Historical Legacies at the Grassroots: Local Public Goods in an Indian District, 1905-2011

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Abstract

Accounts of historical persistence in public service provision often use aggregated spatial units, and measure outcomes at a single point in time. This paper analyses a new panel dataset of local public goods provision in a single North Indian district with observations at the village decade level going back to 1905, and detailed information on colonial land tenure institutions, and demographics. A historical factor often thought to influence rural politics in India, the presence of large colonial landowners, explains little variation in village-level public goods provision in any period. Villages inhabited by upper castes had an advantage in the colonial and dominant party eras, but not afterwards. This non-effect stems from changes in the composition of Northern India's political class have meant that that caste-based favoritism has benefited different groups in different periods. The results suggest that differences in public goods provision stem from the interaction of community-specific, regional and historical factors.

Keywords: Historical Legacies, State Capacity, Public Goods

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1 Introduction

In the past two decades, there has been an explosion of literature on the long term effects on historical institutions on economic development and public goods provision (**????????**). At its best, this literature fills an important lacuna in the literature on the political economy of development, which often analyses the impact of factors such as state capacity, economic inequality, social trust and ethnic diversity in cross-section without examining the origins of variation in these factors.

However, analyses of historical persistence often take two analytical shortcuts that limit their ability to make generalizations about this type of historical persistence. Firstly, the unit of analysis is often distinct from either the unit of treatment, either because of change in the structure of units over time or the unavailability of disaggregated data. This approach leads to the well-known problems associated with ecological inference and inference based on modifiable areal units. Results may vary widely based on the level of aggregation, particularly when the units of aggregation themselves are correlated with preexisting geographical conditions and subsequent historical events. Secondly, the outcome of interest is often not measured for a long part of the period between the historical treatment and the present day, making in impossible to access changes in effect size over time. In fact, perhaps the most common design is cross-sectional, with only suggestive evidence on how or whether an institution's effect persisted over the decades (or, sometimes, millennia) between treatment and measurement.

India, with its profound regional inequalities, has been a center for studies of both public goods provision and historical institutions. One institution that has been intensely studied is land tenure. In some areas, the colonial state transferred property rights to a few large landlords, while in other areas these rights were divided among ordinary cultivators. In a widely cited paper, **?** showed that Indian districts where large landlords were more common had higher levels of local public goods provision and agricultural investment in the 20th century, though both this finding and the mechanism behind it have since been extensively debated (**?????**). The other major hypothesis for explaining spatial variation in public service delivery in India is caste. The "ranked" social differences characteristic of the caste system are widely thought important in shaping political patterns (**????????**) with areas inhabited by high status or politically powerful group having higher levels of public service provision.

While most of these studies attempt to explain processes that occur at the local or even individual level, they

measure both outcomes and treatments either by state (**??**) or district (**?????**). Given the complex and endogenous relationship between land tenure institutions and caste and district and state-level characteristics, this approach requires strong identifying assumptions. Furthermore, while historical land tenure does not vary over time, and local caste is relatively stable, the political context in which rural Indians operate has changed markedly in the past century, with the state making major attempts to weaken the power of colonial landlords and high status caste groups.

To examine these hypotheses, this paper analyses a new dataset of public goods outcomes and historical institutions in a single district in the North Indian state of Uttar Pradesh, Agra. This data is collected at the village level, the basic level at which public goods are assigned. For many villages, it includes detailed information on the structure of landholding in the late colonial era, collected from unpublished colonial records from the local archives. These are supplemented with colonial census data, which gives detailed information of local caste and occupational breakdowns in the late colonial period. This data on local conditions supplements panel data on the provision of local public goods in each village that collected (roughly) every decade from 1905 to 2011.

The data show that only very limited support for existing hypotheses about the origins of public goods in India. Ownership of the village by a single group of landlords, or by absentee landlords, in colonial times is not associated with lower levels of public goods provision after conditioning on village population and spatial location, either today or in any previous historical period. In fact their is some evidence that non-absentee landlords are associated with increases in public goods provision relative to non-landlord areas. While the presence of large colonial landlords relative to village-based tenures is associated with cross-state variation in public goods provision across states, it does not explain variation within states or districts.

The effect of the presence of specific politically powerful caste groups varies over time. The presence of upper caste groups had a positive influence in the Colonial (1905-1951) and "Congress" (1951-91) eras, when upper castes were overwhelmingly powerful politically, but null or negative effects during the more competitive conditions that have prevailed since 1991. This pattern holds even in paired comparisons of neighboring villages with similar populations.

The most straightforward interpretation of these findings is that the gradual rise to political influence of lower status caste groups in northern India have reversed the political inequalities that existed in mid-century In-

dia. Panel results support this assertion: Villages are more likely to gain public goods when a member of the plurality caste is in office at the state level. More specifically, villages inhabited by Jats (a "martial" group favored by the colonial state) were advantaged in the colonial period but not later, villages inhabited by Brahmins (the most powerful group in the Congress Party and the post-colonial bureaucracy) were advantaged in the four decades after independence but not before or after, and provision in villages inhabited by Chamars (the relatively poor largest group in the state) has improved in the past several decades.

The results suggest a nuanced picture of the role of historical institutions in shaping politics in developing countries. While upper caste groups were once politically preeminent in rural northern India, as other social groups became more prominent in the political process at the national and regional levels, this advantage melted away, or even reversed itself. The legacy of historical institutions and demographic characteristics appear to depend on when the question is asked, and at what level of analysis is conducted.

2 Theoretical Framework

2.1 Distributional Politics in Poor Countries

Perhaps the most fundamental source of political conflict is how state resources should be distributed.[1] Many resources—jobs, ration cards, pensions—are distributed to individuals, but others—schools, roads, electrical connections—are distributed to geographical communities. Within these communities, these goods are usually non-excludable (anyone in the community can use them) and non-rival (more users does not reduce the good's quality). These services are thus usually termed "local public goods" though they differ in some respects from public goods formally defined.

In the face of a budgetary constraint, only some communities can receive these local public goods. In some cases, these decisions may be based on publicly announced "programmatic" criteria, such as population (**?**). In many others, however, bureaucrats or politicians have some discretion as to which communities

[1] At the national level, there are important tradeoffs between taxation and redistribution. However, in India (and in many other developing countries) state, district and local governments have little taxing autonomy, and focus on spending money raised by other agencies. The discussion in this paper will thus focus entirely on the distributional side of the game.

will receive transfers, making them "pork." Even where distribution is formally programmatic, the publicly announced criteria may be written to benefit certain categories of people such as those in poverty. In theory, communities might be able to provide local public goods through taxation, but in practice this is rare, given the poverty of rural communities in developing countries and legal or de facto monopoly that the state enjoys over certain types of services (**?**).

The bureaucrat or politician with discretion is thus the key actor in most theories of distributional politics. Two broad classes of explanations stand out for why a decisionmaker might favor some communities over others. A decisionmaker might have an affective preference for some communities over others, because they are inhabited by friends, relatives or coethnics. Communities might be able to informally reward or sanction a decisionmaker for choosing them, either through outright bribery or promises of some other type of favor—"lobbying." In a democracy, a community can reward politicians who favor them and punish those who do not distribute resources to them, leading politicians to use resource distribution to build winning coalitions.

The "community" that conducts lobbying and votes to reword pork distribution is not a unitary actor. Some accounts, particularly those influenced by cooperative accounts of provision such as **?**, argue that lobbying and political organization require collective action on the part of communities, and that since local public goods are non-excludable there are incentives to free ride. Communities who can solve the collective action problem, in this view, are more likely to receive resources. Note, however, that while collective action may be a predictor of distribution, it is not a necessary one. If the individual value of the good is high enough relative to the cost of lobbying, a small group within a community, or even a single individual, will have an incentive to advocate on their community's behalf.

2.2 Distributional Politics in Rural India: Land

How do these theories apply to the context of rural India? Perhaps the best known story hinges on differences in colonial land tenure systems, which have been widely claimed to have shaped the development trajectories of modern India, with areas with landlord-centered systems having lower levels of state capacity, public goods provision, and economic activity (**?????**). The most common version of this story hinges on cooperation in lobbying or voting. Tenure systems that gave power to landlords created higher levels

of economic inequality, which inhibits cooperation both by creating heterogenous demand for public goods and by encouraging destructive and distracting conflict over economic redistribution, particularly of land. If the landlords were absentees, as they often were, the effects might be more negative still, since non-residents had no incentive to lobby for public goods from which they will not benefit.

In rural India, the major local public goods discussed in the literature are provided at the village level: schools, access roads, electrical connections. However, the studies of colonial land tenure have generally been conducted at the district level. However, here is no reason to expect the effects of these institutions to be the same at different levels. **?**, for instance, finds that colonial land tenure systems weakened state capacity at the province and district level, but makes no conclusions about what within district comparisons might reveal. Moreover, the distribution of colonial land tenure systems had a strong spatial component, being most common in the East and North of the subcontinent, making cross-district comparisons vulnerable to confounding by pretreatment traits and post-treatment historical events.

2.3 Distributional Politics in Rural India: Caste

Another commonly told stories hinges on the role of ethnic identity, and in particular the role of individual castes (*jatis*).[2] The most common story centers on the hierarchical nature of the caste system. The Indian caste system is, at least in theory, a "ranked" system where some individuals claim a higher status than others, Such a system might well generate antipathies that would inhibit cooperation, and experimental evidence has found that cooperation across status differences is in fact exceptionally difficult (**??**). A closely related argument is that decisionmakers from politically powerful groups ("dominant castes") might have an incentive to avoid distributing benefits if they believe that they will undermine their political position in the long term by weakening patterns of clientelistic dependence, especially when they do not constitute a majority of the population (**?**). This echoes claims made in other contexts that intergroup economic inequality hurts support for public goods provision (**??**).

Even if cooperation is unimportant, decisionmakers drawn disproportionately from the upper caste might

[2]While in the non-Indian literature accounts of ethnicity and public goods tend to focus on the negative role of diversity (**??**), there is at best limited evidence for such an effect in the Indian context, due to the extraordinarily high levels of caste diversity and the small role of cooperation in public (see **?** and **?**).

favor individuals from their own status level (**?**), provide only goods favored by their own group (**?**) or even refuse to provide goods entirely (**?**) rather than give resources to those they consider inferior. Evidence has been found for this type of ethnic favoritism from a range of contexts (**???????**). This favoritism may be either due to to affective preferences for ones own group (**?**), superior ability to monitor and socially sanction in group members (**??**), or superior ability to form a clientelistic network within ethnic groups (**????**). By itself, ethnic favoritism should not influence levels of public goods provision over the long term in an egalitarian democracy. Over time, rotation in office will ensure that all ethnic groups receive approximately equal levels of provision. However, as **?** notes, many systems of ethnic division are associated with entrenched patterns of political inequality even in democracies, meaning that certain groups will never "get their turn." If the ruler is already chosen from the same group, or if one group is extralegally disenfranchised, it is easy to see how that group will always receive resources. However, such structures of power may be more subtle: Even if the leader changes, an advantaged group may still be overrepresented in the bureaucracy or among political donors and activists, they may be able to exert influence directly.

Like land tenure, the role of identity might plausibly vary across levels of aggregation (**?**). Also like land tenure, the distribution of high status castes is uneven, with with high status groups being especially common in the north of the subcontinent, and with complex patterns of regional and subregional variation. The relative political importance of caste groups also varies from place to place, in part due to the redistributions of land and caste identities that occurred in the colonial period (**?**)

2.4 Distributional Politics in Time

The theories discussed in the last section are theories of democratic politics in India. While historical events are important, they work by shaping the distribution of economic resources and identities that shape contemporary competition. In a limited sense, this division between a parameter-shaping past and a distributional present recognizes that most of the public goods we observe were provided (and, in some cases, invented) in the 20th century, long after the major distributional policies of the colonial regime were well-established. However, the Indian state has been building schools, post offices and roads in rural areas for well over a century. Was the effect of "historical legacies" the same throughout this period?

In fact, the rules of political competition in rural India have changed considerably over the past century and

a half. In the colonial period, local power was shared between a tiny number of colonial officials, a slightly larger number of upper caste elite leaders (often landlords, traditional rulers or professionals) on whom they relied for political support, and a few local and provincial legislative bodies elected on an extremely limited franchise (**??**). After independence in 1947, universal suffrage was introduced, but the dominance of a single party (the Indian National Congress) and the limited spread of education meant that most high level decisionmakers were still wealthy upper caste mean, and that rural landowners still could influence the votes of other villagers (**??**). Beginning the 1960s, the power of these wealthy upper caste brokers and politicians began to slowly decline in tandem with mass education and Congress hegemony. Since the1990s, many (though not all) senior politicians are from traditionally low status groups, appeals to these groups are part of everyday political discourse, and the brokers and party workers who make up the base of the system are much more representative of the population as a whole—**?**'s (2003) "silent revolution." This period also saw the development of village self-government on a limited scale, and the reduction of bureaucratic autonomy, reducing the importance of the still heavily upper caste bureaucracy.

The patterns discussed in the last section might have different effects under these political regimes. Consider the case of a community inhabited primarily by upper castes. In the colonial and congress periods, when members of these groups dominated the bureaucracy and elected office, this community might be more likely than others to be a target for resource distribution, either because decisionmakers favor coethnics for affective reasons, seek to reward them for providing political support, or be more vulnerable to lobbying or social sanctioning by coethnics. However, once members of lower status groups rose to political power after 1990, this advantage should diminish or even reverse.[3]

3 The Context

3.1 Agra District

Agra district is located in northern Indian state of Uttar Pradesh, in the basin (*doab*) of the Yamuna river, about 140 miles southeast of Delhi. Topographically, the region is quite typical of the doab regions, being

[3] **?** and (**?**) make related arguments that institutional arrangements that are not negative under one (low growth) set of economic conditions might be negative under other (high growth) conditions.

generally flat and having fertile alluvial soils, though there are some low hills and less fertile area of sandy soil. The administrative district has existed in some form since the early 16th century, though it was once larger than it is now. This paper focuses on the district boundaries that existed between 1881 and 1989, and thus include some areas that have been part of Firozbad district since 1989. Within these boundaries, the district is divided into 8 subdistricts (*tehsils*), which have changed little since the 19th century,[4], and each tehsil contains between 100 and 200 villages. In 2011, the historical district had 31 towns (many of which were quite small and had only attained self-governing power very recently) and 1134 inhabited villages. This paper will focus on areas that had village status and a population greater than 30 in 1891, thus excluding the tehsil and district headquarters towns, and a number of sparsely inhabited villages.

The administrative center of Agra district, and the scene until recently of virtually all of its non-agricultural economic activity, is the city of Agra. Agra's period of glory was the late 16th and early 17th century, when it (or nearby, now abandoned Fatepur Sikri) was the capital of the Mughal empire. During this period, a set of spectacular monuments were constructed, including the Agra Fort and the Taj Mahal, that have made Agra a modern center of the Indian tourist trade. The city never really recovered from Shah Jahan's decision to move the court to Delhi in 1648, but it, and in particular the fort, remained a regional and military center in the subsequent century and a half, with the provincial governors of the Mughal, Jat and Maratha empires using the city as their administrative center for the doab. However, outside the walls, the local administration and taxing apparatus of the Mughals fell into decay in this period, with local warlords, peasants and landowners defying the central authorities from their mud walled forts. The conquest of Agra by the British (1803) ended this period of political instability, and began a period of profound, and often disruptive changes in local fiscal and land tenure systems and caste hierarchies. The British briefly gave Agra back its status as a provincial capital, though after 1858 Agra was left as an ordinary divisional and district headquarters.

Both in the colonial period and after independence, Indian districts like Agra have had very little policy autonomy. Outside the cities, only democratically elected bodies are the district and the recently founded village panchayats, which are handicapped by limited legal scope and financial resources. Most importance decisions are made by bureaucrats (the district magistrate and his subordinates) who are recruited from a statewide cadre and are subject to the policy dictates of the state government. The policies adopted in Agra

[4]One new tehsil was created in 1989.

Figure 1: Agra District

(a) Within India

(b) In 1905

Notes: Subfigure A shows the current boundaries of Agra within Indian and Uttar Pradesh. Figure B shows Agra within its 1905 boundaries.

Sources: https://commons.wikimedia.org/wiki/File:Uttar_Pradesh_district_location_map_Agra.svg Accessed 7/20/20. **?**, np

thus closely resemble those in Uttar Pradesh as a whole, and most important aspect of local politics is the election of state-level representatives.

Like many other parts of India, the post-independence politics of Uttar Pradesh can be divided into two phases. Between 1947 and 1989, the state was dominated by the Congress party, and the Congress party was in turn dominated by narrow groups of upper caste politicians. Political conflicts tended to be internal struggles between factions of these politicians and their client networks. Beginning in the 1960s, the Congress began to be challenged by other parties, often led by lower caste politicians and promising to improve distribution to the lower castes.

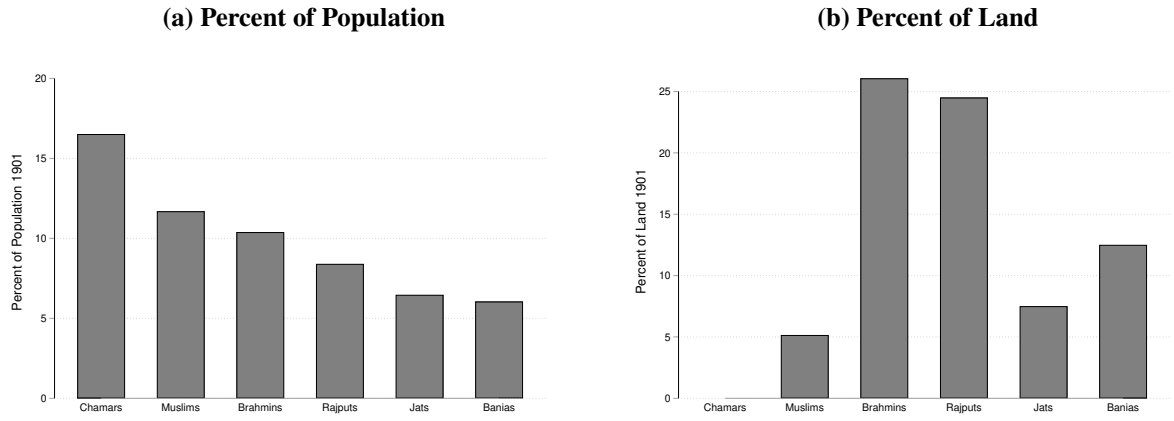
Since 1989, this process turned UP into one of the most politically competitive places in the world, with four major parties, and numerous smaller ones, constantly shifting alliances, and extremely close elections—in 2012 the average winning candidate gained only 35% of the vote. Two of the major parties, the Bahujan Samaj Party (representing former untouchables in general and the Chamar caste in particular) and the Samajwadi Party (representing the "Other Backward Classes" (OBCs) in general and the Yadav caste in particular), have put their devotion to enhancing the power of lower caste groups at the center of their political strategies, and even the "upper caste parties" eagerly promote lower caste politicians and political

brokers. Thanks to the quotas in government hiring introduced in 1994 after the belated implementation of the Mandal Commission report, there has been a substantial increase in the proportion of OBCs in the upper bureaucracy, previously monolithically upper caste.

3.2 Identity Groups

The caste groups (jatis) of Agra district are typical of northern India as a whole. Overall, the distribution is highly fragmented. The largest caste (the Chamars) composed only 16.5% of the male population in 1031, and in 1929 only 26% of villages had a caste that made up more than 50% of the population.[5] Other than the Chamars (a traditionally poor and stigmatized groups associated with leatherwork), the largest castes are all of high status: Brahmins (traditionally priests), the Rajputs and the Jats (traditionally soldiers and cultivators). All three of these groups owed a large portion of the land in colonial times, (respectively 26.1%, 24.5% and 7.5% at the turn of the century), and two small commercial or scribal castes (the Banias and the Kayasths) owned another 19.1% (**?**, 86). These five groups will be referred as "upper castes" in this paper. In the colonial and immediate post colonial periods, these groups had a functional monopoly not simply of religiously-sanctioned social status but of economic and political power.

Figure 2: Major Communities in Agra District, 1901



Notes: The graph shows the percent of the population (1901) and land owned (1905) for caste or religious groups with more than 5% of the population. **?**, 74-86

However, there are major differences in the historical experiences within the upper caste category. Rajputs

[5]Independent India does not collect figures on jati numbers, making the 1931 census the most recent source on this topic.

and Jats controlled most of the district during the 18th century interregnum, while Brahmins, Banias, and Kayasths, were early joiners of the colonial bureaucracy and educational system. Due to their relatively high levels of education, Brahmins and Kayasths were prominent in the early nationalist movement. This led the British to cultivate "martial races" such as the Jats as a counterweight, favoring them in military recruitment and distributional policy. During the post-independence period, Brahmins and Kayasths dominated the state and national power structure of the Congress party, and retained their overrepresentation in the bureaucracy, while Jats and Rajputs were well-represented in the leadership of the various anti-Congress parties. There are dozens other caste groups in the Agra district, all were historically considered "low," and all comprised less than 6% of the population in colonial times.They were also historically marginalized by the colonial land tenure system. In 1905 the approximately 69% of the population who were not from clean Hindu castes owned only 17% of the land.

Due to this history, levels of descriptive political underrepresentation have remained high since independence, despite universal enfranchisement and quotas for formerly untouchable castes. The case of a set of four of most politically influential castes in Agra district, the Brahmins, Rajputs, Jats and Yadavs, who collectively made up 30.6% of Uttar Pradesh's population at the 1931 census (**?**, 32).[6] However, these groups provided 52.5% of legislators in 1952, and 50.2% in 2017. Uttar Pradesh is also notable for the high salience of caste in electoral politics, even relative to other parts of India (**?**).

Despite its long history of Muslim rule, Agra's colonial Muslim population was less than the national average, and considered unimportant politically. It is thus unlikely that migration during the Partition of India, the major demographic change in this period, influenced the social structure of rural villages in Agra, particularly given the disproportionately urban nature of Muslim migration from UP. To further exclude this possibility, Tables **?? ??** reports results from models which exclude all villages with a Muslim population of more than 20% in 1891, which give very similar results to the main tables.

[6]This is the most recent census where caste data were tabulated. Chamars are not included, due to the quotas for these groups.

3.3 Land Tenure Policies

Despite the recent history of policy uniformity, there are dimensions of diversity within Agra district. The best known of these are differences in the land tenure systems adopted during the colonial period. Each system placed the responsibility for paying the land tax, and thus legal "ownership" of the land, on a different group. The British adopted sharply different land tenure systems in different parts if India, in some areas adopting institutions that transferred property rights and administrative power to large landholders (*zamindars*), while in others giving these rights to peasant cultivators (either individual or collectively) supervised by local bureaucrats.[7] These tenures, and the quasi-political role associated with them, have not been formally significant since Indian independence, after which all the colonial land tenures were abolished, and zamindars permitted to keep only the land they cultivated themselves.

Of the four major land tenure systems of colonial India discussed by **?** and **?** , two were represented in practice in Agra. Systems which placed the revenue responsibility on a single landlord with an occasionally reassessed tax assessment (temporary zamindari), or those that placed the responsibility on the village community jointly.[8]. Both in theory and in practice, the legal distinction between these categories was less meaningful than the differences in the number of landowners. When the "village community" was comprised of only a single family, the system was not meaningfully different from a zamindari system (**?**), while when a zamindari became subdivided over time a significant proportion of the local population might possess revenue rights. This paper uses these de facto classifications throughout, though in practice the correspondence with the legal distinction is high.[9]

The villages with landlord and non landlord tenures were scattered across the district, with landlord con-

[7]For a brief review of these differing systems, see **?**. For a longer discussion, see **?**.

[8]In official terminology, this meant either perfect *patidari* (where the holders had divided the land amongst themselves but maintained a joint liability for the revenue) or *bhaiachara* or imperfect *patidari* (where the holders maintained some communal land from which the revenue demand was theoretically drawn).

[9]In fact, colonial revenue officials sometimes reclassified zamindari villages with a large number of sharers as pattidari and pattidari villages with a small number of sharers were sometimes divided into zamindari estates (**?**, 17). **?**, 119-20 also notes that over time land sales to outsiders made joint responsibility difficult to enforce, and the legal distinctions among the various legal tenures less important.

trolled villages being especially common east of the Yamuna in Etmadpur and Firozabad tehsils. This reflected the complicated and unsystematic way in which the tenures we distributed by settlement officers during the first decades of colonial rule. Landlords tended to retain control in areas where petty warlords had flourished during the 18th century, imposed their will on peasants while resisting appropriation from more central authorities, and then navigatde the transition to colonial rule without seeing their estates transferred to the cultivators as a punishment for disloyalty or late payment. In practice, this meant that zamindari villages tended be of moderate economic value, less common both on the hillier periphery of the district and in the immediate neighborhood of Agra city. Overall, tax levels (which were based on agricultural productivity) were quite similar between the two systems. In 1881 the zamindari villages paid an average of Rs. 1.54 per acre, while the pattidari mahals paid Rs. 1.58. We will return to the issue of selection into land tenure systems below. However, it is worth noting that the unobserved differences between villages within a single district are very modest relative to the those within India as a whole. In particular, the differences in local government spending and state bureaucracy that **?** finds are associated with land tenure systems are not present within a single district.

In the landlord villages, the government gave land rights to a single zamindar, though these rights were sometimes subdivided among brothers, and occasionally minor portions passed into the hands of the government or others. In practice I have coded all villages were four or fewer individuals held over 90% of the arable land and having a "landlord" tenure system. Given the large scale of their holdings, the majority of these landowners did not live in the village that they held, and virtually none cultivated their land directly: Of villages with data in 1929, only 18% of landlords in these villages lived in the villages they owned, as opposed to 77% of landowners in other villages. Most of the "big" zamindars in Agra were small relative to those in other parts of India, owning fewer than five villages. However, one exceptional family, the Rajas of Bhadawar, held 32 villages in Bah Tehsil (on the Eastern edge of the district).

The majority of villages in Agra district were held in village-based system. In all these villages, the number of holders was large, with the average village possessing several dozen landowners, and some several hundred. In most cases, the original set of sharers had been members of a single caste, and often a single clan or family, almost always upper caste, who had established the village and divided the land among themselves and their heirs. Given the small size of the average holding, the landowner usually cultivated it himself. In the late colonial period, many villages still approximated this pattern, with a text single caste owning the vast

majority of the land. Even in the majority (76%) of these villages the landowning caste did not constitute a majority of the village population. Moreover, during the 19th century there we many transfers to outsiders, as many landowners being forced to sell out, often being replaced by individuals with connections to the colonial bureaucracy, or urban traders and money lenders (**?**).

4 The Data:

4.1 Outcomes and Controls

Since independence, the provision of village level public goods has been a central activity of the Indian state, and collection of information about this provision and important form of official knowledge and legitimation. The decennial census of 1951 included a list of primary schools in each village, and subsequent censuses have expanded this exercise into a comprehensive "village directory" of public goods in the village. While recent years have included the total number of goods, for consistency all were recoded as binary measures of the presence of the good. The variables used in this study, and their availability, by year, are summarized in Table **??**, which also shows the proportion of villages in each year possessing the good.[10] While the modern censuses collect data on a very wide range of goods, I have focused on those with limited private provision in rural areas, long periods of temporal coverage, and where the definition of the good has not shifted over time: schools, electricity post offices and good roads (coded as "pucca" but the census). The census also includes more conventional demographic data that are used in some models, including population, area, literacy, occupational structure and presence of the scheduled caste category.

The 1991, 2001 and 2011 census are available electronically, while the 1951, 1961 and 1971 data were entered by hand. The 1981 village directory for Agra appears not to have been printed—the author is not aware of a copy in any world library. Great efforts were made to match villages across years, a difficult problem given the numerous changes in village name and transliteration that have taken place over the past century. Difficult cases were resolved using scanned historical census and revenue maps. Fortunately, village boundaries are much more stable than village names. A few "splits" have been dealt with by adding

[10] Some additional information for 1951 was gathered from other published sources, including *New directory of high schools in India & Pakistan*, 1951 edition.

the component parts to approximate the colonial boundaries. A few villages disappear from the data, due to the suburban expansion of Agra City, changes in the course of the Yamuna, or minor changes in district boundaries. Overall, there were 1204 inhabited villages and towns in the district in 1901 and 1165 in 2011. Agra City and all the tehsil headquarters towns are dropped. However, villages that attained municipal status after 1947 are retained in the dataset, which includes 1131 villages.

Table 1: Public Goods in Agra District, 1904-2011

	1905	1914	1924	1932	1951	1961	1971	1991	2001	2011
Primary School	11.2	10.8	11.9	20.5	28.2		62.0	79.8	90.2	95.1
Middle School	0.4	0.3	0.3	0.1			12.4	20.0	24.9	63.0
High School	0	0	0	0		0.4	2.4	5.3	5.5	22.5
Post Office	2.1	2.6	2.2			8.9	19.0	24.0	24.9	23.7
Electricity	(0)	(0)	(0)	(0)		0.3	33.3	73.5	80.0	99.6
Quality Access Road							34.2	55.8	81.8	90.2

Notes: Numbers represent the proportion of villages possessing each good in each census year. Figures are rounded to the nearest whole percentage. Zeros in parentheses are imputed from secondary sources.

Before independence, data on selected public goods are available from the *Gazetteers of the United Provinces*, first issued in 1905 with supplement issued irregularly thereafter until 1932. The range of information included in the gazetteers is narrower than that in the census, thought this in part reflects the narrow range of goods provided by the colonial state.

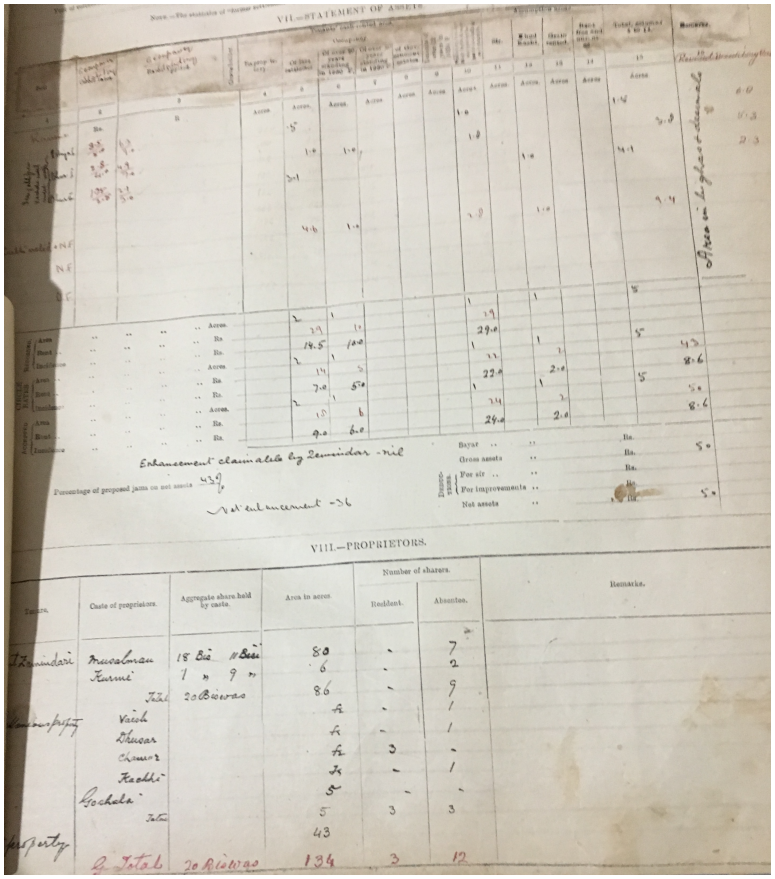
There is a division between the data between primary schools and post offices, which were provided in some villages even during the colonial period, and the other four goods, which were not available (or, in the case of improved roads, not measured) before 1971. The analysis in the colonial period thus only focuses on post offices and primary schools.

4.2 The Data: Caste and Land Tenure

The measurement of colonial land tenure systems at the village level is a surprisingly difficult problem: While aggregated statistics at the district level are widely available, information on individual villages is only available in local archives, and highly susceptible to physical decay or loss. Agra district is remarkable for preserving a large set of colonial land records, though the available data covers only 29% of villages, scattered evenly throughout the district. The archive staff were not able to offer guidance on the source of this

missingness, though it is certain that records for all villages once existed. Table **??** compares the villages with land tenure data to the rest of the data on 2011 and 1891 traits. The 336 villages without records are extremely similar to the 796 villages without records on observables, consistent with the idea that the selective preservation records is a results of processes within the archives orthogonal to the characteristics of the villages themselves. The proportions of different tenures recorded in the preserved files are also very close the aggregate figures reported in the 1930 settlement report: 25.6% of villages in the sample had landlord tenure in 1930, vs. 23.8% of villages with single zamindari tenure in the district overall (**?**, 4a).

Figure 3: Sample Page of 1929 Settlement Records



The primary archival source was the records of the last colonial land settlement, which occurred between 1929 and 1930. All types of land tenure in Agra district, even the revenue free ones, were liable to a periodic reassessment of the tax rates, which in theory was to occur every 30 years, though fact the 1930 settlement was the first since 1880. The settlement officers collected detailed information on each village and on

individual holdings within the village, with the goal of increasing or reducing tax rates in proportion to local resources. An example of the summary reports on each village is given in Figure **??**. The most important information for our purposes was the breakdown of cultivated acreage in the village by landlord caste, which allows a calculation of the percentage of land owned by fewer than five individuals, and the number of absentee and resident proprietors holding this acreage. Table **??** uses absentee landlordism instead of the binary land tenure measure, with substantively similar results.

The settlement information focuses on land tenure, rather than the population of the village as a whole. However, in 1891 the census authorities printed a detailed set of village census statistics for each district, the Agra volume of which has been preserved in the British Library.[11] This volume includes data on village population, literacy levels, a rough occupational breakdown, resident religion, and resident caste (though only for the largest caste in the village, or other castes with over 25% of the population). From these figures, I calculated a set of binary indicators for whether more than 25% of a village's population was from one of the three most common castes in the rural parts of Agra district: Chamars, Brahmins, and Jats.

While these caste figures are taken from a century ago, there is reason to think they give a broadly accurate picture of the distribution of castes today. Migration to or between rural villages in Agra is virtually unheard of: In 2001 99.3% of rural men lived in the village they were born in. Due to its relative prosperity, Agra is also less likely to be a source of emigration than other parts of India. Out of all men born in Agra district who lived in UP in 2011, 98.3% lived in Agra district, and even in urban areas of Agra 97.5% of men lived in the city they were born in.[12] Census figures also indicate little change in caste composition over time. The average sample village had a Scheduled Caste population of 25.6% in 1961 and 23.3% in 2011.

4.3 General Trends in Public Goods Provision

Figure **??** and Table **??** show the basic temporal trends in the provision of six public goods: The lines traces the proportion of villages *not* having the good at each census or gazetteer year—obtaining the good for the

[11] A similar effort was conducted in 1921, but the Agra volume is not available in any world library to the author's knowledge.

[12] These figures are taken from the Census of India's published tables. Source districts in other states are not tabulated. Male figures are used because many women move at marriage. However, these marital movements are unlikely to effect the caste composition to to very high level of endogamy in rural areas.

first time is a "failure" . Only the presence of the good is tracked, rather than the size or quality of the good or the number of such goods. Overall, the provision of these public services has improved dramatically over time, with primary schools, electricity, roads and irrigation have become universal or virtually universal by 2011.

The trends also differ across types of goods. Primary schools provision have been increasing continuously towards a norm of at least one per village since the colonial period. Post offices increased during the colonial period, but plateaued in the 21st century. Provision of high schools, middle schools and electricity was virtually nonexistent in rural areas before 1971, but became very common afterwards.[13]

5 Analysis

5.1 Estimation

To reflect existing practice, the initial models are cross-sectional, with a series of regression models reporting naive correlations between public goods presence and the land tenure and caste composition variables. These cross-sectional models attempt to account for geographical or technocratic factors that could influence public goods provision. Since villages are positioned in space, there is a strong possibility of spatial-autocorrelation—that error terms are correlated either due to spatially correlated unobservables variables or that the acquisition of a good in one village encourages its acquisition in nearby villages.[14] To account for spatial interdependence, all models include a spatial lag of the dependent variable, weighted by inverse euclidian distance. Since distance to the city of Agra, the largest city and district headquarters, might have a large effect on public goods provision, all models also include the euclidian distance to Agra and the subdistrict headquarters town as well as subdistrict fixed effects. In addition to these spatial variables, the basic models control for logged population in 1891 (since a rational government seeking to serve large numbers

[13] In some cases, public goods has disappear between census as well as be created. Between 2001 and 2011, for instance, 87 villages gained a primary school, but the only primary school in 31 villages disappeared. The problem of goods disappearance was especially marked in the colonial period, when government funding for rural public services was parsimonious—86 primary schools disappeared during the depressed and unstable 1930s and 40s.

[14] Calculations of Moran's I easily reject the no autocorrelation null for all years and outcomes.

of people would seek or provide goods to the largest villages first).[15] The estimating equation for the cross sectional models is:

$$PublicGood_v = \alpha + \beta X_v + \theta Z_v + \varepsilon_v \tag{1}$$

Where $PublicGood_v$ is a binary measure for whether a village possesses a particular public good, Z_v a vector of controls, and X_{vy} are the historical and caste factors of theoretical interest.[16]

While results are reported for six public goods, our outcome of interest in the overall distribution of public goods, and we have no priors about the effects on specific goods. To reflect this fact, all the main tables estimate treatment effects on an index of the six dependent variables calculated using the seemly unrelated procedure described by **?**.

To estimate the average predictors of public good provision across villages over time, the analysis used a cox proportional hazard model, with "failure" being the creation of a new public good. In the survival models, observations are dropped after the initial failure, even if a good is subsequently provided If the values of the

[15]The inclusion of proxies for colonial era wealth, such as the 1891 literacy rate, proportion of laborers or specialized workers in the population, the average 1929 rent rate, and the possession of cows and ploughs, predict little additional variation in public goods provision. Results available on request.

[16]To estimate the influence of time varying factors within units, or the changing effect of time invariant traits over time within units, for some supplemental tests I estimate a series of dynamic panel models. The estimating equation for the panel models is:

$$PublicGood_{vy} = \mu PublicGood_{vy-1} + \mu PreviousPublicGood_{vy} + \lambda_y + \gamma_v + \beta X_{vy} + \theta SpatialLag_{vy} + \varepsilon_{vy} \tag{2}$$

Where λ_y is a vector of year fixed effects, γ_v is a vector of village fixed effects, and $PreviousPublicGood_{vy}$ is a measure of whether any of the lags of the DV are equal to one.

Given the relatively small number of time periods in the panel ($t = 10$), Nickell bias is a potential concern. In the Appendix, Table **??** reports the results of a series of Arellano-Bond system GMM dynamic panel models, which give similar results.

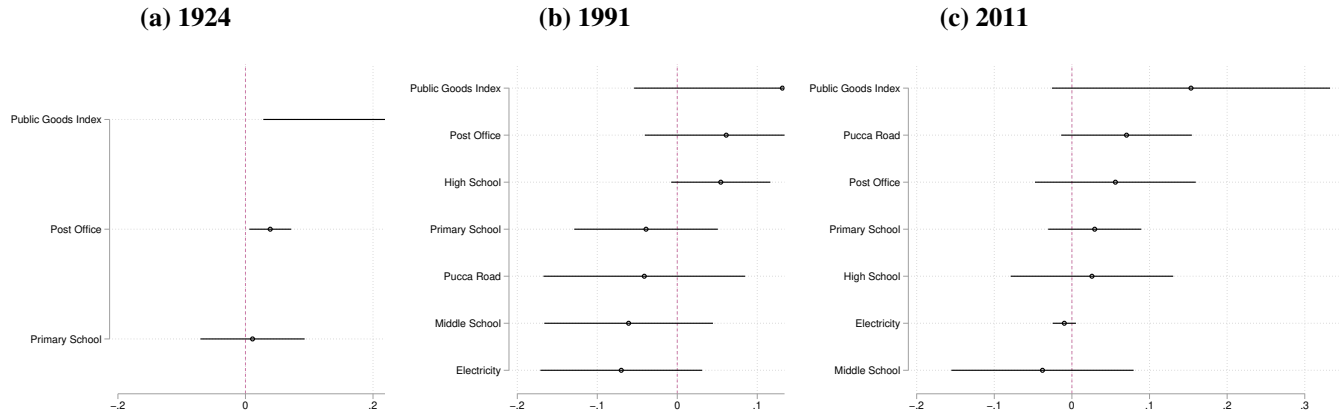
covariates for village v are a vector $X_v = X_{v1905}, \ldots X_{v2011}$, then $\lambda_0(t) \exp(\beta_1 X_{v1905} + \cdots + \beta_p X_{v2011}$ is the hazard function at time t for village v. The hazard estimates the effects of the covariates without making any assumptions about the underlying shape of the hazard function. The Breslow method was used to handle tied failures.

Both land tenure systems and the distribution of caste groups are endogenous to the geography and history of villages. For instance, landlord village were more common in the eastern part of the district, while Jat villages were most common in the north western part. To reduced unobserved spatial variation, some supplemental models make comparisons with neighboring villages. Villages were matched without replacement to the closest village within a five kilometer radius with a different treatments status and an 1891 population differential of no more than 100%. Villages without a suitable pair were dropped. The pair models are estimated with all the standard controls and pair fixed effects.

5.2 Cross Sectional Results: Landholding

Are colonial landholding patterns correlated with contemporary public goods provision at the village level? No matter what point in the 20th or early 21st century is selected, the answer appears to be no. Figure **??** and Table **??** shows the results of a series of simple linear regression models of public goods provision in 2011, 1991 and 1924. These years were chosen as being the last years with full data coverage for the three political eras discussed in Section Three: The Colonial, "Congress," and "Mandal."

Figure 4: Colonial Land Tenure and Public Goods



Notes: The graph displays the coefficient estimates for colonial landlord tenure from Table **??**. The controls are a spatial weight calculated based on inverse distance, distance from Agra, distance from the subdistrict capital, and logged population in 1891.

Villages where 80% of the land was owned by fewer than five people in 1929 do not appear to be less likely than other villages to have acquired local public goods in any of these years. The overall effect is slightly positive in 2011 and slightly negative in 1991, but neither coefficient is significant, and there is considerable variation between models. The overall effect of land tenure on the hazard rate for acquiring public goods is also close to zero overall in survival models (Table **??**, Panel A). Interestingly, the association between land tenure and public goods during the colonial period (in 1924) appears to have been positive rather than negative, though no statistically significant. Table **??** shows that land tenures systems have no negative effect even without the spatial controls. In fact, the result in these models is positive, and statistically significant in many models.

Is this lack a product of unobserved differences between villages, perhaps because single owner villages were located in less accessible parts of the district?[17] Table **??** shows the results for comparisons within matched pairs of neighboring villages. Though the models are somewhat underpowered, there is no evidence for a negative association between colonial land tenure in any time period.

The results indicate that after accounting for population and spatial interdependence, there is no evidence for a robust negative correlation between colonial land tenure arrangements *at the village level* at any point in the past century. If anything, there is a positive association in some periods.

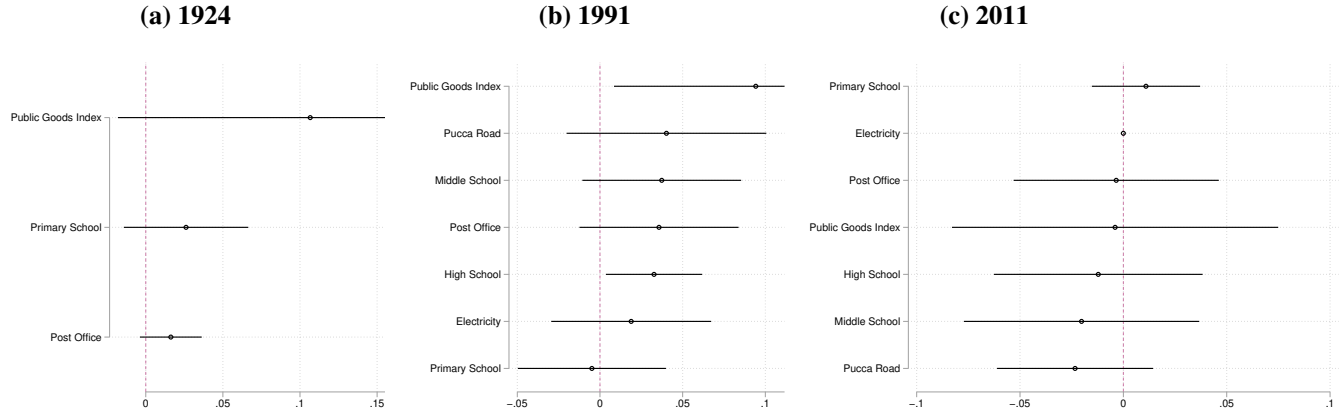
5.3 Cross Sectional Results: Caste

Do villages inhabited by politically powerful caste groups tend to get more local public goods? The main models focus on a binary measure for whether the plurality caste in 1891 was one of five high status castes. Overall, the presence of upper castes has not effect on survival rates in hazard models (Table **??**, Panel B). However, the effect varies over time. Figure **??** summarizes the results which are also reported in Table **??**. The association of upper caste population and public goods is positive and statistically significant in both 1924 and 1991, with the positive effect being on the order of 3 percentage points for most goods. In 2011, however, the effect is essentially zero. The matched pairs models produces similar results (Table **??**), though the effect in 1924 is not statistically significant.

Interestingly, the positive effects of upper caste population are strongest for goods that would be of greater

[17] Note that single owner villages were more likely to be located in fertile areas close to Agra.

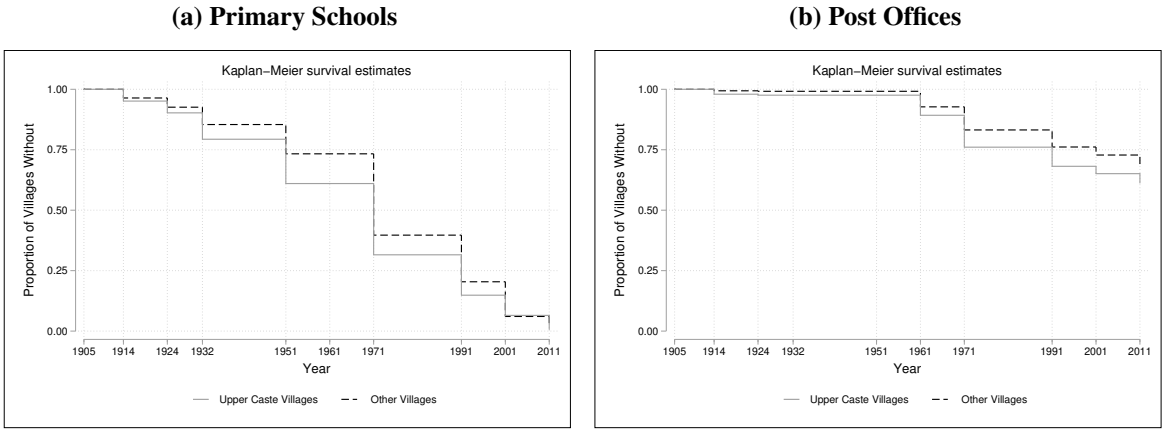
Figure 5: Upper Castes and Public Goods



Notes: The graph displays the coefficient estimates for proportion upper caste from Table **??**. The controls are a spatial weight calculated based on inverse distance, distance from Agra, distance from the subdistrict capital, and logged population in 1891.

use to the already wealthy and educated. In particular, provision of high schools was higher for upper caste villages in 1991, while primary education was no higher. These results echo the conclusions of **?** and **?**: Upper caste groups used the de facto excludability of certain types of local public goods to disproportionately transfer resources to their own groups. In the next section, we will discuss why this behavior has become less apparent over time.

Figure 6: Trends in Provision by Caste Category



Notes: The subfigures show the proportion of villages without a good in each census or gazetteer year. The three categories are villages where Brahmins were the largest castes in 1891, where Jats were the largest caste in 1891, and others.

These patterns are reflected in Figure **??** which shows levels of provision for primary schools and post offices. Levels of public goods provision were low for all types of villages in the colonial period. However,

after independence provision in upper caste villages surged ahead. This advantage has somewhat, though not entirely, reversed itself since 1971. While a "higher" caste status does seem associated with provision, this effect appears to vary greatly over time.

6 Mechanisms

6.1 Why No Land Tenure Results?

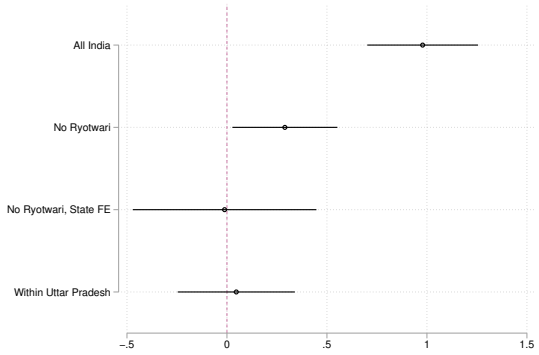
The gap between the findings in this paper (that colonial land tenure is uncorrelated with public goods provision) and the common scholarly view that the two are correlated stems from the very different units of analysis. While villages in the same district, and still more neighboring villages, typically are similar on a wide variety of measures of environment, culture and institutional experiences, states of India differ from each other greatly on all these dimensions, some of which might be correlated with the incidences of land tenure systems.

Figure **??**, based on Table **??**, shows that this is the case, using 1981 district-level public goods data taken from **?**. Overall, "non-landlord tenure" is strongly correlated with public good provision in India as a whole. This also holds, but more weakly, once areas with ryotwari tenure are excluded, making the comparison (between landlord and village-based systems) the same as within Agra district. However, the correlation disappears once state fixed effects are used, or when the we focus on comparisons within the state of Uttar Pradesh. While land tenure systems may explain interstate variation, they cannot explain variation within states. This is consistent with **?**'s (2019) claim that the effect of zamindari tenure is mediated through its effect on the structure of the state, particularly in ryotwari and permanently settled papers.

An alternative explanation for the lack of results at the village level is that the Indian state, when it abolished zamindari tenure, did such a thorough job as to leave no trace of the existing elite, or perhaps made the distribution of land more equal than in areas less affected by the land reform. There are three reasons to discount this hypothesis. Firstly, the scholarly consensus is that zamindari abolition fell well short of having such an effect in the countryside (**?**). Secondly, even in 1924, before zamindari abolition, the presence of large landlords was uncorrelated with public goods provision (Table **??**).

Thirdly, land tenure is not negatively correlated with public goods both in villages more and less effected by

Figure 7: Cross District Comparisons



Notes: The data shot the coefficient estimates for "non-landlord tenure", taken from Table **??**, with the 1981 public goods index as the dependent variable. The data are taken from **?**, and exclude princely states.

land reform. Table **??** interacts land reform with the proportion of absentee landlords, a groups that is widely thought to have found it more difficult to maintain their local influence after independence (**??**). The effect of landlord tenure is actually positive and statistically significant at the 10% level in all years in villages controlled by residents, but there is no negative effect even in villages controlled by absentees.[18]

The slightly positive effect of resident landlord tenure reflects a problem in theories of landlordism's negative effects. It is certainly plausible that the concentration of the major economic resource in the hands of an entrenched local elite might negatively influence public goods provision, possibly by reducing collective action. However, it is perhaps equally plausible that wealthy local landowners be more effective lobbyists for central resources than collectives of the poor, and might improve local public goods provision in order to win local popularity and enhance the value of their holdings. The case of the most persistently influential colonial landowning family in Agra district, the Bhadauria Rajas of Bhadawar provides suggestive evidence for this mechanism. The family has been established in Bah Tehsil since at least the 16th century, and in the colonial period enjoyed a close relationship with the colonial government. Remarkably, the family has been able to maintain its political power after independence. Successive Rajas have held the Bah state legislative seat for the majority of the post independence period, and of campaigned as champions of the area's interests.[19] The current Raja has served as a state minister several times, been chairman of the Bah

[18]Note, however, that selection effects limit the usefulness of these models. Absentee villages are in general smaller and further from Agra, and may differ on unobservables as well.

[19]Mahendra Ripudaman Singh was MLA 1957-62 and 1974-1985. His son Mahendra Aridaman Singh was MLA 1989-2007 and 2012-17, and his daughter-in-law Pakshalika Singh has been MLA since 2017.

cooperative bank since 1989, and owns a great deal of land in the district. In fact rival politicians have accused the Raja of running a protection racket in Bah Tehsil (**?**). Estimating the effects of this family's presence of are complicated by spatial and geographical differences—Bah Tehsil is the most isolated part of the district. However, there is no difference between public good levels in Bah and other parts of Agra district, and the differences are positive and statistically significant for some goods once distance from Agra is included in the model (Table **??**). At least in Agra, the most "feudal" part of the district has not been neglected by the state in the provision of rural public goods.

6.2 Why was the Effect of Caste only Evident Before the 1990s?

We have already mentioned the historical factors that might lead to upper castes being overrepresented in politics and the bureaucracy in Uttar Pradesh. Since these groups are overrepresented among decisionmakers, areas with populations of these groups will tend to receive more resources.

However, the nature and level of overrepresentation in Uttar Pradesh has changed over the past century in ways that have reduced the power of the upper castes. During the colonial period, British officials favored individuals from the "martial races," especially Jats. Brahmins, and several smaller educated castes, were heavily represented in the years after independence, and retained power into the 1980s. A Brahmin was chief minister for 20 of the 41 years between 1946 and 1989 and a Brahmin was prime minister for 40.[20] Jats enjoyed a political renaissance in the 1960s and 70s under the leadership of the mercurial Charan Singh (CM 1967-8 and 1970, PM 1979-80). However, the major political story of the past several decades was the rise of the Yadavs and Chamars. While both groups had always been political influential, both achieved a breakthrough in the 1990s under the leadership Mayawati (the Chamar leader of the Bahujan Samaj Party) and Mulayam Singh Yadav and his son Akhilesh leaders of the Samajwadi Party. These parties, explicit in their focus on their caste base, dominated UP politics after the defeat of the Congress in 1989, serving as CM for 19 of the 25 years with a CM in this period. Christophe **?** has described these changes as a "silent revolution" in North Indian politics, empowering large caste groups with traditional little social power.

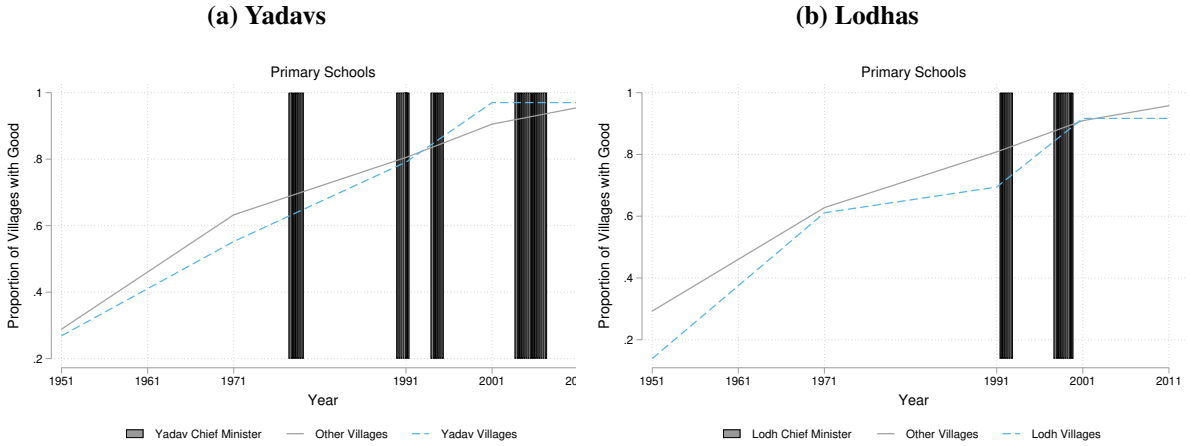
[20]Two years with no CM are ignored. A Bengali Brahmo of Brahmin decent was CM for another 3.5 years.

These detailed patterns of changes in caste power can be seen in the data. Tables **??**, **??** and **??** show the conditional relationship between a sizable presence of the major caste groups and public goods provision. Jat villages had higher levels of provision than other villages in1924, while Brahmin villages had higher levels of provision than other villages in 1991. Both types of village were virtually identical to others in 2011. In all periods, Chamar villages do not have a consistent and statistically significant association with increased public goods provision, though there does seem to be a gradual upward trend in the coefficients over time. These patterns appear broadly consistent with the ethnic favoritism. The decline of the estimated effect of Jats between the colonial and Congress periods tracks their political decline, and the increase of the estimated effect of Brahmins in the Congress period tracks their political dominance in these years. Finally, members of these specific, politically empowered high status castes found it *relatively* easier to obtain public goods for their villages in the 20th century than they do today, when power is more evenly distributed.

The correspondence between state-level political power and local-level public goods can also be seen in panel models Panel of Table **??** shows the results of a series of panel regression models with village and year fixed effects. The key independent variable is a binary measure of the proportion of years in the period since the previous handbook or census that the UP Chief Minister was from a caste that had over 25% of the village population in 1891, or was the largest caste. Jat Villages, for instance, take on a value of .25 in 1971 (since a Jat was in office for 2.5 of the previous ten years), and zero in all other years.

The results show that having a coethnic CM in office is positively and statistically significantly associated with having public goods in the village, with the effect being statistically significant for three of the six goods and on average across all six. The effect can be seen graphically in Figure **??** which shows the percentage of villages with primary schools over time to two selected castes, overlaid against the years a member of the groups was Chief Minister. The rise of the Yadavs from a caste with below average public school provision in their villages tow one with above average provision in their villages is gradual but noticeable. More dramatic is the effects on the Lohdas, a small group that became politically prominent within the BJP coalition during the 1990s when Kalyan Singh, a Lohda, was Chief Minister. During this decade Lohda villages in Agra went from being less likely to have school than other villages to being just as likely, before declining in relative terms after Singh left office.

Figure 8: Trends in Primary School Provision by Large Village Caste and Chief Minister Caste



Notes: The subfigures show the proportion of villages with primary schools in each census or gazetteer year. The dark shaded years are those when a member of the caste was chief minister.

7 Discussion and Conclusion

The results show that in predicting local public goods provision, the level of aggregation can have a strong influence on the results. Results that have strong empirical support at the district level, such as the influence of colonial land tenure, have no support at the village level, once population and district location are accounted for. While these variables may be correlated with regional l differences with a strong association with public goods provision, within a single, not untypical north Indian district these variables have no effect. In fact, there are some indications that strong resident landlords may have positive effects, possibly by serving as privileged intermediaries between the state and their communities.

An even more striking pattern is that the effect of village traits can shift over time. While a large population of traditional upper castes has a positive effect on public service provision in the colonial era and during the period of congress hegemony after independence, though the exact nature of the favored group has shifted. However, the upper caste advantage has disappeared since 1991. This appears attributable to shift in the balance of ethnic power at the state level, with shifts in power towards specific lower caste groups benefiting even the poor village dwellers of Agra district. While Brahmins were effective at transferring state resources to their communities in the era of Congress Party dominance, their presence does not influence public service provision in the more democratic political order that has emerged since 1990.

More broadly, the results suggest that at the local level historical institutions are not destiny, and cannot put communities on immutable "good" or "bad" trajectories. Rather, they distributions of social resources that operate differently in different contexts. Some effects, such as the presence of traditionally powerful castes, can be either "blessings" or "curses" depending on the time in which they are studied. When considering the effect of historical policies, it is necessary to consider contemporary ones as well.

Online Appendix

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Table A.1: Summary statistics

Variable	Mean	Std. Dev.	N
Upper Caste Vill.	0.51	0.5	9990
Brahmin Vill.	0.213	0.41	9990
Jat Vill.	0.119	0.324	9990
Chamar Vill.	0.216	0.412	9990
Colonial Single Landowner	0.26	0.439	3380
Log. Population 1891	6.087	0.964	10140
Distance to Agra	21.867	11.695	11310
Prop. Absentee Landlords	0.527	0.349	2800
Area	635.484	709.197	5755
Primary Sch.	0.456	0.498	10179
Middle Sch.	0.152	0.359	9048
High Sch.	0.04	0.197	10179
Electricity	0.573	0.495	5655
Pucca Road	0.655	0.475	4524
Post Office	0.135	0.341	9048

Table A.2: The 1929 Land Data Sample and the Overall Sample

Variable	No Land Data	Land Data	Difference
2011 Data			
Population	2,913.03	2,739.76	-173.27
Prop. Irrigated	0.934	0.926	-0.008
Area	388.449	400.652	12.203
Primary School	0.935	0.956	0.021
Middle School	0.652	0.618	-0.034
High School	0.238	0.22	-0.018
Electricity	0.991	0.999	0.008**
Pucca Road	0.893	0.905	0.008
Post Office	0.244	0.235	-0.009
1891 Data			
Prop. Muslim	0.05	0.045	-0.005
SC Caste Largest	0.235	0.201	-0.034
Upper Caste Largest	0.532	0.484	-0.048
Majority Caste	0.248	0.269	0.021
Log. Population	6.106	6.067	-0.04
Literacy Rate	0.026	0.024	0.002
Traders PC	0.047	0.051	0.004

The column refer to the samples with and without 1929 $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

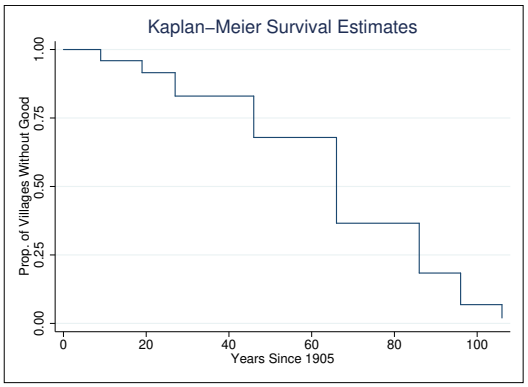
Table A.3: Colonial Single Landlords

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	Primary Sch.	Post Office	Middle Sch.	High Sch.	Pucca Road	Electricity	PG index
Panel A: 2011							
Colonial Single Landowner	0.0294	0.0560	-0.0379	0.0258	0.0704	-0.00978	0.153*
	(0.0305)	(0.0526)	(0.0597)	(0.0532)	(0.0428)	(0.00761)	(0.0910)
Observations	317	317	317	317	317	317	314
R-squared	0.099	0.283	0.223	0.236	0.062	0.094	0.193
Controls	YES	YES	YES	YES	YES	YES	YES
Panel B: 1991							
Colonial Single Landowner	-0.0390	0.0612	-0.0608	0.0544*	-0.0412	-0.0700	0.131
	(0.0456)	(0.0517)	(0.0536)	(0.0315)	(0.0641)	(0.0514)	(0.0942)
Observations	317	317	317	317	317	317	314
R-squared	0.286	0.313	0.221	0.089	0.159	0.332	0.175
Controls	YES	YES	YES	YES	YES	YES	YES
Panel C: 1924							
Colonial Single Landowner	0.0111	0.0388**	0.238**				
	(0.0415)	(0.0167)	(0.107)				
Observations	317	317	314				
R-squared	0.159	0.117	0.136				
Controls	YES	YES	YES				

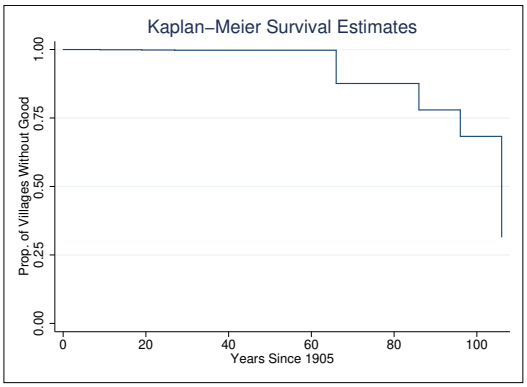
Notes: The tables show the coefficient estimates from a series of linear regressions with the presence of the good as the dependent variable. The controls are a spatial weight calculated based on inverse distance, distance from Agra, distance from the subdistrict capital, and logged population in 1891. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Figure A.1: Trends in Provision of Six Public Goods 1905-2011

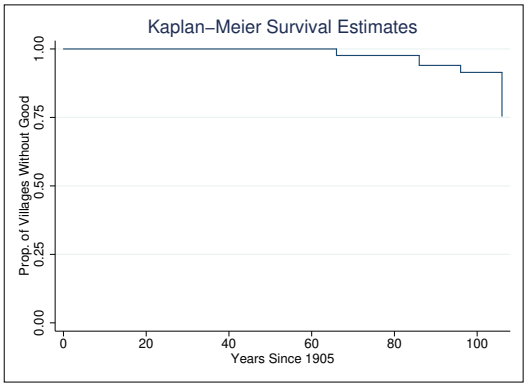
(a) Primary Schools



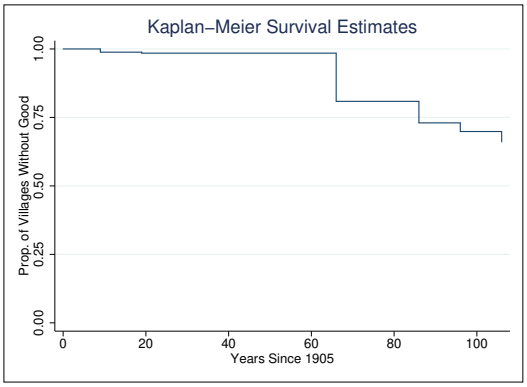
(b) Middle Schools



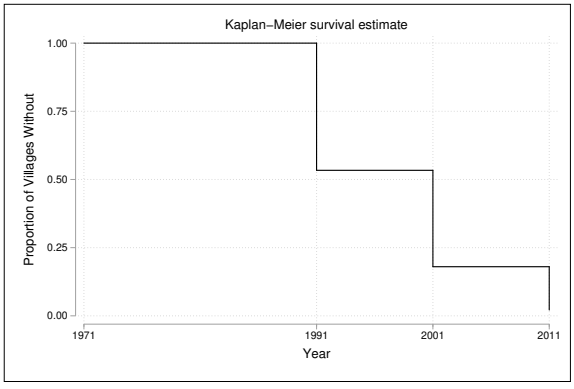
(c) High Schools



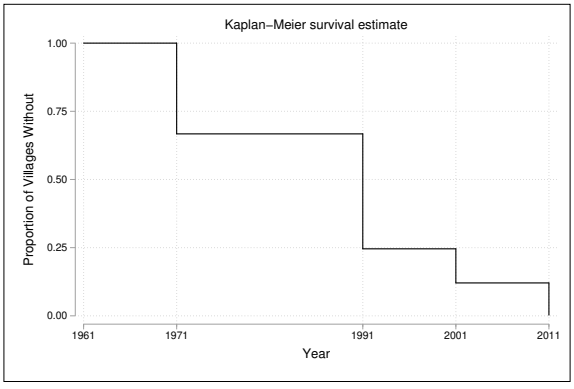
(d) Post Offices



(e) High Quality Roads



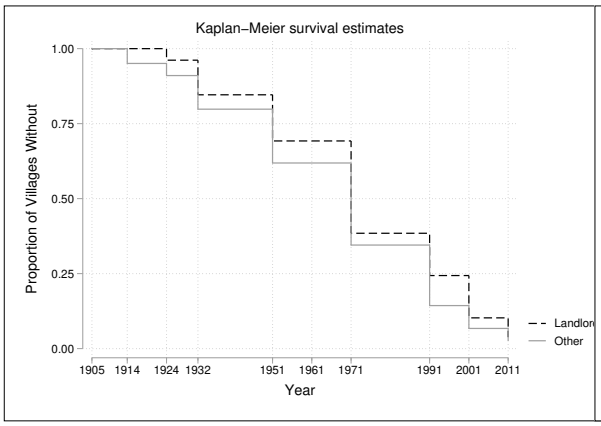
(f) Electricity



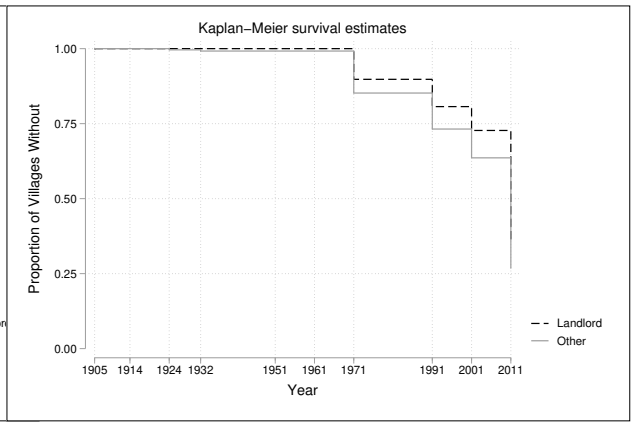
Notes: The subfigures show the proportion of villages without a good in each census or gazetteer year, except for subfigure E, which shows the proportion of villages without quality roads among the 66% of villages without a quality road in 1971.

Figure A.2: Trends in Provision of Six Public Goods by Colonial Land Tenure 1905-2011

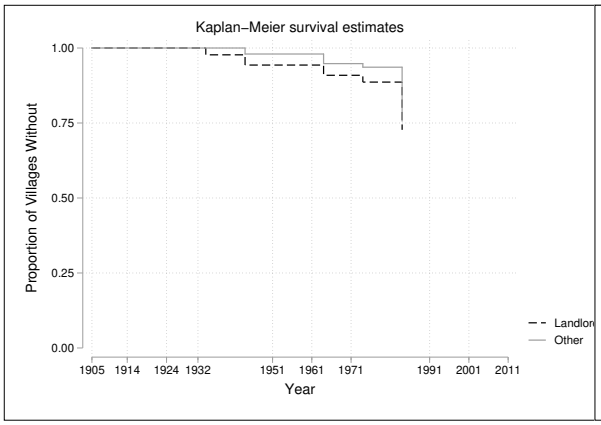
(a) Primary Schools



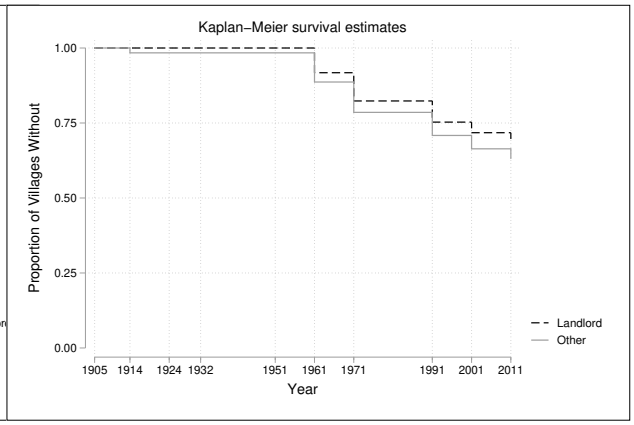
(b) Middle Schools



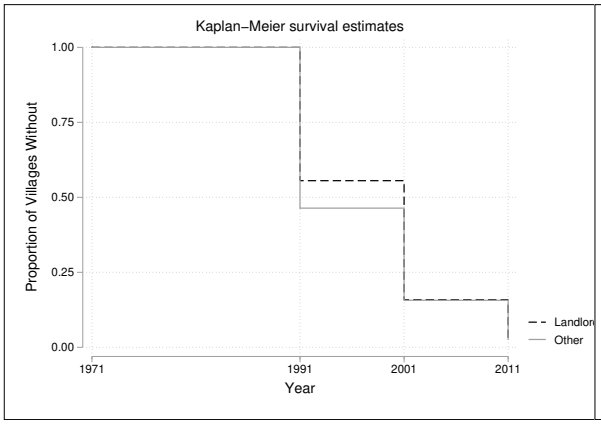
(c) High Schools



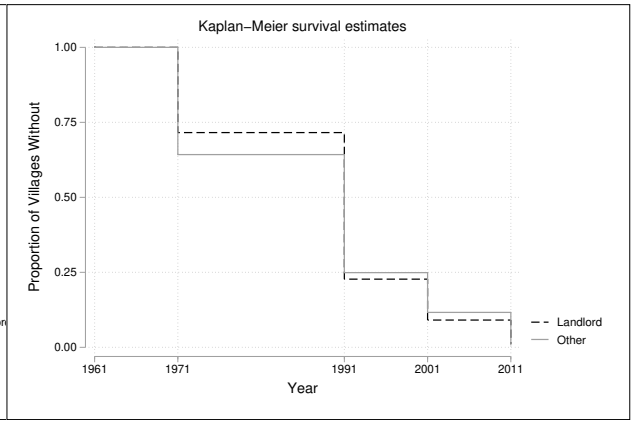
(d) Post Offices



(e) High Quality Roads



(f) Electricity



Notes: The subfigures show the proportion of villages without a good in each census or gazetteer year, except for subfigure E, which shows the proportion of villages without quality roads among the 66% of villages without a quality road in 1971. The trends are shown by 1929 landholding pattern: Villages with fewer than five landowners owning 80% or more of the land, villages with a single caste owning 80% or more of the land, and all other villages. Villages that a missing land tenure data from 1929 are not included. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Table A.4: Colonial Single Landlords, Near Neighbors

VARIABLES	(1) Primary Sch.	(2) Post Office	(3) Middle Sch.	(4) High Sch.	(5) Pucca Road	(6) Electricity	(7) PG index
Panel A: 2011							
Colonial Single Landowner	0.0446	0.0902	0.121	0.131	0.0457	0	0.204
	(0.0439)	(0.0654)	(0.109)	(0.0860)	(0.0617)	(0)	(0.147)
Observations	84	84	84	84	84	84	84
R-squared	0.713	0.803	0.585	0.633	0.632		0.669
Controls	YES	YES	YES	YES	YES	YES	YES
Pair FE	YES	YES	YES	YES	YES	YES	YES
Panel B: 1991							
Colonial Single Landowner	-0.133*	0.0414	-0.0299	0.0765	-0.176*	-0.161*	0.104
	(0.0687)	(0.0685)	(0.0736)	(0.0552)	(0.0952)	(0.0800)	(0.151)
Observations	84	84	84	84	84	84	84
R-squared	0.745	0.746	0.631	0.546	0.686	0.755	0.630
Controls	YES	YES	YES	YES	YES	YES	YES
Pair FE	YES	YES	YES	YES	YES	YES	YES
Panel C: 1924							
Colonial Single Landowner	-0.00859	-0.0241	-0.149				
	(0.0438)	(0.0255)	(0.155)				
Observations	84	84	84				
R-squared	0.714	0.540	0.547				
Controls	YES	YES	YES				
Pair FE	YES	YES	YES				

Notes: The tables show the coefficient estimates from a series of linear regressions with the presence of the good as the dependent variable. The controls are a spatial weight calculated based on inverse distance, distance from Agra, distance from the subdistrict capital, and logged population in 1891. Pair fixed effects are added for pairs of neighboring villages (within five km with a population variance of no more than 50%). Pairing was based on minimizing distance without replacement. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Table A.5: Colonial Single Landlords, No Controls

VARIABLES	(1) Primary Sch.	(2) Post Office	(3) Middle Sch.	(4) High Sch.	(5) Pucca Road	(6) Electricity	(7) PG index
Panel A: 2011							
Colonial Single Landowner	0.0379	0.0214	-0.0544	0.0140	0.0672*	-0.00336	0.169*
	(0.0299)	(0.0535)	(0.0591)	(0.0531)	(0.0382)	(0.0117)	(0.0940)
Observations	338	338	338	338	338	338	335
R-squared	0.005	0.000	0.003	0.000	0.009	0.000	0.010
Controls	NO	NO	NO	NO	NO	NO	NO
Panel B: 1991							
Colonial Single Landowner	-0.0940**	0.00200	-0.0815	0.0469	-0.0853	0.0220	0.123
	(0.0475)	(0.0537)	(0.0522)	(0.0285)	(0.0611)	(0.0549)	(0.0898)
Observations	338	338	338	338	338	338	335
R-squared	0.012	0.000	0.007	0.008	0.006	0.000	0.006
Controls	NO	NO	NO	NO	NO	NO	NO
Panel C: 1924							
Colonial Single Landowner	0.00964	0.0261*	0.167*				
	(0.0383)	(0.0149)	(0.0962)				
Observations	338	338	335				
R-squared	0.000	0.009	0.009				
Controls	NO	NO	NO				

Notes: The tables show the coefficient estimates from a series of linear regressions with the presence of the good as the dependent variable. The controls are a spatial weight calculated based on inverse distance, distance from Agra, distance from the subdistrict capital, and logged population in 1891. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Table A.6: Cox Survival Models

VARIABLES	(1) Primary Sch.	(2) Post Office	(3) Middle Sch.	(4) High Sch.	(5) Pucca Road	(6) Electricity
Panel A: Single Landowner						
Colonial Single Landowner	-0.0234	-0.168	-0.135	0.309	-0.102	-0.110
	(0.144)	(0.241)	(0.159)	(0.255)	(0.159)	(0.131)
Observations	1,363	1,568	1,346	1,531	321	634
Controls	YES	YES	YES	YES	YES	YES
Panel B: Upper Castes						
upper_vill	0.104	0.0669	-0.00640	0.0424	0.104	-0.0669
	(0.0697)	(0.114)	(0.0779)	(0.130)	(0.0803)	(0.0644)
Observations	4,355	4,959	4,293	4,811	1,106	2,014
Controls	YES	YES	YES	YES	YES	YES

Notes: The tables show the coefficient estimates from a series of cox survival models with untreated status the village (being without the good) as the dependent variable. The controls are a spatial weight calculated based on inverse distance, distance from Agra, distance from the subdistrict capital, and logged population in 1891. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Table A.7: Colonial Absentee Landlords

VARIABLES	(1) Primary Sch.	(2) Post Office	(3) Middle Sch.	(4) High Sch.	(5) Pucca Road	(6) Electricity	(7) PG Index
Panel A: 2011							
Prop. Absentee Landlords	0.0187	0.0720	0.0488	0.0635	-0.00889	-0.00895	0.0559
	(0.0441)	(0.0734)	(0.0842)	(0.0752)	(0.0646)	(0.0118)	(0.127)
Observations	262	262	262	262	262	262	260
R-squared	0.119	0.275	0.244	0.239	0.050	0.100	0.218
Controls	YES	YES	YES	YES	YES	YES	YES
Panel B: 1991							
Prop. Absentee Landlords	0.0280	0.0561	-0.0639	0.0397	0.0266	0.0132	0.148
	(0.0651)	(0.0701)	(0.0745)	(0.0412)	(0.0897)	(0.0746)	(0.121)
Observations	262	262	262	262	262	262	260
R-squared	0.286	0.317	0.203	0.053	0.181	0.354	0.153
Controls	YES	YES	YES	YES	YES	YES	YES
Panel C: 1924							
Prop. Absentee Landlords	-0.0316	-0.0187	-0.131				
	(0.0538)	(0.0207)	(0.130)				
Observations	262	262	260				
R-squared	0.118	0.079	0.093				
Controls	YES	YES	YES				

Notes: The tables show the coefficient estimates from a series of linear regressions with the presence of the good as the dependent variable. The controls are a spatial weight calculated based on inverse distance, distance from Agra, distance from the subdistrict capital, an logged population in 1891. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Table A.8: Upper Castes

VARIABLES	(1) Primary Sch.	(2) Post Office	(3) Middle Sch.	(4) High Sch.	(5) Pucca Road	(6) Electricity	(7) PG Index
Panel A: 2011							
Upper Caste Vill.	0.0109	-0.00345	-0.0202	-0.0121	-0.0234	0	-0.00399
	(0.0133)	(0.0253)	(0.0290)	(0.0257)	(0.0192)	(0)	(0.0402)
Observations	999	999	999	999	999	999	999
R-squared	0.092	0.276	0.224	0.211	0.063		0.173
Controls	YES	YES	YES	YES	YES	YES	YES
Panel B: 1991							
Upper Caste Vill.	-0.00488	0.0357	0.0374	0.0327**	0.0402	0.0189	0.0942**
	(0.0228)	(0.0245)	(0.0245)	(0.0148)	(0.0308)	(0.0246)	(0.0437)
Observations	999	999	999	999	999	999	999
R-squared	0.275	0.321	0.218	0.106	0.173	0.318	0.210
Controls	YES	YES	YES	YES	YES	YES	YES
Panel C: 1924							
Upper Caste Vill.	0.0261	0.0163	0.107*				
	(0.0206)	(0.0102)	(0.0635)				
Observations	999	999	999				
R-squared	0.167	0.042	0.057				
Controls	YES	YES	YES				

Notes: The tables show the coefficient estimates from a series of linear regressions with the presence of the good as the dependent variable. The controls are a spatial weight calculated based on inverse distance, distance from Agra, distance from the subdistrict capital, an logged population in 1891. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Table A.9: Upper Castes, Near Neighbors

VARIABLES	(1) Primary Sch.	(2) Post Office	(3) Middle Sch.	(4) High Sch.	(5) Pucca Road	(6) Electricity	(7) PG index
Panel A: 2011							
Upper Caste Vill.	0.00417	-0.0209	0.00811	-0.0628*	0.0145	0	0.00638
	(0.0162)	(0.0376)	(0.0437)	(0.0363)	(0.0279)	(0)	(0.0496)
Observations	406	406	406	406	406	406	406
R-squared	0.639	0.625	0.590	0.647	0.517		0.651
Controls	YES	YES	YES	YES	YES	YES	YES
Pair FE	YES	YES	YES	YES	YES	YES	YES
Panel B: 1991							
Upper Caste Vill.	-0.0230	-0.0166	0.0180	0.0448**	0.0707*	0.0415	0.134**
	(0.0304)	(0.0374)	(0.0368)	(0.0224)	(0.0418)	(0.0323)	(0.0656)
Observations	406	406	406	406	406	406	406
R-squared	0.671	0.625	0.605	0.573	0.652	0.735	0.619
Controls	YES	YES	YES	YES	YES	YES	YES
Pair FE	YES	YES	YES	YES	YES	YES	YES
Panel C: 1924							
Upper Caste Vill.	0.00370	0.0103	0.0641				
	(0.0262)	(0.0141)	(0.0887)				
Observations	406	406	406				
R-squared	0.604	0.498	0.507				
Controls	YES	YES	YES				
Pair FE	YES	YES	YES				

Notes: The tables show the coefficient estimates from a series of linear regressions with the presence of the good as the dependent variable. The controls are a spatial weight calculated based on inverse distance, distance from Agra, distance from the subdistrict capital, and logged population in 1891. Pair fixed effects are added for pairs of neighboring villages (within five km with a population variance of no more than 50%). Pairing was based on minimizing distance without replacement. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Table A.10: Upper Castes, No Controls

VARIABLES	(1) Primary Sch.	(2) Post Office	(3) Middle Sch.	(4) High Sch.	(5) Pucca Road	(6) Electricity	(7) PG Index
Panel A: 2011							
Upper Caste Vill.	0.0217*	0.0665**	0.00374	0.0232	-0.0285	0	0.0489
	(0.0130)	(0.0274)	(0.0304)	(0.0267)	(0.0185)	(0)	(0.0412)
Observations	999	999	999	999	999	999	999
R-squared	0.003	0.006	0.000	0.001	0.002		0.001
Controls	NO	NO	NO	NO	NO	NO	NO
Panel B: 1991							
Upper Caste Vill.	0.0793***	0.0766***	0.0702***	0.0379***	0.115***	0.00794	0.156***
	(0.0247)	(0.0274)	(0.0256)	(0.0145)	(0.0312)	(0.0278)	(0.0456)
Observations	999	999	999	999	999	999	999
R-squared	0.010	0.008	0.008	0.007	0.013	0.000	0.012
Controls	NO	NO	NO	NO	NO	NO	NO
Panel C: 1924							
Upper Caste Vill.	0.0514**	0.0191**	0.132**				
	(0.0208)	(0.00968)	(0.0609)				
Observations	999	999	999				
R-squared	0.006	0.004	0.005				
Controls	NO	NO	NO				

Notes: The tables show the coefficient estimates from a series of linear regressions with the presence of the good as the dependent variable. The controls are a spatial weight calculated based on inverse distance, distance from Agra, distance from the subdistrict capital, and logged population in 1891. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Table A.11: Cross District Comparisons, 1981

VARIABLES	(1) Primary School	(2) Post Office	(3) Middle School	(4) Electricity	(5) Pucca Road	(6) PG Index
Panel A: Full Sample						
Non-Landlord Tenure	0.184***	0.151***	0.188***	0.407***	0.311***	0.979***
	(0.0288)	(0.0214)	(0.0267)	(0.0392)	(0.0350)	(0.140)
Observations	203	203	195	203	203	203
R-squared	0.169	0.198	0.205	0.349	0.282	0.195
State FE	NO	NO	NO	NO	NO	NO
Panel B: No Ryotwari						
Non-Landlord Tenure	0.0163	0.0653***	0.0446**	0.368***	0.313***	0.290**
	(0.0393)	(0.0201)	(0.0188)	(0.0534)	(0.0450)	(0.133)
Observations	133	133	133	133	133	133
R-squared	0.001	0.074	0.041	0.266	0.269	0.035
State FE	NO	NO	NO	NO	NO	NO
Panel C: State FE						
Non-Landlord Tenure	0.0369	-0.0126	0.0172	-0.0750	-0.0615*	-0.0118
	(0.0601)	(0.0344)	(0.0293)	(0.0772)	(0.0361)	(0.232)
Observations	133	133	133	133	133	133
R-squared	0.426	0.336	0.429	0.622	0.884	0.275
State FE	YES	YES	YES	YES	YES	YES
Panel D: Within Uttar Pradesh						
Non-Landlord Tenure	0.0326	-0.00542	0.0284*	-0.0749	-0.0667	0.0466
	(0.0647)	(0.0230)	(0.0164)	(0.0930)	(0.0468)	(0.145)
Observations	46	46	46	46	46	46
R-squared	0.006	0.001	0.064	0.015	0.044	0.002
State FE	NO	NO	NO	NO	NO	NO

Notes: The tables show the coefficient estimates for "non-landlord tenure" from a series of linear regressions with the proportion of villages without a good in 1981 as the dependent variable. The data are taken from **?**, and exclude princely states. Panel B excludes districts with ryotwari or "mixed" tenures. High schools were excluded due to missing data issues. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Table A.12: Land Reform Effects? Colonial Single Landlords and Absenteeism

VARIABLES	(1) Primary Sch.	(2) Post Office	(3) Middle Sch.	(4) High Sch.	(5) Pucca Road	(6) Electricity	(7) PG index
Panel A: 2011							
Colonial Single Landowner	0.0929	0.0600	0.0279	0.233	0.164	0.00524	0.433*
	(0.0855)	(0.141)	(0.164)	(0.144)	(0.125)	(0.0229)	(0.244)
Prop. Absentee Landlords	0.0263	0.0135	0.0838	0.0928	-0.0402	0.00656	0.0693
	(0.0563)	(0.0936)	(0.108)	(0.0960)	(0.0821)	(0.0151)	(0.162)
Single Landlord*Absentee	-0.0863	0.0445	-0.0776	-0.232	-0.0813	-0.0287	-0.368
	(0.106)	(0.175)	(0.202)	(0.178)	(0.154)	(0.0283)	(0.304)
Observations	262	262	262	262	262	262	260
R-squared	0.123	0.281	0.244	0.247	0.063	0.111	0.229
Controls	YES	YES	YES	YES	YES	YES	YES
Panel B: 1991							
Colonial Single Landowner	-0.113	-0.0291	-0.103	0.183**	0.304*	-0.242*	0.451*
	(0.126)	(0.135)	(0.144)	(0.0787)	(0.172)	(0.143)	(0.232)
Prop. Absentee Landlords	0.0608	-0.0129	-0.106	0.0358	0.191*	0.0525	0.186
	(0.0829)	(0.0892)	(0.0949)	(0.0521)	(0.114)	(0.0944)	(0.153)
Single Landlord*Absentee	0.0382	0.133	0.149	-0.141	-0.502**	0.132	-0.422
	(0.156)	(0.167)	(0.177)	(0.0974)	(0.212)	(0.177)	(0.288)
Observations	262	262	262	262	262	262	260
R-squared	0.292	0.321	0.205	0.079	0.201	0.368	0.167
Controls	YES	YES	YES	YES	YES	YES	YES
Panel C: 1924							
Colonial Single Landowner	-0.0547	0.0779*	0.456*				
	(0.104)	(0.0397)	(0.251)				
Prop. Absentee Landlords	-0.0777	-0.00876	-0.0668				
	(0.0686)	(0.0262)	(0.166)				
Single Landlord*Absentee	0.117	-0.0780	-0.465				
	(0.129)	(0.0491)	(0.312)				
Observations	262	262	260				
R-squared	0.122	0.093	0.105				
Controls	YES	YES	YES				

Notes: The tables show the coefficient estimates from a series of linear regressions with the presence of the good as the dependent variable. The controls are a spatial weight calculated based on inverse distance, distance from Agra, distance from the subdistrict capital, and logged population in 1891. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Table A.13: Cox Survival Models, Bah Tehsil

VARIABLES	(1) Primary Sch.	(2) Post Office	(3) Middle School	(4) High School	(5) Pucca Road	(6) Electricity
Panel A: Basic Model						
Bah Tehsil	-0.139*	-0.0542	-0.255**	-0.582***	-0.0856	0.600***
	(0.0829)	(0.136)	(0.101)	(0.191)	(0.108)	(0.0800)
Observations	5,697	8,942	9,387	9,981	1,275	2,292
Controls	NO	NO	NO	NO	NO	NO
Panel B: Controls						
Bah Tehsil	0.303**	0.197	0.0223	-0.0457	0.251	0.573***
	(0.135)	(0.222)	(0.161)	(0.313)	(0.160)	(0.140)
Observations	4,448	5,042	4,366	4,886	1,130	2,051
Controls	YES	YES	YES	YES	YES	YES

Notes: The tables show the coefficient estimates from a series of cox survival models with untreated status the village (being without the good) as the dependent variable. The controls are a spatial weight calculated based on inverse distance, distance from Agra, distance from the subdistrict capital, and logged population in 1891. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Table A.14: Brahmins and Public Goods

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	Primary Sch.	Post Office	Middle Sch.	High Sch.	Pucca Road	Electricity	PG Index
Panel A: 2011							
Brahmin Vill.	-0.000966	0.0212	-0.0198	0.0510*	-0.00568	0	0.0135
	(0.0161)	(0.0302)	(0.0347)	(0.0307)	(0.0232)	(0)	(0.0483)
Observations	999	999	999	999	999	999	999
R-squared	0.092	0.276	0.223	0.213	0.062		0.173
Controls	YES	YES	YES	YES	YES	YES	YES
Panel B: 1991							
Brahmin Vill.	0.0101	0.0359	0.0823***	0.0480***	0.0189	0.0419	0.149***
	(0.0274)	(0.0293)	(0.0292)	(0.0177)	(0.0370)	(0.0298)	(0.0524)
Observations	999	999	999	999	999	999	999
R-squared	0.275	0.321	0.222	0.108	0.172	0.319	0.213
Controls	YES	YES	YES	YES	YES	YES	YES
Panel C: 1924							
Brahmin Vill.	-0.00770	0.000599	-0.00170				
	(0.0246)	(0.0123)	(0.0765)				
Observations	999	999	999				
R-squared	0.165	0.039	0.055				
Controls	YES	YES	YES				

Notes: The tables show the coefficient estimates from a series of linear regressions with the presence of the good as the dependent variable. The controls are a spatial weight calculated based on inverse distance, distance from Agra, distance from the subdistrict capital, an logged population in 1891. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Table A.15: Jats and Public Goods

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	Primary Sch.	Post Office	Middle Sch.	High Sch.	Pucca Road	Electricity	PG Index
Panel A: 2011							
Jat Vill.	-0.0169	0.0554	-0.0324	-0.0357	-0.0252	0	-0.0729
	(0.0220)	(0.0422)	(0.0479)	(0.0427)	(0.0317)	(0)	(0.0663)
Observations	999	999	999	999	999	999	999
R-squared	0.092	0.277	0.224	0.211	0.062		0.174
Controls	YES	YES	YES	YES	YES	YES	YES
Panel B: 1991							
Jat Vill.	-0.0250	0.0691*	-0.00798	0.0263	0.0847*	0.0850**	0.106
	(0.0376)	(0.0408)	(0.0409)	(0.0248)	(0.0509)	(0.0406)	(0.0739)
Observations	999	999	999	999	999	999	999
R-squared	0.276	0.322	0.216	0.103	0.174	0.321	0.208
Controls	YES	YES	YES	YES	YES	YES	YES
Panel C: 1924							
Jat Vill.	0.0214	0.0273	0.178*				
	(0.0343)	(0.0169)	(0.105)				
Observations	999	999	999				
R-squared	0.166	0.042	0.057				
Controls	YES	YES	YES				

Notes: The tables show the coefficient estimates from a series of linear regressions with the presence of the good as the dependent variable. The controls are a spatial weight calculated based on inverse distance, distance from Agra, distance from the subdistrict capital, an logged population in 1891. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Table A.16: Chamars and Public Goods

VARIABLES	(1) Primary Sch.	(2) Post Office	(3) Middle Sch.	(4) High Sch.	(5) Pucca Road	(6) Electricity	(7) PG Index
Panel A: 2011							
Chamar Vill.	-0.000322	-5.90e-05	0.0293	0.00787	0.0559**	0	0.0399
	(0.0155)	(0.0293)	(0.0336)	(0.0297)	(0.0224)	(0)	(0.0468)
Observations	999	999	999	999	999	999	999
R-squared	0.092	0.276	0.224	0.210	0.068		0.174
Controls	YES	YES	YES	YES	YES	YES	YES
Panel B: 1991							
Chamar Vill.	0.0219	-0.00318	-0.0133	-0.0202	-0.0535	0.00728	-0.0540
	(0.0265)	(0.0284)	(0.0284)	(0.0172)	(0.0357)	(0.0288)	(0.0510)
Observations	999	999	999	999	999	999	999
R-squared	0.276	0.320	0.216	0.103	0.173	0.318	0.207
Controls	YES	YES	YES	YES	YES	YES	YES
Panel C: 1924							
Chamar Vill.	-0.0360	-0.00744	-0.0516				
	(0.0238)	(0.0119)	(0.0741)				
Observations	999	999	999				
R-squared	0.167	0.040	0.055				
Controls	YES	YES	YES				

Notes: The tables show the coefficient estimates from a series of linear regressions with the presence of the good as the dependent variable. The controls are a spatial weight calculated based on inverse distance, distance from Agra, distance from the subdistrict capital, an logged population in 1891. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Table A.17: Ethnic Favoritism: Panel Models

VARIABLES	(1) Primary Sch.	(2) Post Office	(3) Middle Sch.	(4) High Sch.	(5) Pucca Road	(6) Electricity
Panel A: Chief Minister Caste						
CM Same Caste	0.0733**	-0.00992	0.101**	0.0261	0.103**	-0.00811
	(0.0329)	(0.0266)	(0.0401)	(0.0282)	(0.0455)	(0.0327)
Observations	5,060	5,060	4,048	5,060	3,036	4,048
R-squared	0.415	0.087	0.334	0.180	0.291	0.501
Number of VillageCode	1,012	1,012	1,012	1,012	1,012	1,012
Spatial Lags	YES	YES	YES	YES	YES	YES
Time Lags	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Village FE	YES	YES	YES	YES	YES	YES
Panel B: MLA Caste						
MLA Majority Party	-0.0144	-0.00250	0.107	-0.0125	-0.0422	-0.0124
	(0.0521)	(0.0478)	(0.0659)	(0.0439)	(0.0722)	(0.0611)
MLA Same Caste	-0.0257	0.0212	0.0718*	0.00257	0.0549	-0.0138
	(0.0317)	(0.0295)	(0.0405)	(0.0286)	(0.0451)	(0.0350)
Observations	2,549	2,549	2,549	2,549	2,096	2,549
R-squared	0.199	0.041	0.364	0.204	0.254	0.495
Number of VillageCode	725	725	725	725	725	725
Spatial Lags	YES	YES	YES	YES	YES	YES
Time Lags	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Village FE	YES	YES	YES	YES	YES	YES

Notes: The tables show the coefficient estimates from a series of panel linear regressions with the presence of the good as the dependent variable. Standard errors are clustered by village. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Table A.18: Arellano-Bond Panel Models: Ethnic Favoritism

VARIABLES	(1) Primary Sch.	(2) Post Office	(3) Middle Sch.	(4) High Sch.	(5) Pucca Road	(6) Electricity
Panel A: Chief Minister Caste						
CM Same Caste	0.0569*	-0.0168	0.142***	0.0426*	0.128**	0.0233
	(0.0326)	(0.0302)	(0.0425)	(0.0235)	(0.0541)	(0.0347)
Observations	5,060	4,048	3,036	4,048	2,024	3,036
Number of VillageCode	1,012	1,012	1,012	1,012	1,012	1,012
Controls	YES	YES	YES	YES	YES	YES
Spatial Lags	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Subdistrict FE YES	DV Lags	DV Lags	DV Lags	DV Lags	DV Lags	DV Lags
Panel B: MLA Caste						
MLA Majority Party	-0.0423	0.117*	0.183**	-0.0199	-0.0731	0.00684
	(0.0594)	(0.0627)	(0.0813)	(0.0529)	(0.121)	(0.0696)
MLA Same Caste	0.00249	0.0739*	0.0633	-0.0203	-0.000549	0.0635
	(0.0420)	(0.0443)	(0.0596)	(0.0378)	(0.0675)	(0.0505)
Observations	2,549	2,549	2,096	2,549	1,450	2,096
Number of VillageCode	725	725	725	725	725	725
Controls	YES	YES	YES	YES	YES	YES
Spatial Lags	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Subdistrict FE YES	DV Lags	DV Lags	DV Lags	DV Lags	DV Lags	DV Lags

Standard errors in parentheses
*** p¡0.01, ** p¡0.05, * p¡0.1

Notes: The tables show the coefficient estimates from a series of dynamic Arellano-Bond panel regressions with the presence of the good as the dependent variable. As the regressors are all first differenced, the district fixed effect is not present in the equation. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Table A.19: Colonial Single Landlords, No Muslim Villages

VARIABLES	(1) Primary Sch.	(2) Post Office	(3) Middle Sch.	(4) High Sch.	(5) Pucca Road	(6) Electricity	(7) PG index
Panel A: 2011							
Colonial Single Landowner	0.0332	0.0632	-0.0424	0.0260	0.0699*	-0.00974	0.161*
	(0.0290)	(0.0529)	(0.0602)	(0.0534)	(0.0420)	(0.00780)	(0.0829)
Observations	304	304	304	304	304	304	301
R-squared	0.126	0.274	0.208	0.242	0.066	0.098	0.244
Controls	YES	YES	YES	YES	YES	YES	YES
Controls	YES	YES	YES	YES	YES	YES	YES
Panel B: 1991							
Colonial Single Landowner	-0.0330	0.0653	-0.0566	0.0539*	-0.0398	-0.0686	0.133
	(0.0450)	(0.0518)	(0.0539)	(0.0314)	(0.0644)	(0.0513)	(0.0935)
Observations	304	304	304	304	304	304	301
R-squared	0.317	0.315	0.208	0.091	0.160	0.346	0.182
Controls	YES	YES	YES	YES	YES	YES	YES
Panel C: 1924							
Colonial Single Landowner	0.0106	0.0398***	0.246**				
	(0.0415)	(0.0153)	(0.0976)				
Observations	304	304	301				
R-squared	0.158	0.125	0.145				
Controls	YES	YES	YES				

Notes: The tables show the coefficient estimates from a series of linear regressions with the presence of the good as the dependent variable. The controls are a spatial weight calculated based on inverse distance, distance from Agra, distance from the subdistrict capital, and logged population in 1891. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Table A.20: Upper Castes, No Muslim Villages

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	Primary Sch.	Post Office	Middle Sch.	High Sch.	Pucca Road	Electricity	PG Index
Panel A: 2011							
Upper Caste Vill.	0.00584	-0.0127	-0.0193	-0.0118	-0.0249	0	-0.0185
	(0.0133)	(0.0259)	(0.0298)	(0.0264)	(0.0192)	(0)	(0.0396)
Observations	963	963	963	963	963	963	963
R-squared	0.093	0.273	0.217	0.204	0.069		0.182
Controls	YES	YES	YES	YES	YES	YES	YES
Panel B: 1991							
Upper Caste Vill.	-0.0165	0.0257	0.0427*	0.0328**	0.0409	0.0159	0.0870*
	(0.0231)	(0.0251)	(0.0250)	(0.0151)	(0.0315)	(0.0250)	(0.0444)
Observations	963	963	963	963	963	963	963
R-squared	0.288	0.317	0.208	0.101	0.170	0.324	0.207
Controls	YES	YES	YES	YES	YES	YES	YES
Panel C: 1924							
Upper Caste Vill.	0.0315	0.0187*	0.124**				
	(0.0207)	(0.00977)	(0.0607)				
Observations	963	963	963				
R-squared	0.168	0.034	0.050				
Controls	YES	YES	YES				

Notes: The tables show the coefficient estimates from a series of linear regressions with the presence of the good as the dependent variable. The controls are a spatial weight calculated based on inverse distance, distance from Agra, distance from the subdistrict capital, an logged population in 1891. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.