explain the persistence of violence in certain provinces relative to others.

To account for the possibility that the price paid for governorship represents a burden upon the Spanish treasury and not an expense to the population, I gathered revenue data for the period 1680 until 1780. During colonial times, the Spanish Crown collected revenues via regional *cajas* which kept detailed records of their income and expenditures throughout the year as shown by Tepaske and Klein (1980, 1992). I use such records to control for the possibility that high governorship prices led to a drop in revenue which may suggest graft but not necessarily extraction from the population. The drawback of this information is that *cajas* had jurisdiction over more than one province; hence the variation captured is in *caja*-year not province-year. The revenue variables collected include: total income per year; tax income due to commercial and trade activities (*alcabala*); and income due to head taxes (*tributo*). All revenue figures are presented in real amounts using the changes in prices of maize from Lima markets to account for yearly inflation.

To match colonial and current districts I use the geographic accounts by Cosme Bueno

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[19]In fact, the correlation of agricultural provinces and *mita* provinces is r=0.03 and mine provinces is r=0.06.

(1951) who wrote a detailed description of each province and its colonial districts. I then match by name the historical regions with contemporary ones, thereby identifying most of the districts used in the analysis. Districts that were not readily matched either underwent a name change or were created recently. In the former case, districts were tracked using several historical descriptions and geographic codes from the Peruvian Statistics Office (INEI) to ensure they correspond to the colonial district. Using this method I am able to match 930 current districts with their colonial counterpart.

To measure poverty incidence and gap, I use 2007 district-level poverty estimates obtained from the INEI. Poverty incidence is measured as $Incidence = \frac{q}{n}$ where n is the size of the population in the district in 2007 and q the size of the population under the line of poverty according to Peruvian standards. Poverty gap is measured as $Gap = \frac{(z-y)}{nz}$ where n is again the population size, z is the poverty line and y is the estimated consumption per individual. Such information is geo-referenced, thus suitable to be matched with colonial districts. In addition, I collected geographic indicators per district on their latitude, longitude, distance to Lima and average elevation (in meters over sea level) obtained from the Ministry of Education. Data on district-level provision of public goods include the percentage of households per district with access to water, as well as the schooling outcomes per district as provided by the 2007 census. Finally, to look at household consumption I use the 2010 national household census (ENAHO) which includes a sample of around 42,000 individuals clustered in 450 districts conforming to all 51 colonial provinces.

The proposed channel of persistence is the heightened political conflict prevailing in prices with larger price-wage gaps. Therefore, I use province-level data based on historical accounts describing the number and types of rebellions occurring throughout the 18th century. In fact, O'Phelan (1988) and Golte (1980) provide a list of districts with the year and type of rebellion observed. Such list describes both whether the rebellion is against a provincial governor (*corregidor*) or other actors (e.g. priests). The majority of these rebellions were an spontaneous mass rebellion with varied targets.

In addition, I use more contemporary data on violence collected by the Peruvian Truth and Reconciliation Commission (CVR), which recorded individual level data on the number and type of human rights violations (illegal detentions, kidnapping, murder, extra judicial executions, torture, or rapes) as well as the perpetrator (government forces, guerrilla or paramilitary groups) over the twenty years of the Peruvian Civil War (1980-2000). I aggregate the number of crimes perpetrated by the guerrilla or the army at the district level. I also record who were the victims, since certain patterns of victimization are clearly associated with support to Shining Path or the communist Peruvian guerrilla.

4.2 Estimation

To motivate my empirical strategy I rely on a canonical model of corruption proposed by Olken and Pande (2011) drawing from the seminal contributions of Becker and Stigler (1974). Using this framework I estimate how changes in known determinants of corruption, such as wages,

rent availability and oversight, might affect the prices to be paid for office thus suggesting these are (or not) driven by the side-gains to be obtained.

First, normalizing the outside option of colonial officials to be zero, let $wage_i$ represent a per province i fixed wage in return for service to individual (c) in the colonial government. This closely represents the colonial administration in the 18th century whereby each province was associated with a wage and these were not increased throughout the period under study. In addition to wages, all provincial officials are subject to a level of monitoring p by a central authority with direct communication with the Crown which captures the probability of being caught (and punished) for corruption by the *audiencia* or central government. If with probability p an official is caught, officials have to face a social cost and pay a fine $fine_c$. For example, governor contracts' established a fine of a thousand pesos for mistreatment of the local population or delays in the delivery of head taxes to the administration. If not caught, officials obtain a fixed level of illicit gains represented by $rents_i$. Officials are assumed to maximize their utility from holding office which is contingent on their future behavior. That is, the expected returns for a given provincial position are:

$$\text{Returns to Office:} \begin{cases} pfine_c + (1-p)(wage_i + rents_i) & \text{if corrupt} \\ \\ wage_i & \text{if honest} \end{cases}$$

During fiscal crises, the Crown puts an exogenously given number of offices out for auction[20]. A number of candidates compete for these posts and offices are awarded to those offering the highest bid. Let $GovPrice_i$ denote the price paid for the position of governor of province i hence the winner of the auction. The willingness to pay for office is then a function of the expected returns such that the prices offered will be less or equal to the candidate's valuation[21] Each candidate decides up front[22] the price to offer based on the potential gains to be obtained from it:

$$GovPrice_i \leq pfine_c + (1-p)(wage_i + rents_i) \qquad \text{if corrupt}$$

$$\text{Or,}$$

$$GovPrice_i \leq wage_i \qquad \text{if honest}$$

Only looking at the prices paid for office is impossible to know *a priori* whether these belong

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[20]These are determined by the number of available vacancies at the time. However, they would also sell future rights to currently occupied offices.

[21]A large literature on auctions emphasizes how the optimal bid is lower than the valuation an individual has for the item.

[22]Key to office-selling was the ability to raise money as quickly as possible. Generally , candidates would pay at the spot at least half of the amount due – which was always quite sizeable – and the rest would be deposited in the royal treasury in Spain or the Americas at the moment of occupying the position.

to corrupt or honest officials or what is the size of the gains to be obtained from office. Yet, based on this framework, we know that if those purchasing positions do *not* intend to profit from office then it should be the case that:

$$GovPrice_i - wage_i \leq 0$$

That is, individuals *not* profiting from office should find it rational to bid up to their expected returns. Any payment beyond that of expected wages will potentially contain side-gains from office. In the data I find that in 41% of the transactions the price paid for office went above and beyond the expected wage payment. Since wages were actually rarely paid on time (or at all!) by the Crown, were subject to numerous taxes, and could be unexpectedly retained citing "emergency reasons", I see this as a conservative estimate of the true number of transactions with "above normal prices".

Moreover, if the difference between the price paid and the wages expected (price-wage gap) varies according to factors associated with corruption such as the amount of $rents_i$ to be obtained, the punishment cost (f_c) or the ability to monitor (p) by the Crown, then it suggests that the price-wage gap is a function of the actual side-gains obtained from office. For instance, consider what the price-wage gap looks like for an official decided to engage in corruption:

$$GovPrice_i - wage_i(1-p) \leq pf_c + rents_i(1-p)$$

In the case of corrupt officials, the increase in the number of $rents_i > 0$ leads to a greater difference between prices and wages, all else equal. This is consistent with corrupt officials purchasing offices to obtain private returns while inconsistent with honest officials paying higher prices merely to serve the Crown. In terms of observable implications, we should see that in the presence of corruption or private returns, the price-wage gap will be systematically larger in provinces with greater rents than where no such rents are present. In other words, if there is a systematic increase in the price-wage gap driven by the presence of rents ($rents_i > 0$), this is consistent with corrupt activities. However, if there is no systematic increase in price-wage gap due to the presence of $rents_i > 0$ it is not possible to unambiguously establish whether the behavior of officials is consistent with corruption or not – the inequality sign still holds.

A second factor consistent with the presence of corruption is that of monitoring or oversight the by Crown (p). If the Crown were to increase its monitoring ability it makes it harder and more risky to reap substantial profits from office, all else equal. Therefore, the willingness to pay above and beyond expected wages should diminish in the presence of enhanced oversight. That is, in the presence of corruption or private gains, the price-wage gap will be systematically smaller with increasing oversight by the Spanish Crown. Lastly, changes in the individual punishment cost (f_c) may directly influence the prices paid for office. For example, individuals less susceptible to sanctions, including social sanctions, might have a greater willingness to pay for office because their returns from corruption are higher. Under the assumption that high-status individuals could have higher social costs if caught (e.g. severed ties and shame), they

should be less represented in areas with greater rent-availability. Rather, individuals with low punishment costs would outbid those with higher punishment costs and be most likely occupying positions with greater access to rents.

To evaluate these predictions, I focus on the variation in the price-wage gap driven by rents, and then test whether monitoring or social costs are mechanisms behind the patterns observed. Following the theoretical framework, the ideal specification to assess the effect of rents on prices would be:

$$GovPrice_{it} - Wage_i = \alpha_i + \lambda_t + \beta rents_{it} + \mathbf{X}_{it} + \epsilon_{it}$$

Where rent-induced prices implies that $\beta > 0$. However, because $rents_{it}$ cannot be measured directly, I will assume that $rents_{it}$ is instead a function of the rents available from different economic activities such as agriculture, commerce (trade), mining (natural resources) and forced labor institutions (labor). I focus on such economic activities because they are the most important source of wealth in the colonial society. Moreover, there are available measures of such activities which pre-date the period under study (1674-1751) and are therefore unlikely to be influenced by prices themselves (reverse causality).

A second difficulty when comparing prices based on economic activities is that the decision to sell positions was made by the Spanish Crown. This would lead to biased estimates if the Crown strategically sold positions in response to greater economic productivity in certain Peruvian provinces relative to others. In Chapter 2 I show that this is not the case for Peru, which was less susceptible to foreign attacks and the Crown feared less for its security. Nonetheless, throughout the estimation I will exploit exogenous variation in the fiscal needs of the Crown driven by its involvement in European wars. Wars were a financial drain to the Spanish treasury and the reason why the Crown (reluctantly) introduced the sale of public offices in the Spanish colonies as a way to raise quick revenue (Burkholder and Chandler 1977). Since the onset and length of wars are likely to be driven by geopolitical calculations in Europe, they can be considered exogenous to Peruvian provincial traits. With these two additions, rents ($rents_{it}$) is then measured as $rents_{it} = \theta_i(RentAvailable_i \times War_t)$. Where θ_i represents a fixed proportion of the $RentAvailable_i$ (e.g. economic activities) in the province and war_t isolates variation in prices due to war events. Incorporating this measure I finally estimate:

$$GovPrice_{ijt} - Wage_{ij} = \alpha_{ij} + \gamma_t + \beta(RentAvailable_{ij} \times War_t) + \mathbf{X}_{ijt} + \mathbf{W}_{jt} + \epsilon_{ijt} \qquad (1)$$

Which include time-varying controls for revenue regions j conformed by more than one province as well as time-varying traits such as rebellions. The coefficient of interest is β, which if positive shows a higher price of offices in provinces with greater rent-availability relative to those that do not engage in it. Within this specification the provincial fixed effect would absorb the specific returns to rent-availability (θ_i).

5 Results

In this section I present the estimation results of how prices paid for office respond to different sources of rents at times of fiscal need of the Crown.

5.1 Wars, Office-Selling and Rent-Availability

In Figure 11 below I present the distribution of the price-wage gap using prices and wages adjusted by inflation at the time. Theoretically, the distribution of prices and wages should be less or equal to zero. It is evident from figure 1.11 that this is not the case. In fact, a large number of transactions in which the price paid exceeded the expected wages from office (around 40%). Yet, this is a conservative estimate of the number of transactions in which the price-wage gap exceeds zero given that wages were subject to numerous taxes, rarely paid on time (or at all), did not consider expenses related to travelling to the Americas and were subject to "emergency" reasons such as fiscal crises. For all these reasons, I consider these only as a lower bound of the actual number of transactions in which prices paid exceeded the amount to be received in wages.

Figure 9: Distribution Price-Wage Gap
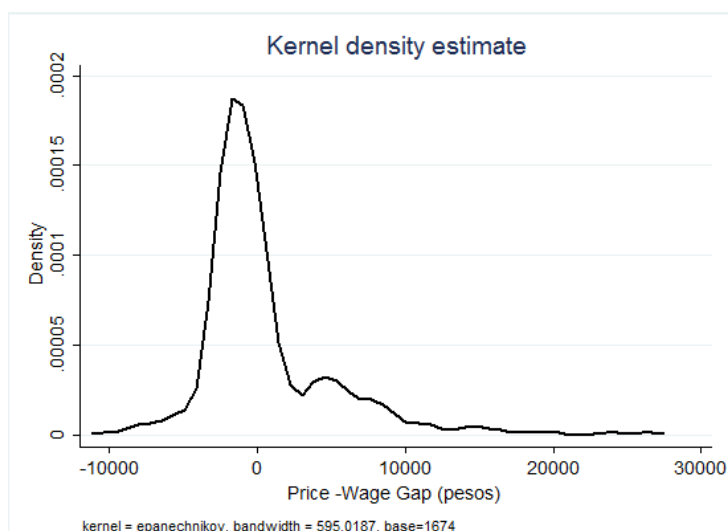
Which factors account for the large difference between the prices paid and the wages received? In Table 1.1 I present the OLS estimates of Equation (1.1) for different types of provincial traits (forced labor, mining, routes or agricultural constraints). The purpose is to show whether the plausibility of rents to be extracted has a differential effect on the price-wage gap at times in which the Crown is less susceptible to strategic manipulation of sales – during wars in Europe. All specifications include province and year fixed effects as well as geographic controls such as the average elevation and distance to Lima interacted with war duration to account for differential trends which might influence prices paid for office. I also include a trend

variable for revenue collection centers in order to account for yearly changes in revenue that could induce higher prices due to a higher revenue availability in the regional treasury.

In Panel A of Table 1, I interact the length of war in Europe with different economic bases across Peruvian provinces. Columns (1) through (3) show that the interaction has a positive and significant effect on the prices for governorships in agriculturally suitable provinces and in those where force labor institutions (*mita*) is in place, while controlling for potential changes in other traits. That is, an additional year of war leads to an increase in prices for governorships in agriculturally suitable provinces and forced labor districts, yet not in others such as mining centers. In economic terms, the coefficient of 83.1 of column (1) Panel A suggests that an additional year of war will increase by 83.1 pesos the difference between the price paid and wage receive for a province with a level of agricultural suitability of 1. Evaluating this coefficient at the average level of agricultural suitability of Peruvian provinces (3.21) the coefficient in column (1) implies an effect of 266.7 pesos. To get a sense of the magnitude of this difference, the annual wage of a military captain in the Spanish army is of 150 pesos. That is, for the average suitable province in Peru, officials are willing to pay on average 1.5 times more the yearly salary of a captain in the royal army. In column (2) I include a provincial indicator variable of whether a rebellion against a governor ensued in the year. Finally, column (3) adds provinces from the neighboring *audiencia* of Bolivia as a robustness check. In all three columns, the coefficients are consistently around 80 pesos or 256 pesos for the average agriculturally suitable province. Given that the average number of war years throughout the period is of 5.9, the difference throughout the period for the average agriculturally suitable province is 1,510 pesos. Similar results are found in the case of forced labor, where those purchasing offices in *mita* districts were willing to pay on average around 130 pesos more. These results are consistent with the idea that positions with greater opportunities to enrich oneself due to their productive activities or the mobilization of forced labor exhibited "abnormal prices" or the willingness to pay above and beyond the expected wages.

Particularly puzzling is the fact that mining provinces show no differential increase in the prices paid for office. Two factors explain this result: first, mining activities and mining resources had greater scrutiny by the Crown, given their crucial role for royal finances. In fact, as shown below, the *type* of official sent to mining provinces is different from those governing other provinces. Officials sent to mining areas usually had a higher social status (e.g. military or nobility) thus more directly connected to the Spanish Crown. Second, local governors were institutionally constrained from profiting of mining activities given their main role was that of tax collection from the population with no direct contact with mining proceeds.[23]

To examine whether this result is driven by the sample of wars coded, in Panel B I limit the analysis to only those conflicts in which Spain was theoretically less susceptible to manipulate the onset or length of wars: specifically, the War of the Spanish Succession (1704-1714) and the War of Jenkins' Ear (1739-1748), which overlaps with the War of the Austrian Succession (1740-1748). As shown in Panel B, the result is basically unchanged, although the coefficient is larger

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[23]In contrast, other colonial officials such as assayers, officials overseeing forced labor and mint traders, among others, had much more direct contact with bullion exports.

for agriculturally productive provinces on average. Further robustness checks are included in Table A.1 of the Appendix analyzes the effect of different productive activities on the log price-wage gap (instead of levels). Results are consistent with those presented here yet coefficients tend to be less precisely estimated.

Given the strong and consistent result observed in the case of agriculturally suitable provinces, it is important to establish whether agricultural potential actually relates to historical accounts of commercial and agricultural production. That is, whether climatic and geographic measures predict the production of flour, salt, textiles and coca. In Table 2.A Panel A, I show the relationship between the main explanatory variable (agricultural potential) and historical accounts of commercial and agricultural hubs. As noticed, the coefficient is quite large and in the expected direction: greater agricultural potential increases the likelihood of provinces acting as a commercial hubs and agricultural producers as identified by historians. Panel B shows that the instrumented presence of commercial hubs is positively related to the prices paid for office (second stage). In fact, the coefficient of agricultural suitability is around 685 pesos, thus larger than the OLS estimates. Although these are not to be interpreted causally, they reflect that indeed agricultural suitability is associated with commercial activity and that such variation is strongly and positively associated with the difference between prices and wages.

Following a similar strategy, in Table 2.B I use historical land-cover data (Ramankutty and Foley 1999) as an instrument for commercial and agricultural production at the start of the 18th century and estimate its effect on the prices paid for local offices. Panels A and B show that the effect of areas not cultivated is negative on the likelihood of commercial and productive activities in the province. That is, areas that were under cultivation are more likely to become commercial hubs in the 18th century (Panel A - first stage). Therefore, in Panel B I show the effect of the instrumented commercial hub presence variation on the prices paid for office. Again, I find that instances of war in Europe led to a differential increase in the prices of provinces with greater commercial and agricultural production, as instrumented by historical land-cover measures (Panel B - second stage).

Further robustness checks included in the Appendix allow me to discard alternative explanations to differential increases in prices. First, Table A.2 shows that geographic features such as elevation and distance to Lima are not driving the results observed. The interaction between Spain's involvement in European wars and the geographic traits of the province yield no difference in office prices. On its own, this result suggests that while geography may be important to determine the suitability of certain economic activities, it did not have a direct effect on appointment prices. Rather, theories based on how geography shapes economic activity as a whole better explain the observed variance in local offices prices.

Second, since there is great heterogeneity in the prestige associated with governorships across provinces, it is possible that these estimates are driven by especially attractive provinces, such as bishop seats. Therefore, in Panel B of Table A.2 I exclude provinces in which the regional head of the Catholic church was established and where a large part of the Spanish population resided (Lima, Cuzco, Arequipa, Huamanga and Trujillo). As shown in columns (1) through

(3) the coefficient remains unchanged and is even larger around 86 pesos. The increase in the coefficient suggests that while there are potential location effects, they do not determine the difference between the prices paid for office and expected wages.

Third, given the main effect is an interaction term, it is highly susceptible to potential outliers. Therefore, I estimate the model from Column (2) – preferred specification – while leaving one province out at time (out of 50) to assess the sensitivity of the results to changes in the sample. In figure A.2 of Appendix A I show the distribution of the T-statistic associated with the coefficient of agricultural suitability on the price-wage gap. As shown, for each province included in the sample, the T-statistic is always well-above conventional levels of statistical significance.

Fourth, in Table A.3 of the Appendix, I examine whether results are driven by prices responding to increases in revenue collected in agriculturally suitable provinces relative to agriculturally constrained ones. For instance, since the main task of the governor is to collect head taxes, it is possible that the differential increases in agriculturally suitable areas are driven by the large availability of side-gains from tax collection. In Panel A I interact the amount of total revenue with the type of economic activities and see whether it affects prices for appointments. Results indicate no significant effect for the case of total revenue is driven the price-wage gap of agricultural suitable provinces. That is, revenue collected throughout the period was not differentially higher in places with greater agricultural suitability than otherwise, thus discarding this explanation. Similarly, Panels B and C show that revenue due to trade taxes (*alcabala*) or collected via head taxes (*tributo*) are no more likely to explain the differential increase in prices for agriculturally suitable provinces. Yet, total revenue and particularly head taxes appears to be important to the value of governorships in provinces under the *mita* system (Panel A and Panel C) although not in the case of provinces with greater agricultural potential. Thus suggesting that the presence of a large indigenous population was important to those purchasing *mita* provinces but not for those purchasing agricultural and commercial provinces. These (non) results are important because they allow us to discard the explanation that appointment prices in agricultural areas responded to higher revenue from graft. Given that local officials had to pay a bond to the Spanish monarch equal to the amount of head taxes to be collected (*fianza*) it is unlikely governors profited from head taxes themselves at the expense of the Crown. Although this revenue may have sporadically been a consideration, it was not a major determinant of the value of local offices. Instead, historians argue that the tax-collection apparatus was important to obtain other side-gains at the expense of the population such as to force sales of merchandise(*repartimiento*), yet not at the expense of the taxes owed to the Crown.

Additional placebo tests consisted in creating random "war instances" in order to see whether the variation captured in prices is not merely coincidental. In Table A.4 I find that once these random war events are created, these are not predictive of differences in the price-wage gap over time.

5.2 Mechanism: Social Costs and Oversight

According to the theoretical framework, in the presence of corruption the price-wage gap is negatively associated to the degree of monitoring (or likelihood of being caught, p) and the punishment cost if caught (f_c). In this section I examine whether these mechanisms can explain the differential increase in the price-wage gap. Specifically, I examine (1) whether an increase in the degree of monitoring (p) is associated with a reduction in the differences between prices and wages, particularly for positions with greater rent-availability. (2) I then analyze whether individuals with lower social status self-selected into positions with greater rents available. Since social status might approximate differences in the social costs to engage in corruption (f_c), these may explain the presence of "abnormal" prices.

To investigate the monitoring mechanism, I analyze whether the presence of local elites in the central colonial government differentially increased the spread between prices and wages in provinces with greater rent-availability compared to those with less rents available. Positions in the central colonial government were mostly demanded by local elites due to the power, influence and prestige associated with the position (Lohman Villena 1951). Given their importance, the Crown paid close attention to the personal characteristics of those looking to purchase them. However, in the face of severe and frequent fiscal crises, the Spanish monarch instead sought to obtain extra revenue in exchange for "overlooking" certain characteristics that would have previously disqualified candidates for office. For instance, prior to sales of offices, those born in the Americas or having connections to the local society in the form of real state or marriage would not be allowed to serve in the central colonial governments. While charging to overlook negative traits certainly alleviated revenue needs, in this section I show how it might have led to a decline in the quality of those occupying the central government. The result was a weakening in the ability of central colonial government, and ultimately the Crown, to monitor and oversee the performance of provincial-level officials.

Using data on the composition of the Peruvian central government, I estimate whether local elites, as measured by the number of Peruvian or American born ministers, led to a disproportionate increase in the price-wage gap of provinces with greater rent-availability. Since only people of means were able to purchase these positions, this measure is a good proxy of the presence of local elites in the central government (or *audiencia*). I exploit temporal variation in the central government given that it does not vary across provinces. Specifically, I analyze whether the price-wage gap is larger at times of lower oversight from the *audiencia* in provinces with agricultural, commercial or forced labor activity compared to those places which had lower potential. Clearly, the presence of locals in the central colonial government would be influenced by the duration of war and fiscal crises, so I interpret these estimates as indicative rather than causally. In chapter 2, I exploit a natural experiment to further assess the effect of oversight on the willingness to pay for office and find consistent results with this mechanism. I estimate:

$$GovPrice_{ijt} - Wage_i = \alpha_{ij} + \gamma_t + \beta(Rents_{ij} \times Oversight_t) + \mathbf{X}_{ijt} + \mathbf{W}_{jt} + \epsilon_{ijt}$$

Where $Oversight_t$ is the proportion of members in the *audiencia* belonging to the local elite (%$Peruvians$) or to Spanish career bureaucrats (%$Peninsular$). All covariates included in Equation 1.1 are also included here. Table 1.5 presents the OLS estimates of the effect of oversight on the prices paid for local offices. Columns (1) through (3) of Panel A show that the proportion of local elites had a differential positive effect on the prices paid for local offices in agriculturally suitable regions relative to those less suitable. However, the effect is more precisely estimate in logs rather than in levels. In contrast, Panel B shows that the percentage of Spanish members decreased systematically the prices paid for office, as expected. In particular, an increase of 10% in the proportion of local elites increases in 1.2% the price paid for agriculturally suitable areas with an index of 1 or 3.85% for the average agriculturally suitable province. Although the coefficients are smaller than the baseline estimates, these results are in-line with the idea that the presence of members who have purchased their posts (e.g. Peruvian elite) could have facilitated profiting from office leading to an increase in the price of local offices. This is a plausible scenario, considering that governor's profits (hence prices) depended on the willingness of the central government to either turn a blind eye to, or outright collude with provincial officials. A more extensive evaluation on this channel is provided in a separate paper.

A second explanation for the differential price increase is that of lower punishment costs (e.g. social costs) for certain individuals relative to others. In other words, since some individuals had a higher social status than others, this would affect the attractiveness of engaging in corruption given the higher costs faced if caught. In terms of prices, this would suggest that individuals who have lower social costs (e.g. lower status) should have a higher willingness to pay if going to engage in corruption, all else equal. To assess whether this is the case I examine whether individuals with no military or nobility titles (as a proxy for lower social status) are disproportionately represented in provinces with greater rent-availability than in those where rents are less available. As shown in Figure 1.3 above, the episode of sales saw a decrease in appointments of local officials belonging to the nobility or military classes and a sharp increase of those who had neither a nobility title or a military profession. Therefore, I estimate:

$$IndividualTitle_{cijt} = \alpha_{ij} + \gamma_t + (War_t \times AgricSuitable_{ij})\beta + X_{ijt} + W_{jt} + u_{ijt} \qquad (2)$$

Where $IndividualTrait_{cijt}$ is the military and nobility status of the individual c in province i of revenue region j in year t. All other covariates are the same as in Equation 1.1. As shown in Table 1.6 below I find that individuals with a military background were not more likely to govern places with greater rents available from agricultural activities. However, we do observe a greater likelihood of individuals exhibiting a military or nobility title among those provinces devoted to mining. This would suggest that even if selling, the Crown took some pains to ensure that mining activities would be placed in hands of people of the noble classes, rather than to individuals unknown to the court in Madrid. Thus consistent with the idea that mining was one of the most carefully looked after activities in the colonies. In contrast, provinces in which

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forced labor was in place (*mita*) were less likely to have a governor from the noble classes, probably due to the low proportion of Spanish generally living in these areas. These findings suggest that rent-seeking was not necessarily driven by these individual traits. Although it is still possible that I do not adequately capture an individual's social cost to extract, the fact that the differences in social origin are not explained by provincial characteristics supports the idea that variation in punishment costs may have played a minor role in the case of places with greater agricultural and commercial activities.

Overall, these results are consistent with the idea that the presence of members from the Peruvian elite in the central government facilitated profiting from office thus leading to an increase in the price-wage gap of provincial offices. In contrast, explanations based on the variation in the social status or punishment costs of individuals show less explanatory power.

5.3   Alternative Explanations

In addition to the robustness test shown above, the results are also robustness to an array of alternative explanation which can be summarized as follow: First, it is possible that candidates are more willing to pay for certain *prestigious* positions, in which the honor or reward of ruling certain provinces outweighs the potential monetary loss from purchasing them. Throughout the estimation, the inclusion of controls for fixed province characteristics will account for the specific appeal certain positions may have. When specified, I also exclude from the sample "prestigious" provincial offices identified as those where the seat of the bishop was located – often a major urban center where most Spanish individuals reside – to avoid the concern that these places might drive the differential increase in prices paid. As will be shown, these are not driving the differential increase in the price-wage gap observed.

Second, it is possible that governing certain provinces might bring about *career benefits* within the royal bureaucracy which would justify paying "above normal" prices for occupying certain positions. Since office-selling was considered an emergency and temporary measure, purchasers of provincial offices were not entitled to any future appointment or made them members of the royal bureaucracy. In fact, once office-selling stopped, positions were quickly filled with individuals whom the King considered worthy based on military feats (see Figure 3). Moreover, if these were driven by gaining experience in government, the price-wage gap should not be driven by differences in the extent of rent-availability.

Third, the price-wage gap may be explained by the self-selection of certain *types of individuals* better able to extract rents despite the presence of rents. Yet, this explanation is inconsistent with having any differential effect due to the presence of rents. In fact, this type of selection is driven by the auction mechanism itself whereby individuals with a higher ability to extract would also be willing to be pay more than those less able to extract from office. This effect should be larger in places with greater rents which is precisely what I observe in the data and consistent with the idea that officials purchased offices to obtain side-gains and those better able to obtain side-gains paid more for positions with greater access to rents than otherwise.

Finally, while the exploitation of the indigenous population in the colonies was publicly

abhorred by the Crown, it is possible that obtaining side-gains from office was part of an implicit deal between purchasers and the Crown to attract potential buyers. Yet, this would not necessarily affect the interpretation of my results – province with greater access to rents would still see higher price-wage gaps due extraction, either allowed by the Crown or not. However, it does change the role of the Spanish Crown in the episode of office-selling from one of "cheated" principal to one of active contributor to the misgovernment of its colonies in the Americas.

In sum, this section provides evidence that episodes of fiscal distress to the Spanish Crown, as measured by war-making in Europe, increased differentially the willingness to pay above and beyond expected wages for positions in provinces more suitable to agriculture, commerce and exploitative activities (e.g. *mita*). Such price differential cannot be explained by geographic traits, timing of wars, outliers, tax revenue or the prestige of certain positions. Instead, these results are consistent with the idea that agricultural areas (and its associated commercial activity) provided greater opportunities to profit from office in the form of forced sales of merchandise, a lucrative business for governors (Golte 1980; Moreno Cebrian 1977). The profitability of this practice depended on the presence of buoyant economic activities, hence discarding extremely impoverished regions. In the next section I investigate what is the effect of these activities on long-term development outcomes.

5.4 Value of Local Offices and Development Today.

Do access to power in exchange for money affect the extent of private returns to office-holders? If so, how do private gains from political office affect the quality of governance and economic development over the long-run? As shown in previous sections, the episode of office-selling in the Spanish Empire provides a unique window to examine the motivations to holding political office in the late 17th century until mid-18th century. During this period, a large number of individuals were willing to pay vast amounts of money, endure a dangerous trip to the Americas and be at risk to be lynched by the local population, all in exchange for becoming a "governor" of a forsaken province in the Peruvian Andes. Interestingly, the sums paid for these offices were above and beyond any monetary compensation (e.g. wage) at the time and at odds with potential career advancement or prestige associated with the position. Rather, these sums can be explained by the presence of agricultural and commercial activities which were easy to tax in the form of *repartimiento* or driven by the presence of forced labor institutions *mita* which would allow for side-gains from exempting the indigenous population from the service in exchange for money. Since governors were also in charge of directing and supervising the construction of public goods in the province, poor governance at the time may have had long-lasting consequences beyond the immediate costs inflicted upon the population in the 18th century.

On the one hand, the experience of exploitation by local officials either via forced sales or other methods may have resembled a temporary tax on the population with no detrimental effect on economic development. For instance, landmark studies have found a great deal of

persistence in cross-national and sub-national economic performance over long periods of time (Comin et al. 2010; Ashraf and Galor 2012; Maloney and Valencia 2012). Specifically, Ashraf and Galor (2012) highlight the role of genetic diversity, determined tens of thousands of years ago, in explaining comparative patterns of economic development today. Similarly, Comin et al. (2010) argue that technology differences around 1000 BC are an important predictor of income per capita today and technology adoption across countries. Finally, Maloney and Valencia (2012: 3) find that, within countries of the Americas, economic performance tend to persist due to geographic advantages of certain locations and the effect of externalities associated with human settlements. According to these studies, we should not expect that the experience of local rent-seeking during colonial times to have any lasting effect on economic fundamentals.

On the other hand, the value of political office may have reflected profound institutional and governance disparities among provinces in Peru which persisted until today. For instance, since the governor was in charge of public works in its province, poor governance may have guaranteed an under provision of public goods. Governors also acted as a commercial monopolizer, such that his rule may have inhibited competition, thwarted booming activities and dampened returns to productive activities. In addition, the violent methods of debt-repayment and coercion may have exacerbated resentment and polarized the population against political authorities, which in turn affected development prospects. Finally, migration patterns of individuals fleeing heavy debts or exploitation would affect economic activity if they resettled in areas characterized by low forced sales. In sum, if the price-wage gap reflects the incentives for corruption and the lower returns to investment, then we should expect to see a *worse* economic performance in provinces highly valued in the 18th century. An outcome of this type suggests a mechanism of fortune reversal (Acemoglu et. al. 2001): provinces with offices in high demand for extraction circa 1750 would be poorer today than those which were not.

To assess the effect of prices on development, I exploit the cross-sectional variation in the data, given the lack of historical time-series of poverty rates per province in Peru. The level of analysis is the province, of which I traced 51 to their current boundaries. These, in turn, are conformed by 930 current Peruvian districts matched using church records of parishes at the time. To control for the level of "economic activity" in a given province at the time, I use different geographic controls: elevation, latitude, longitude, average temperature and the agricultural suitability measure based on climate, soil and slope constraints. Other variables pre-dating office-selling to avoid post-treatment bias are: forced labor provinces indicator (*mita*), commercial hubs indicator, mining provinces and bishop seats (to account for prestige).

Although the highly valued provinces might not have been the poorest at the time, an OLS estimate of the effect of prices on poverty today is susceptible to omitted variable bias. For instance, an unknown factor (not corruption) might have determined both high prices and a vibrant economy in the 18th century, but still cause poverty today. Yet, as suggested by the literature on fortune persistence, the bias would run against observing any negative effect from the price of offices: provinces which are rich tend to remain rich (Maloney and Valencia 2012). Furthermore, alternative explanations need to explain why would high prices be paid for

offices in areas with buoyant economic activities and strong agricultural potential, yet still be significantly worse-off today. With these caveats in mind I estimate:

$$Development_{iptoday} = \alpha + \beta \cdot \log(\frac{Price - Wage}{Pop_{1754}})_i + \mathbf{Z}_{ip} + \mathbf{W}_p + e_{ip}$$

Where $\mathbf{Z}_{ip}$ includes a rich set of geographic controls based on agricultural constraints (climate, soil and slope), latitude, longitude, distance to Lima and elevation for each current district i within a former colonial province (p). $Development_{ip}$ is the outcome of interest (either poverty incidence, severity or gap per district, public goods provision or household consumption), and e_{ip} is the disturbance term. Additional historical controls include the presence of commercial hubs, forced labor institutions, colonial mining, and whether the province is a bishop seat. All standard errors are clustered at the province level (p) which is the level of variation of the main independent variable ($\log(\frac{Price-Wage}{Pop_{1754}})_i$).

Figure 12 shows the unconditional relationship between the value of colonial offices and the levels of poverty incidence and the price-wage gap across Peruvian districts. As noticed, there is a clear positive relationship between the value of colonial offices and subsequent levels of poverty: provinces with a greater price-wage gap are significantly poorer today than those in which those prices were much lower.

Figure 10: Poverty Incidence and Office Prices: District Level

In Table 3.1, I start by reporting the estimates of the price-wage gap per capita on poverty incidence, poverty gap and poverty severity at the district level, while controlling for a host of geographic characteristics. Results show that on average there are strong and lasting effects of the average price-wage per capita on poverty incidence and other development indicators: in Panel A an increase of 10% in the price average price per capita is associated with a 0.47% percentage increase in the 2007 average poverty rate of the province. Similar results are obtained in Panel B and C, where I include the poverty gap and severity as the dependent variable, respectively. Results invariably show worse poverty indicators in the presence of a large price-

wage gap in the province.

One potential concern with these results is that they might merely reflect population dynamics and not necessarily the role of corruption or rent-extraction. Yet, although the price-wage is scaled by the size of the population in 1754, these two variables show little relationship among themselves. That is, it is not clear that places that have larger populations necessarily exhibit larger price-wage gaps. For instance, large populations may have a higher probability of rebellion, or a larger Spanish population willing to resist corruption, or better oversight by the Crown which might interfere with the extraction ability of the governor.

A second potential concern with these results is whether these are driven by outlier observations. To check for this challenge I estimated the specifications of Table 3.1 but now using robust regression, which weights down the effect of influential observations. As noted in Table C.1, results are robust to this estimation technique and coefficients are even larger. To further corroborate the sensitivity of these results to changes in the sample size, I re-estimate all models in Table 3.1 Panel A while leaving out one province at the time. Figures C.1 through C.3 in Appendix show that the t-statistics associated with the coefficient of the price-wage gap are always above conventional levels of statistical significance.

A different challenge comes from the fact that poverty measures might be particularly correlated with the price-wage gap but that such relationship does not exist for other development outcomes. Therefore, in Table 3.2 I explore the provision of public goods per district. As shown in the table, higher prices paid for governor positions in the province relative to their wages are associated with a lower proportion of households with access to electricity, indoor sewage and tap water. In addition, Table 3.3 shows how a larger price-wage gap is also associated with around 0.4 less schooling years. Thus consistent with young children either falling behind in their school progression (column (2)) or that they totally drop out from schooling altogether (column (3)). Putting together the effect of the price-wage gap on poverty and public goods, results are consistent with the idea of a long-lasting negative impact of extractive governance during colonial times. Provinces which around 1750 where highly valued exhibit different and worse governance outcomes than those which were not.

To further corroborate the results obtained, I look at the patterns of household consumption in colonial provinces. The goal is to assess whether findings obtained at the district level can be cross-validated in a different set of data for Peru. Table 3.4 column (1) shows how a 10% increase in the per capita average price paid for office reduces by 0.16% the average household consumption in the province. Columns (2) and (3) which explore different measures of the cross-sectional variation in prices exhibiting the same pattern with similar or slightly smaller coefficients.

5.5 "Above Normal Prices" and Development

Until now, I have considered the variation in prices as a direct reflection of the private returns colonial officials obtained from office. However, as a robustness check to the results obtained above, I decompose the observed variation of prices paid for offices two: first, the variation in

prices directly related to corruption and second, the variation in prices explained by non-corrupt factors. To do so, I first remove variation in prices driven by factors that are determinant of prices but unrelated to corruption. For instance, following the theoretical framework laid out in Chapter 1, these factors are wages, prestige and province-level characteristics which may affect the price paid for office but does not necessarily entail corruption (e.g. population size). Therefore I estimate a regression of the form:

$$GovPrice_{ijt} = \alpha + \gamma_t + \beta_1 Prestige_i + \beta_2 Distance_i + \beta_3 Size_i + \beta_4 Wages_i + \mathbf{X}_{jt} + \epsilon_{ijt} \quad (3)$$

Where ϵ_{ijt} would be then orthogonal to "fundamentals" determining prices and potentially capture the presence of corrupt activities per province. In contrast, the fitted values ($\widehat{y}_p$) of such a regression would measure the price a province would have conditional on non-corrupt factors such as wages, the level of prestige, distance to Lima and the economic size of the province as measured by log(population). To capture $prestige_i$, I construct an indicator for those provinces which were the bishop seat in the 18th century thus approximating for a higher social status due to a higher presence of a Spanish born population. Finally, the official wage ($Wages_i$) received while in office is important to account for incentives to bid higher for certain offices relative to others. Although wages were rarely paid on time, and during the period under study saw no increase, they could have allegedly motivated candidates' bids.

In Table 3.5 I present the OLS estimates of Equation (3.1) from which I collect the residuals (ϵ_{ijt}). In Column 1, I only include measures of population, prestige and the geodesic distance to Lima. As expected, provinces which were also the bishop seat exhibit higher prices than otherwise. In Column 2, I control for the log of the wages paid (in pesos) for governing each province. Not surprisingly, higher wages are associated with a greater willingness to pay for office. Finally, in Column 3, I incorporate a series of trend variables that account for the grouping of each province in a particular revenue area. This variable would account for regional differences in prices of certain areas relative to others. In the subsequent empirical tests, I will use the residuals from the model of Column 3 as the benchmark given its greater explanatory power (R2=.65). The linear prediction of the model in Column (3) reflects the prices provinces would have according to their size, region, population and wages, while the residuals reflect the presence of "abnormal" prices potentially based on corrupt activities.

An aspect to notice from this strategy is that while there are a number of potential controls I could include in the estimation as shown in previous specifications (e.g. agricultural suitability, forced labor, elevation) these variables could be potentially related to corruption and therefore remove the variation I am precisely trying to capture. Using the results from Equation 3.1, I then estimate:

$$Poverty_{ip2007} = \alpha + \beta_1 \widehat{ResidualPrice}_p + \beta_2 \widehat{PredictedPrice}_p + \mathbf{X}'_{ip} + \mathbf{W}'_p + u_{ip} \quad (4)$$

Where $\widehat{ResidualPrice}_p$ is the average predicted residual from estimating Equation (3.2) in province p. Similarly, $\widehat{PredictedPrice}_p$ is the average predicted price a given province would have according to its size, prestige, region and wage paid. $\mathbf{X}_{ip}$ includes a rich set of geographic controls such as average temperature, latitude, longitude, distance to Lima and elevation for each current district i within a former colonial province (p). $Development_{ip}$ is again the outcome of interest (either poverty incidence, severity or gap per district, public goods provision or household consumption), and u_{ip} is the disturbance term. All standard errors are clustered at the province level (p) which is the level of variation of the main independent variable ($\widehat{ResidualPrice}_p$).

In Table 3.6, I start by reporting the estimates of prices on poverty incidence, poverty gap and poverty severity at the district level, while controlling for a host of geographic characteristics. Results show that on average there are strong and lasting effects of the presence of "above normal" prices, as measured by the residual prices paid for positions ($\widehat{ResidualPrice}_p$) on the average poverty incidence and other poverty measures. In contrast, the effect of the predicted price (e.g. the price such provinces would have according to size, wages, region or prestige, $\widehat{PredictedPrice}_p$) has a positive effect on poverty incidence: provinces with a greater predicted price due to fundamentals have a lower poverty incidence.

In column (1) the coefficient of 0.029 suggests that an increase of 10% in the residual price leads to an increase of 0.02% in the poverty incidence of the district. In contrast, a 10% increase in the average predicted price, or the price provinces should have according to non-corrupt factors, is associated with a lower poverty rate in the district. Such opposite effects are visible not just in the case of poverty but also in the amount of electricity provided and schooling outcomes.

Since we are dealing with independent variables product of estimation $\widehat{ResidualPrice}_p$ and $\widehat{PredictedPrice}_p$ these are susceptible to sampling variation. Therefore, I implement a resampling method (bootstrap) to estimate the dispersion of β_1 and β_2. The idea is to use the original sample to obtain a large number of values of these estimates and calculate the standard deviation of the price effect. Therefore, I perform a province-year non-parametric i.i.d. bootstrap with 1000 replications (draw a sample of province-years 1000 times with replacement, and estimate the effect of the residual $\widehat{ResidualPrice}_p$ and $\widehat{PredictedPrice}_p$ on development today. Results for all three set of outcomes are shown below.

According to the bootstrapped estimates, the effect of the residuals on different measures of poverty is positive, yet of smaller magnitude than the non-bootstrapped estimates. In particular, the distribution of the coefficient of the residuals ($\widehat{ResidualPrice}_p$) on the incidence of poverty exhibits a mean of 0.019 where the lower bound of the distribution (cutoff at 5%) is 0.0004, thus showing how the effect of the residuals on poverty is positive. In the case of the poverty gap, the mean of the distribution of β is 0.007 with a lower bound of 0.0003. Finally, when assessing severity I find that the coefficient on the price residuals is imprecisely estimated with a mean of 0.003 and a negative lower bound. In contrast, the effect of the predicted prices is generally negative, that is, places with greater predicted prices tend to have better development

outcomes today. Yet, these estimates generally fall below the 10% level of statistical significance. Therefore, the estimate should be taken only as indicative of the overall direction of the β for average predicted prices.

In the case of public good provision and schooling, the average residual price have a negative effect in the provision of electricity, yet a less precise effect on the provision of indoor sewage and water. In contrast, the effect of the predicted price is always positive (e.g. greater public good provision) and always within the 95% confidence interval. When looking at schooling outcomes, the β coefficient of the price residuals would consistently predict higher dropout rates and interruptions of the schooling cycle. In contrast, higher predicted prices would consistently lead to more years of education and lower dropout rates.

The positive effects for the predicted values ($\widehat{PredictedPrice}_p$) on development suggests that while certain geographic and population fundamentals explain "good" development outcomes, others are associated with "worse" development outcomes today. In other words, provinces in which officials would purchase positions mostly driven by the population size and other non-corrupt factors are today better off than in those where the motivation for office was not driven by these factors.

In sum, this section shows that the effect of corruption, as measured by the residual variation in prices is associated with worse development outcomes today. The crucial question then is, why? Why is the value of colonial offices in the 18th century able to inform us of development patterns today?

5.6   Channels of Persistence: Political Conflict

There are many channels of persistence through which high valuation of offices affects economic development today. Based on previous findings using a geographic regression discontinuity framework (Guardado 2013) and the way in which local officials would obtain side-gains from office (e.g. via violent coercion), I explore whether highly valued offices fostered a climate of polarized politics. That is, the variation in office prices not explained by traditional determinants reflected a host of exploitative activities often sustained by violent coercion, and these led to heightened political conflict between government officials and the local population which has persisted over time.

This mechanism is different from a view that emphasizes the role of extractive institutions in which a ruling elite is able to perpetuate itself in power at the expense of the economic development in the region. Rather, I highlight the importance of cultural beliefs, as a heuristic device developed through generations about what is the optimal response when dealing with political authorities. In the context of Peru, provinces more subjected to corruption and arbitrariness from colonial officials and the state developed greater mistrust in political authorities, as a protection against enrichment schemes such as *repartimiento* as well as greater antagonism (both attitudinal and behavioral) to the presence of the state which has persisted over time due to the slow-changing nature of these factors.

To this end, I estimate the relationship between the value of political offices and violent

outcomes across Peruvian provinces. In this section I examine changes in the political landscape brought about by the presence of greater corruption and their persistent effects over time. I provide strong evidence in favor of the role of polarizing politics as a different and important channel of persistence of the effects of historical institutions. Specifically, I show that districts belonging to provinces with highly priced political offices exhibit a sharp and persistent presence of violent political conflict. Already in the 18th century the likelihood of engaging in anti-colonial rebellions was much higher in highly priced provinces. Similarly, the rise of violent attacks by the guerrilla group, the Shining Path, between 1980 and 2000 was again greater among provinces with highly valued offices.

As an illustration, Figures 3.5 and 3.6 below exhibit the unconditional relationship between the price-wage gap in the 18th century and the number of rebellions more generally (Figure 3.5) and those against governors (Figure 3.6). As shown in the figures, the relationship is positive and quite strong in the case of anti-governor rebellions (Figure 3.6). In other words, the larger is the difference between the prices paid and the wages received, the greater the likelihood of a spontaneous rebellion against colonial official. Since these rebellions would greatly discourage officials from ruling such provinces in the Americas it is puzzling why officials would not only risk their lives but on top of that would pay a great amount of money (more than they would earn) to do so. In this section I argue that while rebellions posed indeed risk factor against governors, they are most likely a symptom of the prevailing sentiment against those who ruled them and collected their taxes – the governor.

Figure 11: Price-Wage Gap and Uprisings 1708-1789

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Figure 12: Price-Wage Gap and Anti-Governor Uprisings
1708-1789

Table 3.8 Panel A provides the estimates of the effect of the average price per capita of an office on the likelihood of a district exhibiting anti-colonial rebellions in the 18th century. These rebellions were often spontaneous events ending with the killing or sacking of local officials such as a governor (*corregidor*). For instance, between 1730 and 1814 around 100 revolts involving Indian peasants are known to have occurred in Peru (Campbell 1981). Specific examples include a revolt in Cochabamba in 1730 (near Potosi mines) against census authorities to enlist the population to raise taxes. In 1708, the governor of Huanuco was killed by some of its subjects. The same occurred in 1726 in the province of Andahuaylas and in 1731 in Cotabambas, just to mention a few cases. However, in this measure I also include instances of rebellion against religious authorities and colonial actors, not necessarily the governor. Therefore, I will subsequently restrict the rebellion measure to only those instances where the target is the governor. Although these rebellions were small and highly localized, their widespread presence signals a general discontent with colonial policies. The most famous of these rebellions was that of Tupac Amaru (1780-1781) led by the "last descendant" of the Incan rulers.

Consistent with this anecdotal evidence, Table 3.8 Panel A shows how a 10% increase the average price of the provincial governorship is associated with 0.004 more rebellions per capita, which is a 3.9% increase in the average number of rebellions across provinces. Other estimates are positive, yet less precisely estimated. Therefore, I next limit the number of rebellions to those which were clearly targeted against the provincial governor. As we can see in Table 3.9, the effect of office prices is positive and statistically different from zero. In fact, offices prices seem to have a larger impact on the number of rebellions throughout the 18th century, hence consistent with Figure 3.6. Although the coefficients for the period after sales are still imprecisely estimated, they still suggest that higher prices paid for office tended to be associated with a greater prevalence of rebellions. In other words, the distribution of indigenous rebellions

in the 18th century was greatly concentrated in places where higher prices were paid for office and at times of greater sales of offices.

Indigenous rebellions prior to independence may have responded to unusual exploitation captured by the office-selling episode during the 18th century. Therefore, it is possible that such rebellions were rare events and people returned to "politics as usual" after the colonizing power left. Table 11 shows this is not the case. Table 3.10 shows the persistence of violent activities in the Peruvian landscape. Specifically, I find that districts belonging to provinces in which prices were on average higher have a higher proportion of army attacks on the population while accounting for factors such as the distribution of the current population and other potential conflict dynamics. Specifically, Panels A through C show the significant effect of the prices paid for office on the likelihood of district-level army and guerrilla attacks (to a lesser extent) between 1980-2000. Specifically, Panel B shows how a 10% increase in the maximum price wage per capita leads to 0.7% more attacks in general.

Although these estimates show a greater level of violence in districts with higher prices versus others, it is important to characterize the type of violence occurring: are attacks by the army a sign of guerrilla support in the region? This is a difficult questions to assess, yet, we can obtain some insights by examining the patterns of victimization. Given Shining Path's violence was motivated by class warfare and antagonism to political representatives due to their role in the "oppressive system", it is important to examine whether attacks were driven by political conflict. According to my argument, the presence of colonial corruption exacerbated political conflict in this region as seen in the higher presence of anti-colonial rebellions and uprisings. Therefore, we should observe a greater number of these targets in places with heightened experience of colonial corruption since these areas would have developed a greater distrust for political authorities and render greater support for Shining Path's endeavor. To do so, I distinguish whether the victim is classified as a peasant, as a middle class individual (e.g. teacher, professionals) or a political authority (e.g. union or peasant leader, political representative). While peasants composed the majority of the population in which Shining Path was present, those of middle class origin or a political authority would compose a tiny fraction of the overall population. Therefore, any significant difference in attacks against political authorities driven by the presence of more corruption during colonial times is consistent with greater political conflict in these areas.

As shown in Table 3.11, the presence of greater corruption by colonial officials is associated with a larger number against political authorities. Similarly, there is a higher proportion of peasants targeted in districts belonging to provinces with higher prices. Yet, the latter result is not surprising given this is a largely rural guerrilla. Although violence occurring during the Peruvian Civil War had different motives and catalysts, it shares with anti-colonial rebellions the fact that it was targeted to instances of authority. In particular, column (3) shows how attacks to political authorities (local party leader, mayor, council member) were much more likely in places with higher prices paid for office than otherwise.[24]

What these patterns of political violence reveal is that there are persistent differences in

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[24]In contrast, prices paid for office show a smaller effect on "traditional" victims of Shining Path (e.g. peasants). Moreover, there is no targeted violence against professionals or middle class individuals.

the politics of regions with highly priced offices and those with low-priced ones. Already in the 18th century the number of rebellions was greater in provinces with highly valued offices. After independence, the rise of the Shining Path in the 1980s and 90s made these areas both victims of (and collaborators with) guerrilla violence, causing a great degree of distress and economic turmoil to their inhabitants. To this day, the development prospects in these provinces might remain grim due to deep-seated antagonism to government officials which I posit can be traced back to colonial times.

Additional anecdotal evidence suggests this might not be the only case across the Spanish Empire. The region of Mindanao in the Philippines, notoriously famous for its persistent Islamic insurgencies in recent times, was also characterized by anti-colonial rebellions during Spanish rule. In other contexts, the rise in Maoist violence in India can also be traced back to differences in local colonial rule. Future research will explore in-depth the relationship between colonial extraction and violent outcomes.

Overall, these results show the lasting consequences of colonial rent-seeking on economic development by polarizing political conflict, deepening mistrust in political actors, and undermining collaborative efforts in the collective interest.

6   Conclusion

This paper has documented how the value of colonial offices reflected the opportunities of local officials to engage in rent-seeking activities, and how these activities explain current underdevelopment outcomes among former Spanish colonies. In particular, the sale of colonial offices provides a unique instance in history to study how institutional incentives worked to create an atmosphere where profiting from office was a standard practice within the colonial administration: positions with greater access to rents from agriculture and trade or from forced trade monopolies (*repartimiento*)were more demanded than those that offered no such activities. The difference in the value of office is hard to explain with the meager salary received by officials or the desire to serve the Crown. Instead, side-gains from office due to corruption appear a more plausible explanation for the differential increase in value across provinces.

The reason why governors were able to reap side-benefits from office is because office-selling motivated by fiscal crises undermined institutions that could have represented a check on corrupt behavior, such as the Peruvian central government. Because the Crown faced a trade-off between revenue from sales and the quality of colonial offices, it generally chose the former in the light of severe and frequent fiscal needs. However, while such trade-off led to a visible decline in the quality of the central colonial government – due to the inexperience of these new officials and their attention to their own vested interests – this was not the case at the local level. If anything, "better" local officials were selected to serve in provinces with greater agricultural potential and trade monopolies. Therefore, it appears that the mechanism at play is one of decline in the degree of oversight from the central colonial government which allowed all local colonial officials, regardless of their quality, to engage in greater rent extraction conditional on their access to these resources in the first place.

The extent of rent-seeking captured by the value of local offices is noteworthy: provinces with highly coveted positions during colonial times are systematically worse off in terms of poverty measures, household consumption and public goods provision than those with less coveted positions. Although there are many potential channels for why office-selling and rent-seeking in the 18th century could continue to affect current development outcomes, the persistence of polarized political conflict in these regions is noteworthy and a plausible explanation. In particular, the presence of exploitative practices based on coercion and violence led to contentious politics characterized by political violence, first, against the colonizing power (anti-colonial rebellions). Later, regions with higher prices paid for offices also saw greater violence from anti-government groups such as the Shining Path. Given the tactics of this group, violent attacks signal the presence of local strongholds. Consistent with this interpretation, I also find that individuals living in provinces with highly valued offices today are more likely to highlight the widespread presence of corruption among politicians and their disenchantment with democracy. In sum, the fact that the sales of appointments were driven by fiscal crises in Spain and worsened poverty indicators today in Peru sheds light on the role of political conflict in explaining current development patterns.

Beyond the improvement of the current literature, a pressing policy question is how to limit rent-extraction in practice. Assessing both the circumstances that give room to rent-seeking and the consequences of corruption is a first step toward designing policies that provide the right incentives to politicians. This paper shows that rent-extractive behavior develops at times when overseeing authorities are weakened due to war-making (Querubin and Snyder 2011) and not necessarily driven by non-renewable natural resources. Therefore, special attention should be placed on official control during national emergencies to avoid offering the temptation to exploit weakened institutions.

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Tables and Figures

TABLE 1: Price - Wage Gap and Agricultural Activities: OLS Estimates

VARIABLES	(1) Price-wage	(2) Price-wage	(3) Price-wage
Panel A: All Major Wars			
$War \times AgricSuitable$	83.1***	84.8***	71.2***
	(24.6)	(24.7)	(24.7)
$War \times MitaProvince$	132*	127*	131**
	(67.4)	(67.4)	(65.4)
$War \times MineProvince$	-23.6	-28.5	-47.0
	(69.3)	(69.3)	(67.5)
Observations	471	471	519
R-squared	0.696	0.697	0.715
Number of provincia2	48	48	53
Panel B: Only Major Wars			
$War \times AgricSuitable$	80.9***	82.1***	72.8***
	(22.9)	(22.9)	(23.0)
$War \times Mita$	112*	112*	112*
	(63.0)	(63.0)	(60.9)
$War \times Mine$	7.83	4.63	-11.6
	(62.2)	(62.3)	(60.4)
Observations	461	461	508
R-squared	0.677	0.678	0.692
Number of provincia2	48	48	53
Provinces Bolivia	No	No	Yes
Geographic Trend Controls	Yes	Yes	Yes
Revenue Trend Controls	Yes	Yes	Yes
Rebellion Controls	No	Yes	Yes
Province Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

TABLE 2.A: Relationship Between Agricultural and Commercial Activity: IV Estimates

VARIABLES	(1) $WarXCommHub$	(2) $WarXCommHub$	(3) $WarXCommHub$
	Panel A: First Stage		
$War \times AgricSuitable$	0.14***	0.139***	0.12***
	(0.022)	(0.022)	(0.022)
Observations	471	471	519
	Panel B: Second Stage		
VARIABLES	Price-Wage	Price-Wage	Price-Wage
$War \times \widehat{CommHub}$	678***	692***	687***
	(197)	(199)	(231)
Observations	471	471	519
Number of provincia2	48	48	53
Bolivia Provinces	No	No	Yes
Revenue Trend Controls	Yes	Yes	Yes
Rebellion Controls	No	Yes	Yes
Geographic Controls	Yes	Yes	Yes
Province Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

TABLE 2.B: Relationship Between Agricultural and Commercial Activity: IV Estimates

VARIABLES	(1) $WarXCommHub$	(2) $WarXCommHub$	(3) $WarXCommHub$
	Panel A: First Stage		
$War \times \widehat{AreaNotCultivated}$	-43.88***	-43.87***	-36.06***
	(8.49)	(8.49)	(6.62)
Observations	471	471	519
Number of provinces	48	48	53
	Panel B: Second Stage		
$War \times \widehat{CommercialHub}$	678***	692***	687***
	(197)	(199)	(231)
Observations	471	471	519
Number of provinces	48	48	53
Revenue Trend Controls	No	Yes	Yes
Rebellion Controls	No	No	Yes
Geographic Controls	Yes	Yes	Yes
Province Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

TABLE 3: Mechanism - Institutional Oversight and Price-Wage Gap: OLS Estimates

VARIABLES	(1) Price - Wage	(2) Price - Wage	(3) Price - Wage
Panel A: Local Elites			
$\%LocalElites \times AgricSuitable$	561	564	581
	(732)	(731)	(722)
Observations	449	449	497
R-squared	0.684	0.686	0.709
Number of provincia2	48	48	53
VARIABLES	Log(Price - Wage)	Log(Price - Wage)	Log(Price - Wage)
$\%LocalElites \times AgricSuitable$	0.087*	0.087*	0.091*
	(0.050)	(0.050)	(0.049)
Observations	449	449	497
R-squared	0.717	0.719	0.730
Number of provincia2	48	48	53
Panel B: Spanish Officials			
$\%SpanishOfficials \times AgricSuitable$	-624	-633	-652
	(869)	(867)	(853)
Observations	449	449	497
R-squared	0.684	0.686	0.709
Number of provincia2	48	48	53
VARIABLES	Log(Price - Wage)	Log(Price - Wage)	Log(Price - Wage)
$\%LocalElites \times AgricSuitable$	-0.12**	-0.12**	-0.12**
	(0.059)	(0.059)	(0.058)
Observations	449	449	497
R-squared	0.717	0.719	0.731
Number of provincia2	48	48	53
Bolivia Provinces	No	No	Yes
Revenue Trend Controls	Yes	Yes	Yes
Rebellion Controls	No	Yes	Yes
Geographic Controls	Yes	Yes	Yes
Province Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

TABLE 4: Mechanism - Individual Traits and Price-Wage Gaps: OLS Estimates

VARIABLES	log(Price)	log(Price)	log(Price)
Panel A: Military Degree			
$War \times AgricSuitable$	0.0018	0.0014	0.0018
	(0.0033)	(0.0033)	(0.0034)
$War \times Mita$	0.0035	0.0042	0.0013
	(0.0092)	(0.0092)	(0.0091)
$War \times Mine$	0.017*	0.017*	0.018*
	(0.0093)	(0.0093)	(0.0092)
Observations	564	564	627
R-squared	0.321	0.327	0.296
Number of provincia2	48	48	53
Panel B: Nobility Title			
$War \times AgricSuitable$	-0.0019	-0.0019	-0.0021
	(0.0027)	(0.0027)	(0.0027)
$War \times Mita$	-0.013*	-0.013*	-0.013*
	(0.0076)	(0.0077)	(0.0075)
$War \times Mine$	0.0032	0.0031	0.00056
	(0.0078)	(0.0078)	(0.0076)
Observations	563	563	626
R-squared	0.201	0.201	0.220
Number of provincia2	48	48	53
Panel C: Either			
$War \times AgricConstraints$	0.0018	0.0015	0.0017
	(0.0036)	(0.0036)	(0.0036)
$War \times Mita$	-0.011	-0.010	-0.011
	(0.0100)	(0.0100)	(0.0097)
$War \times Mine$	0.021**	0.021**	0.020**
	(0.010)	(0.010)	(0.0099)
Observations	563	563	626
R-squared	0.290	0.294	0.277
Number of provincia2	48	48	53
Revenue Trend Controls	No	Yes	Yes
Rebellion Controls	No	No	Yes
Geographic Controls	Yes	Yes	Yes
Province Fixed Effect	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

TABLE 6: Log-ratio Price-Wage Gap per Capita and Value of Taxable Production in 1827

VARIABLES	(1) Log(Production)	(2) Log(Production)	(3) Log(Production)
log $Price - Wage_{mean}/Pop1754$	-0.88***		
	(0.13)		
log $Price - Wage_{max}/Pop1754$		-0.52***	
		(0.17)	
log $Price - Wage_{sum}/Pop1754$			-0.89***
			(0.13)
Observations	487	487	487
R-squared	0.817	0.569	0.821

Robust standard errors clustered at the province level in parentheses
Prices divided by population in 1754. All specifications include, elevation, distance to Lima,
latitude, longitude, agricultural constraints index. Pre-sales variables: commercial hubs,
forced labor, mining, and indicator of colonial bishop seat. *** p<0.01, ** p<0.05, * p<0.1

TABLE 7: Log-ratio Price-Wage Gap per Capita and 2009 Poverty Measures

VARIABLES	(1) Poverty Rate	(2) Poverty Gap	(3) Poverty Severity
log $Price - Wage_{mean}/Pop1754$	0.047***	0.018***	0.0087***
	(0.013)	(0.0052)	(0.0026)
Observations	894	894	894
R-squared	0.359	0.269	0.228

VARIABLES	Poverty Rate	Poverty Gap	Poverty Severity
log $Price - Wage_{max}/Pop1754$	0.036***	0.014***	0.0066***
	(0.011)	(0.0041)	(0.0021)
Observations	894	894	894
R-squared	0.349	0.258	0.217

VARIABLES	Poverty Rate	Poverty Gap	Poverty Severity
log $Price - Wage_{sum}/Pop1754$	0.040***	0.015***	0.0074***
	(0.012)	(0.0047)	(0.0024)
Observations	894	894	894
R-squared	0.357	0.267	0.226

Robust standard errors clustered at the province level in parentheses
Prices divided by population in 1754. All specifications include, elevation, distance to Lima,
latitude, longitude, agricultural constraints index. Pre-sales variables: commercial hubs,
forced labor, mining, and indicator of colonial bishop seat. *** p<0.01, ** p<0.05, * p<0.1

TABLE 8: Log-ratio Price-Wage Gap per Capita and 2009 Public Good Provision

	(1)	(2)	(3)
VARIABLES	Indoor Sewage	Electricity	Water
log $Price - Wage_{mean}/Pop1754$	-0.037***	-0.034***	-0.040***
	(0.011)	(0.011)	(0.014)
Observations	894	894	894
R-squared	0.281	0.169	0.175

VARIABLES	Indoor Sewage	Electricity	Water
log $Price - Wage_{max}/Pop1754$	-0.029***	-0.024**	-0.037**
	(0.0094)	(0.012)	(0.014)
Observations	894	894	894
R-squared	0.276	0.165	0.177

VARIABLES	Indoor Sewage	Electricity	Water
log $Price - Wage_{sum}/Pop1754$	-0.031***	-0.028***	-0.034***
	(0.0095)	(0.0098)	(0.012)
Observations	894	894	894
R-squared	0.279	0.168	0.174

Robust standard errors clustered at the province level in parentheses

Prices divided by population in 1754. All specifications include, elevation, distance to Lima, latitude, longitude, agricultural constraints index. Pre-sales variables: commercial hubs, forced labor, mining, and indicator of colonial bishop seat. *** p<0.01, ** p<0.05, * p<0.1

TABLE 9: Log-ratio Price-Wage Gap per Capita and 2009 Schooling Outcomes

	(1)	(2)	(3)
VARIABLES	School Years	% Children Behind 9-15 y/o	% Drop Out 6-12 y/o
log $Price - Wage_{mean}/Pop1754$	-0.40***	0.026***	0.011***
	(0.10)	(0.0080)	(0.0032)
Observations	893	893	893
R-squared	0.362	0.228	0.087

VARIABLES	School Years	% Children Behind 9-15 y/o	% Drop Out 6-12 y/o
log $Price - Wage_{max}/Pop1754$	-0.41***	0.031***	0.014***
	(0.15)	(0.012)	(0.0041)
Observations	888	888	888
R-squared	0.349	0.228	0.087

VARIABLES	School Years	% Children Behind 9-15 y/o	% Drop Out 6-12 y/o
log $Price - Wage_{sum}/Pop1754$	-0.45***	0.026***	0.011***
	(0.14)	(0.0093)	(0.0037)
Observations	893	893	893
R-squared	0.376	0.230	0.086

Robust standard errors clustered at the province level in parentheses

Prices divided by population in 1754. All specifications include, elevation, distance to Lima, latitude, longitude, agricultural constraints index. Pre-sales variables: commercial hubs, forced labor, mining, and indicator of colonial bishop seat. *** p<0.01, ** p<0.05, * p<0.1

TABLE 10: Log-ratio Price-Wage Gap per Capita and Household Consumption

VARIABLES	(1) Log(HH consumption)	(2) Log(HH consumption)	(3) Log(HH consumption)
log $Price - Wage_{mean}/Pop1754$	-0.075***		
	(0.023)		
log $Price - Wage_{max}/Pop1754$		-0.065***	
		(0.018)	
log $Price - Wage_{sum}/Pop1754$			-0.058***
			(0.020)
Observations	39,853	39,853	40,394
R-squared	0.249	0.248	0.247

Robust standard errors clustered at the province level in parentheses

Prices divided by population in 1754. All specifications include, elevation, distance to Lima,

latitude, longitude, agricultural constraints index. Pre-sales variables: commercial hubs,

forced labor, mining, and indicator of colonial bishop seat. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

HH controls: Age, gender, and number of infants, kids and adults in the household.

TABLE 11: Explaining Prices - OLS First Stage

VARIABLES	(1) Price-Wage	(2) Price-Wage	(3) Price-Wage
Bishop	2,408	857	1,317
	(1,552)	(1,788)	(1,702)
Log(Pop1754)	426	196	-160
	(509)	(478)	(481)
Log(Wage)		2,093*	2,005
		(1,069)	(1,229)
Constant	-1,207	-13,158	-10,153
	(5,434)	(8,078)	(9,737)
Observations	507	507	507
R-squared	0.613	0.619	0.654
Distance Lima	Yes	Yes	Yes
Revenue Region Trend	No	No	Yes
Year FE	Yes	Yes	Yes

Robust standard errors clustered at the province level in parentheses

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

TABLE 12: Office Price Residuals and Contemporaneous Development Outcomes

VARIABLES	(1) Poverty Rate	(2) Poverty Gap	(3) Poverty Severity
log ($\widehat{ResidualPrice_{mean}}$)	0.029**	0.012*	0.0056
	(0.013)	(0.0061)	(0.0034)
log ($\widehat{PredictedPrice_{mean}}$)	-0.31**	-0.11	-0.047
	(0.15)	(0.065)	(0.033)
Observations	868	868	868
R-squared	0.335	0.226	0.167

VARIABLES	Sewage	Electricity	Water
log ($\widehat{ResidualPrice_{mean}}$)	-0.0054	-0.020*	0.015
	(0.0080)	(0.0100)	(0.012)
log ($\widehat{PredictedPrice_{mean}}$)	0.30***	0.27**	0.32***
	(0.075)	(0.13)	(0.12)
Observations	868	868	868
R-squared	0.249	0.153	0.153

VARIABLES	School Years	% Children Behind 9-15 y/o	% Drop Out 6-12 y/o
log ($\widehat{ResidualPrice_{mean}}$)	-0.15**	0.016**	0.0058
	(0.072)	(0.0061)	(0.0037)
log ($\widehat{PredictedPrice_{mean}}$)	4.00***	-0.22**	-0.062
	(1.02)	(0.090)	(0.040)
Observations	868	868	868
R-squared	0.249	0.153	0.153

Robust standard errors clustered at the province level in parentheses

All specifications include, elevation, distance to Lima, avg temperature

latitude, longitude, agricultural constraints index

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

TABLE 12: Office Price Residuals and Contemporaneous Development Outcomes - Bootstrap Estimates (1000 draws)

	(1)	(2)	(3)
VARIABLES	Poverty Rate	Poverty Gap	Poverty Severity
$\beta(\widehat{logResidualPrice_{mean}})$	0.019	0.007	0.003
$Cutoff_{5\%}$	0.0004	0.0003	-0.0001
$\beta(\widehat{logPredictedPrice_{mean}})$	-0.058	-0.019	-0.008
$Cutoff_{5\%}$	0.006	0.006	0.003
VARIABLES	Sewage	Electricity	Water
$\beta(\widehat{logResidualPrice_{mean}})$	-0.007	-0.024	0.015
$Cutoff_{5\%}$	0.011	-0.001	-0.015
$\beta(\widehat{logPredictedPrice_{mean}})$	0.082	0.064	0.089
$Cutoff_{5\%}$	0.024	0.0001	0.027
VARIABLES	School Years	% Children Behind 9-15 y/o	% Drop Out 6-12 y/o
$\beta(\widehat{logResidualPrice_{mean}})$	-0.137	0.012	0.007
$Cutoff_{5\%}$	0.063	0.0004	0.002
$\beta(\widehat{logPredictedPrice_{mean}})$	0.975	-0.043	-0.012
$Cutoff_{5\%}$	0.318	-0.006	0.004

Robust standard errors clustered at the province level in parentheses

All specifications include, elevation, distance to Lima, avg temperature

latitude, longitude, agricultural constraints index

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

TABLE 13: Log-ratio Price-Wage Gap per Capita and Anti-Colonial Rebellions

	(1)	(2)	(3)
VARIABLES	All Uprisings	Uprisings During Sales	Uprisings Post-Sales
log $Price - Wage_{mean}/Pop1754$	0.040*	0.0090	0.031
	(0.020)	(0.012)	(0.021)
Observations	889	889	889
R-squared	0.198	0.143	0.196
VARIABLES	All Uprisings	Uprisings During Sales	Uprisings Post-Sales
log $Price - Wage_{max}/Pop1754$	0.025	0.0067	0.018
	(0.016)	(0.0096)	(0.017)
Observations	889	889	889
R-squared	0.185	0.142	0.186
VARIABLES	All Uprisings	Uprisings During Sales	Uprisings Post-Sales
log $Price - Wage_{sum}/Pop1754$	0.039*	0.0089	0.030
	(0.021)	(0.012)	(0.021)
Observations	889	889	889
R-squared	0.195	0.142	0.194

Robust standard errors clustered at the province level in parentheses

Prices divided by population in 1754. All specifications include, elevation, distance to Lima,

latitude, longitude, agricultural constraints index. Pre-sales variables: commercial hubs,

forced labor, mining, and indicator of colonial bishop seat. *** p<0.01, ** p<0.05, * p<0.1

City of Cuzco excluded

TABLE 14: Log-ratio Price-Wage Gap per Capita and Anti-Colonial Governor Rebellions

	(1)	(2)	(3)
VARIABLES	Anti-Governor Uprisings	Uprisings During Sales	Uprisings Post-Sales
log $Price - Wage_{mean}/Pop1754$	0.040**	0.015	0.030*
	(0.016)	(0.013)	(0.017)
Observations	889	889	889
R-squared	0.349	0.236	0.412
VARIABLES	All Uprisings	Uprisings During Sales	Uprisings Post-Sales
log $Price - Wage_{max}/Pop1754$	0.027**	0.013	0.015
	(0.012)	(0.010)	(0.014)
Observations	889	889	889
R-squared	0.331	0.242	0.362
VARIABLES	All Uprisings	Uprisings During Sales	Uprisings Post-Sales
log $Price - Wage_{sum}/Pop1754$	0.040**	0.016	0.029
	(0.017)	(0.013)	(0.018)
Observations	889	889	889
R-squared	0.347	0.237	0.405

Robust standard errors clustered at the province level in parentheses

Prices divided by population in 1754. All specifications include, elevation, distance to Lima, latitude, longitude, agricultural constraints index. Pre-sales variables: commercial hubs, forced labor, mining, and indicator of colonial bishop seat. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

City of Cuzco excluded

TABLE 15: Log-ratio Price-Wage Gap per Capita and Political Violence: Negative Binomial Regression

	All Attacks	Guerrilla Attacks	Army Attacks
Panel A:			
log $Price-Wage_{mean}/Pop1754$	0.699**	0.605**	0.658**
	(0.322)	(0.305)	(0.334)
Observations	875	875	875
Panel B			
log $Price-Wage_{max}/Pop1754$	0.760**	0.736**	0.675*
	(0.364)	(0.322)	(0.379)
Observations	875	875	875
Panel C			
log $Price-Wage_{sum}/Pop1754$	0.733**	0.637**	0.691**
	(0.328)	(0.307)	(0.341)
Observations	875	875	875

Robust standard errors clustered at the province level in parentheses

Prices divided by population in 1754. All specifications include, elevation, distance to Lima,

latitude, longitude, agricultural constraints index. Pre-sales variables: commercial hubs,

forced labor, mining, and indicator of colonial bishop seat. *** p<0.01, ** p<0.05, * p<0.1

City of Cuzco excluded

TABLE 16: Log-ratio Price-Wage Gap per Capita and Victimization Patterns: Negative Binomial Regression

	Peasant Victims	Middle Class Victims	Political Authorities
Panel A			
log $Price-Wage_{mean}/Pop1754$	0.62**	0.18	0.54**
	(0.26)	(0.31)	(0.25)
Observations	875	875	875
Panel B			
log $Price-Wage_{max}/Pop1754$	1.031**	0.678***	0.686**
	(0.439)	(0.245)	(0.345)
Observations	875	875	875
Panel C			
log $Price-Wage_{sum}/Pop1754$	0.964**	0.710***	0.556**
	(0.386)	(0.252)	(0.269)
Observations	875	875	875

Robust standard errors clustered at the province level in parentheses

Prices divided by population in 1754. All specifications include, elevation, distance to Lima,

latitude, longitude, agricultural constraints index. Pre-sales variables: commercial hubs,

forced labor, mining, and indicator of colonial bishop seat. *** p<0.01, ** p<0.05, * p<0.1

City of Cuzco excluded