## East India Companies

# and Long-Term Economic Change in India<sup>\*</sup>

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#### Abstract

In evaluating the impact of colonialism on long-term political economy outcomes, scholars have focused on political institutions developed during colonial rule. I argue, in contrast, that the beginnings of long-term economic transformation pre-dated the colonial era, and were not driven by formal institutional changes. Centuries prior to the period of military annexation, European trading companies drew local economies into networks of long-distance maritime trade, transforming geographical and social patterns of economic organization. I use original archival data to study the impact of trading hubs built in India by the various European East India Companies before colonization. My analysis reveals a systematic and robust relationship between pre-colonial commercial developments and modern indicators of economic transformation, even after addressing a plethora of selection concerns. Overall, my evidence indicates that the precolonial commercial era was more significant than the colonial era in redirecting India's long-term development trajectories.

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In delineating the determinants of development in Europe's former colonies, a vast scholarship has pointed to colonialism and, more specifically, European colonial institutions as the decisive factors that fixed trajectories of economic growth.<sup>1</sup> Inherently exploitative, colonialism transformed state, society, and economy through political domination. When speaking of the colonial experience, scholars have either explicitly or implicitly referred to the control that external powers wielded over dependent populations and territories.<sup>2</sup> In turn, empirical investigations of colonial impact have focused on institutions developed during periods of political subordination. I argue that this scholarship has missed two important pieces of the story. First, European commercial interactions in the pre-colonial era, more so than colonial-era changes, shaped long-term development paths. Second, the avenue of influence in the pre-colonial period was not martial but was mercantile. All accounts indicate that the most significant pre-colonial drivers of change were socio-economic and labor-market rearrangements that resulted from efforts to integrate indigenous economies into networks of long-distance maritime trade.

In many regions, for centuries prior to territorial annexation, European trading companies, the world's first joint stock corporations, built new trading settlements and established dense networks of intercontinental commerce. A rich body of historical and sociological studies has argued that this pre-colonial period of open commercial interaction between European and indigenous traders was both distinct from the colonial period of political domination and crucial for economic transformation in local territories.<sup>3</sup> Recent empirical studies, by

<sup>&</sup>lt;sup>1</sup>The claim that "different types of colonization policies...created different sets of institutions" and that "the colonial state and institutions persisted even after independence" forms the basis of Acemoglu, Johnson and Robinson's (AJR) seminal work, and reverberates widely in the literature. AJR 2001, 1370; 2002; Engerman and Sokoloff 2005; Feyrer and Sacerdote 2009; Lange, Mahoney, and vom Hau 2006; Laporta, Lopez-de Silanes, and Shleifer 2007; Mahoney 2003, 2010; Treisman 2000.

<sup>&</sup>lt;sup>2</sup>In defining colonialism, for example, Mahoney 2010, 2, points to the colonizers's ability to "implant settlers, maintain governance structures, and extract resources in the territory" and to render "subordinate (or makes obsolete) all prior political entities." Studies linking colonialism to domestic political economy changes include: Gourevitch 1978, 889-891; Cohen 1973; Frieden 1989, 1994; Gartzke and Rohner 2011; Laitin 1982; Lipson 1985.

<sup>&</sup>lt;sup>3</sup>See, for example: Chaudhuri 1978; Washbrook 2007; Watson 1980.

contrast, have either conflated both stages or equated European influence exclusively with the latter stage of political domination.

This paper conceptually and empirically demarcates the pre-colonial and colonial periods, and rigorously adjudicates between the domestic political economy implications of each stage. Taking India as a case study, I examine the long-term economic impact of the commercial settlements developed by the various European East India Companies (EICs) prior to colonial annexation.<sup>4</sup> By 1757, Austrian, Danish, Dutch, English, French, Portuguese, and Swedish EICs had already been conducting long-distance maritime trade with India for more than 250 years. Indeed, following the discovery of a safe passage around the Cape of Good Hope in 1488, European EICs built numerous commercial settlements in India, systematically integrating local economies into dense international trading networks.<sup>5</sup> The historiography of pre-colonial India points to fundamental changes in regional economies as they adapted to the burgeoning demands of global trade.<sup>6</sup>

The early-modern companies refashioned local economies by altering the spatial and substantive character of economic activity. Their factory hubs attracted traders, merchants, and manufacturers from other geographic regions and absorbed local economies into complex systems of trade with European, Asian, African, and American economies.<sup>7</sup> Skilled workers such as weavers and printers migrated away from the temple-based commercial settlements of medieval India to these newly developing entrepôts, leaving behind a hinterland workforce that in turn specialized in agriculture and lower-end activities such as spinning.<sup>8</sup> Apart

 $<sup>^4\</sup>mathrm{Britain}$  began annexing parts of the Indian subcontinent after 1757 when it defeated the Nawab of Bengal at the Battle of Plassey. The crown officially ruled over British India from 1858 to 1947.

<sup>&</sup>lt;sup>5</sup>I define the period prior to the introduction of Indo-European maritime trade as the 'pre-European' era, the period from when European EICs conducted commerce up until 1757 as the 'pre-colonial' era, and subsequent periods up until 1947 as the 'colonial' era. Although British extractive capacities were limited in the late-eighteenth century (Riello and Roy 2009), I consider 1757 as the start of colonialism in order to conservatively account for any extractive institutions that might have developed following the first Anglo-Indian military contest.

<sup>&</sup>lt;sup>6</sup>Prakash 1985; Washbrook 2009.

<sup>&</sup>lt;sup>7</sup>Chaudhuri 1978.

<sup>&</sup>lt;sup>8</sup>Ramaswamy 1985.

from concentrating economic activity, trade altered the socio-economic organization of the labor force. The sharp rise in the demand for labor-intensive commodities, such as manufactured cotton textiles, indigo, and saltpeter, created opportunities for inter-caste mobility, and shifted the labor force from part-time to full-time manufacturing.<sup>9</sup> Long-distance trade played a central role in breaking down the ascriptive social hierarchies that had traditionally regulated occupational structures, jumpstarting a process of skills-accumulation and human capital development that set the company towns apart from the temple economies of the rest of the subcontinent. Importantly, these commercial developments had few formal institutional components. European EICs transformed neither property rights nor legal codes nor political freedoms during the pre-colonial era.

To analyze whether these socio-economic rearrangements informed subsequent patterns of development, I study the relationship between the various hubs that the EICs established prior to colonization and present-day indicators of structural change. After building a unique database of EIC factories and ports, I test to see if districts containing pre-colonial trading hubs evince indicators of economic transformation when compared to other districts in India. Contrary to studies that focus exclusively on the colonial period of political domination, I find strong evidence of a *positive* relationship between pre-colonial settlements and contemporary indicators of economic transformation. These regions have lower proportions of their workforces in farming and agriculture, higher fractions of their workforce in manufacturing and industry, and better literacy and infant mortality rates compared to other districts, even after accounting for the effect of pre-European settlements and other observable factors. I am able to compare the relative importance of pre-colonial commercial expansion and colonialera institutional development due to a particular feature of the Indian colonial experience: whereas the British directly ruled over many parts of India, they permitted native princes to continue administering just under half of the territory of British India. My findings indicate that pre-colonial trade was a far more important driver of long-term structural change than

<sup>&</sup>lt;sup>9</sup>Subrahmanyam 1990.

colonial-era institutions.

While these results remain robust to many sensitivity tests, they establish only a correlation and not a causal connection between early modern commerce and present-day outcomes. The European companies could have simply chosen economically superior districts to develop. On the surface this concern is less relevant to my study because of differences in geopolitical milieus between the colonial and pre-colonial period. Although during the colonial-era, Britain's military, technological, and economic clout far surpassed that of both native Indian rulers and other European powers, thereby affording it the ability to annex favorable territories, in the pre-colonial period, Britain was neither the most powerful European nation in the world, nor the dominant military and economic force in the Indian sub-continent. In fact, when the English envoy, Sir Thomas Roe, visited the trading hub of Surat in 1618, "the English factors were, as he said, 'in a desperate case' - threatened by the Portuguese, plundered by the local officials, and in imminent danger of expulsion."<sup>10</sup>

To better understand the selection decisions that are crucial for interpreting my statistical findings, I analyze original correspondence between the English EIC Court of Directors in London and their "factors" or employees in India. The historical record demonstrates that security imperatives, and not simply economic concerns, played a paramount role in mediating settlement decisions. I also explore selection concerns by leveraging a geographical determinant of pre-colonial settlements: natural harbors shielded by mountainous topography. Naturally protected harbors were particularly appealing to European traders because harbors sheltered ships from wind and ocean currents and mountains defended traders from attacks by other European and local rivals. After identifying all the naturally protected harbors on the Indian coastline using geospatial analysis,<sup>11</sup> I re-test the relationship between pre-colonial settlements and development indicators within the limited sample of districts that contained these geographical features in order to further control for unobserved sources of heterogeneity. I also use naturally protected harbors to instrument for pre-colonial settle-

 $<sup>^{10}</sup>$ Foster 1906, ix.

 $<sup>^{11}\</sup>mathrm{This}$  approach adopts and extends a strategy used by Jha 2013.

ments based on the argument that these features were appealing to traders only *during* the pre-colonial period, when security concerns were paramount. Geopolitical security concerns ceased to influence commercial organization *after* the onset of colonialism, when the British established a protective umbrella over the subcontinent. Therefore, sheltered natural harbors likely impacted structural transformation only through developments in the pre-colonial era, as opposed to the colonial era.<sup>12</sup> In both analyses, I find qualitatively similar results to my OLS estimates, further bolstering my claim that pre-colonial commerce was an important trigger of structural transformation.

Next, I explore the pathways by which trade-induced developments could have endured over time. Both qualitative and quantitative evidence appear to rule out differences in formal institutions and physical infrastructure as conduits of persistence.<sup>13</sup> I argue, by contrast, that long-distance commerce shifted manufacturing incentives and production strategies, creating in turn geographical disparities in patterns of economic organization that magnified as the volume of trade expanded over time.<sup>14</sup> In particular, I present evidence to suggest that transformations in the social organization of labor markets—extensively documented by scholars of the pre-colonial era—persevered and continue to demarcate regions that participated in pre-colonial trade from other regions today. Due to the paucity of data, I do not consider this interpretation to be definitive. Yet, it reinforces a growing set of studies that underscore the importance of human capital development as an alternate, non-institutional

<sup>&</sup>lt;sup>12</sup>The results of the instrumental variables analysis would remain significant even if the instrument exerted a relatively large direct effect on the outcome variables.

<sup>&</sup>lt;sup>13</sup>For studies that question the role of formal institutions in jumpstarting growth, see: Glaeser et al. 2004.

<sup>&</sup>lt;sup>14</sup>Krugman 1990. Many studies explore how the global economy shapes domestic political coalitions and distributional political outcomes, with important implications for development. See, e.g.: Adsera and Boix 2003; Cameron 1978; Frieden 1991; Gabel 1998; Garrett 1998; Kosack and Tobin 2006; Milner 1988; Rodrik 1998, 1997; Rodrik, Subramanian, and Trebbi 2004; Rogowski 1989; Rudra 2011; Wibbels 2006. I complement these narratives by drawing attention to the pathways by which international trade can cultivate differences in modes of production that in turn influence trajectories of urbanization and ruralization, industrial expansion and agricultural dependence, and human capital development and underdevelopment. See also: Abramson and Boix 2012; Stasavage 2014, 2002; Spruyt 1994.

trigger of economic change,<sup>15</sup> and that draw historical linkages between trade and the agglomeration of human capital.<sup>16</sup> My analysis extends this claim by specifying how the demand for particular types of labor-intensive commodities engendered competitive avenues for skills accumulation in occupationally stratified pre-modern societies. By explicating linkages between trade, labor market desegmentation, and economic development, this paper presents new evidence that commerce, inter-communal relations, and economic development are inexorably intertwined.<sup>17</sup>

I argue that colonial rule should not be viewed as the sharp disjuncture that it is considered in the extensive empirical literature on colonial legacies. Instead, it was a product of iterative commercial interactions between a diverse set of actors in both European nations and indigenous societies. This insight builds upon the argument that the local conditions that colonizers encountered in subjugated territories mediated the types of institutional structures adopted by the colonial state.<sup>18</sup> My analysis of the commercial stage of Indo-European maritime interaction points to triggers of long-term change that lie outside of institutional structures and that are related instead to the production incentives of the global economy. Pre-colonial trading legacies were contingent on the intercontinental demand for specific types of tradable products—from manufactured textiles in India to spices in Indonesia—and the comparative ability of local economies to feed this demand. By establishing the impact of these pre-colonial commercial imperatives on long-term development outcomes, I argue that studies of colonial institutions have mistakenly ignored a vital precursor to the colonial state and modern economic landscape.

<sup>&</sup>lt;sup>15</sup>Glaeser et al. 2004; Fails and Krieckhaus 2010; Lankina and Getachew 2013.
<sup>16</sup>Jia Forthcoming; Jha 2013; Kosack and Tobin 2012.

<sup>&</sup>lt;sup>17</sup>Hechter 1971; Jha 2013; Pepinsky 2013.

<sup>&</sup>lt;sup>18</sup>Frieden 1994; Lange, Mahoney, and vom Hau 2006; Mahoney 2010.

## What Triggered Long-Term Economic Change?

In explaining the historical wellsprings of long-term economic transformation, scholars have pointed to geography,<sup>19</sup> domestic institutions,<sup>20</sup> cultural norms,<sup>21</sup> education,<sup>22</sup> and path dependence.<sup>23</sup> With respect to former European colonies, this discussion has focused primarily on the relative importance of colonial institutions, with the general consensus that whereas extractive colonial institutions engendered depredation by the state and led to poor economic outcomes, colonial institutions encouraging investment fostered growth and development.<sup>24</sup>

The central claim in this scholarship is that when Europeans settled in large numbers in sparsely populated or previously poor regions, they developed institutions that secured private property rights for the masses and, in turn, jumpstarted economic growth.<sup>25</sup> By contrast, in densely populated and previously prosperous regions, European colonizers found it more profitable to simply tax and extract resources from local populations. In effect, they reversed the economic trajectories of the areas they settled. Observers of specific contexts such as South Asia have also documented the pernicious economic ramifications of colonialera institutions.<sup>26</sup>

In contrast to this consensus, my paper advances the following two claims: (1) commercial activity that preceded colonialism, more so than colonial-era changes, shaped India's longterm economic development, and (2) labor market and territorial transformations, rather than institutions, were the primary catalysts of economic change.

With regard to my first claim, that we need to study developments prior to colonial rule, scholars have argued that institutional organization in both indigenous states and in colo-

 $<sup>^{19}</sup>$ Sachs 2003.

 $<sup>^{20}</sup>$ North 1990.

<sup>&</sup>lt;sup>21</sup>Greif 1994.

<sup>&</sup>lt;sup>22</sup>Lankina and Getachew 2013; Woodberry 2012.

 $<sup>^{23}</sup>$ Nunn 2007.

 $<sup>^{24}{\</sup>rm AJR}$  2001, 2002; Dell 2010; Engerman and Sokoloff 2002; Lange 2004; Laporta et al. 1998; Treisman 2000.

 $<sup>^{25}</sup>$ AJR 2002.

<sup>&</sup>lt;sup>26</sup>Iyer 2010; Mill 1817, 671; Naoroji 1901, 10.

nizer nations were important predictors of colonial-era institution building.<sup>27</sup> Yet, existing studies have juxtaposed the indigenous state with the colonial state without evaluating how colonialism itself was predicated on centuries of commercial interactions between informal agents such as traders from both Europe and native societies. In most regions of the world, colonial rule was not an exogenous shock, but endogenous to long periods of commercial exchange. Historians widely acknowledge that "the foundation of the English empire in India was commercial."<sup>28</sup> If these pre-colonial interactions influenced subsequent developments, then they should inform studies of colonial legacies. Additionally, because scholars have ignored temporal variations, they have missed important geographical variations in European influence. In pre-colonial South Asia, for example, European traders focused commercial activity in specific territorial nodes surrounding the factory hubs of the EICs. By contrast, colonial-era administrative and bureaucratic apparatuses encompassed vast swaths of the subcontinent. These variations indicate that it is important to distinguish between the different temporal stages and geographical patterns of European contact.

With regard to my second claim, that we should look beyond institutions for triggers of long-term change, scholars have largely focused on one non-institutional factor: geography.<sup>29</sup> The debate between geography and institutions has, however, distracted attention from other causes of long-term economic change, such as human capital development, that lie outside of institutional structures.<sup>30</sup> International trade and, in particular, its impact on the social and spatial organization of domestic labor markets, has been understudied.<sup>31</sup> One powerful claim in the literature, advanced by scholars such as Lenin and Hobson, is that European trade and commerce prior to colonialism had a pernicious effect on foreign

<sup>&</sup>lt;sup>27</sup>Hariri 2012; Mahoney 2010.

 $<sup>^{28}</sup>$ Watson 1980, 1.

 $<sup>^{29}</sup>$ Nunn and Puga 2012.

<sup>&</sup>lt;sup>30</sup>See: Fails and Krieckhaus 2010; Glaeser et al. 2004; Jia Forthcoming.

<sup>&</sup>lt;sup>31</sup>One important exception is Jha 2013. The paper demonstrates that medieval trade fostered the development of social institutions that promoted inter-religious cooperation, with long-term repercussions for local-level religious riots in India.

territories.<sup>32</sup> Yet, this scholarship has not isolated the heterogeneous region-specific effects of the different types of trades of the early modern era. It is quite plausible that extractive trades, such as the slave trades of Africa, or agricultural trades, such as the spice trades of South East Asia, had very different political economy repercussions compared to trade in high-skilled, labor-intensive commodities such as textiles. Pre-colonial South Asia had robust indigenous economies and skilled and populous workforces, leading it to specialize in higher-end commodity exchanges with its European trading partners. Trade in these manufactured goods shifted incentives for occupational specialization and labor mobility in ways that differed from trade in extractive or resource-intensive commodities. If these changes influenced development outcomes without transforming institutions, then a failure to isolate their effects could lead us to falsely attribute causality to institutional structures.

### Transformations in the Pre-Colonial Era

That overland caravan-based and regional sea-based trading networks were fairly well developed in ancient and medieval pre-European India is well documented.<sup>33</sup> Following Vasco da Gama's discovery of a maritime route to India, however, there was a dramatic transformation both in the volume and nature of trade in the subcontinent.<sup>34</sup> Many European EICs conducted trade with India in the early modern era.<sup>35</sup> Over the course of several centuries, the EICs created vast networks of trading routes, factory settlements, and hubs of industry and commerce to meet the expanding demands of trade.<sup>36</sup>

 $<sup>^{32}\</sup>mathrm{Hobson}$  1938; Lenin 1970. See also Nunn 2008.

<sup>&</sup>lt;sup>33</sup>Subrahmanyam 1994, 11-56.

 $<sup>^{34}</sup>$  Chaudhuri 1990, 297; Parthasarathi 1998, 97-109; Subrahmanyam 1990, 144, 218; Washbrook 2009, 173.

<sup>&</sup>lt;sup>35</sup>The following trading companies maintained operations in India prior to 1757: 'Casa da Índia' and 'Companhia do Commércio da Índia' (Portugal); 'Vereenigde Oost-Indische Compagnie' (the Netherlands); 'English East India Company' and the 'English Company Trading to the East Indies' (Britain); 'Compagnie Française pour le Commerce des Indes Orientales' (France); 'Dansk Østindisk Kompagni' (Denmark); 'Keijserlijche Oostendse Compagnie' (Austria); and 'Svenska Ostindiska Companie' (Sweden).

<sup>&</sup>lt;sup>36</sup>Erikson and Bearman 2006, 199-202.

These settlements were typically built in new zones, away from the existing centers of trade and commerce. Fort William (Calcutta), Fort George (Madras), and Bombay are illustrative examples. After losing a battle with the Mughals in 1691, English traders relocated to "an obscure village called Calcutta on the swampy eastern bank of the river Hughli."<sup>37</sup> Similarly, the English erected Fort George in the "little village of Madraspatam," which consisted of "some fifteen to twenty fishermen's huts...worth about 2,000 pagodas" when they were driven away from regional port towns.<sup>38</sup> Likewise, when the Portuguese bequeathed Bombay to the British as a royal dowry, the "sparsely populated" islands were so beset with "pestilential swamps" that the Crown itself decided to transfer them "as a worthless possession"<sup>39</sup> in a "wretched state"<sup>40</sup> to the English EIC.

As long-distance maritime trade burgeoned, these new commercial centers became focal points of social, political, and economic transformation.<sup>41</sup> In particular, trade in manufactured goods such as textiles recalibrated the economic landscape. Of the many kinds of trade taking place, including spices, saltpeter, and silk, textiles was without doubt the largest.<sup>42</sup> With the advent of long-distance trade, the global demand for Indian textiles converted India into the world's largest producer and exporter of manufactured textiles.<sup>43</sup> Indian calicoes, chintzes, and muslins—printed, dyed, and glazed—served as currency in Africa, fashion commodities in Europe, and wage goods in South-East Asia. They became "the most significant global consumer commodity before industrialization,"<sup>44</sup> surpassed all other manufactured and non-manufactured commodities in global trading networks, and transformed economies

 $<sup>^{37}\</sup>mathrm{Chaudhuri}$ 1990, 93.

<sup>&</sup>lt;sup>38</sup>Foster 1912, xxxix.

<sup>&</sup>lt;sup>39</sup>Chandavarkar 1994, 21.

 $<sup>^{40}</sup>$ Hamilton 1919, 42.

<sup>&</sup>lt;sup>41</sup>Notwithstanding scholarly debate about whether and how colonial rule transformed the Indian economy, historians broadly agree that the Indian economy rapidly expanded during the pre-colonial era. Chaudhuri 1978, 82-275; Hamilton 1919, 52, 93-98; Marshall 1987, 14-16; Parthasarathi 1998, 97-109; Washbrook 2007, 87-108.

 $<sup>^{42}</sup>$ Riello and Roy 2009, 6.

 $<sup>^{43}</sup>$ Parthasarathi 1998, 107.

 $<sup>^{44}</sup>$  Riello and Roy 2009, 25-26; Chaudhuri 1990, 297; Parthasarathi 2001, 5; Richards 1993, 201.

as far as Mexico, where complaints arose that Indian goods would "de-industrialize" the local economy.<sup>45</sup> These labor-intensive commodity trades engendered three types of political economy transformations.

#### **Territorial Re-organization**

Long-distance maritime trade spatially reconfigured regional economies by precipitating the decline of medieval commercial centers and the growth of new trading hubs surrounding the factory settlements of the various EICs.<sup>46</sup> Underpinning these transformations was the steady agglomeration of skilled labor and higher-end production activities—previously dispersed throughout the countryside—near the vicinities of the new factory settlements, as well as the development of agricultural hinterlands designed to support the emerging urban centers.

Transformations in the textiles industry typify these geographical realignments. Textile production in medieval India was concentrated in temple environs that had large attached cotton-growing, spinning, weaving, dyeing, and processing industries.<sup>47</sup> Long-distance trade shifted textile production away from the temple economies of the interior plains and toward the littoral settlements built by traders. As skilled labor moved to the coasts, these urban centers focused increasingly on higher-end textile production activities and became far removed from the hinterlands producing raw cotton.<sup>48</sup> The erstwhile temple economies, in turn, specialized in agricultural and lower-end production activities to support the urban textile centers, with cotton growing and spinning becoming ubiquitous side employments in vast swaths of the southern peninsula.<sup>49</sup>

<sup>&</sup>lt;sup>45</sup>Washbrook 2009, 173. By some estimates, by 1750, India's manufacturing industry accounted for a quarter of the world's total output. Bairoch 1982, 296.

<sup>&</sup>lt;sup>46</sup>Gupta 1998, 361. A wealth of evidence establishes how the "realignment and expansion" in the networks of long-distance trade was "reflected in the rise of certain ports and the decline of others." Subrahmanyam 1990, 144.

 $<sup>^{47}</sup>$ Ramaswamy 1985, 63-93.

<sup>&</sup>lt;sup>48</sup>Washbrook 2009, 184.

<sup>&</sup>lt;sup>49</sup>Mizushima 1986, 270-327; Ramaswamy 1985, 184.

The development of urban enclaves surrounding the European trading hubs was a direct consequence of long-distance trade. Since vessels could only sail under specific wind conditions in particular seasons, and since missed opportunities could result in year-long shipping delays, commodities had to be procured, standardized, and prepared for shipping well in advance of actual journeys.<sup>50</sup> To mitigate the vagaries of overland caravan trade, reconcile the agrarian-industrial cycle with shifting wind cycles, and purchase commodities at cheaper seasonal rates, the EICs developed factory establishments where commodities could be stored until ships were ready to set sail. As the volume of trade increased, the economic activities of merchants became concentrated in these geographical nodes.<sup>51</sup>

Skilled laborers such as weavers, merchants, and artisans, in turn, migrated to these centralized trading hubs. During this period, labor was extremely mobile, migration patterns were highly developed,<sup>52</sup> and the economy was dependent on the constant movements of skilled workers.<sup>53</sup> Specialists in other types of higher-end production activities, such as financiers and bankers, also reoriented themselves toward the newly developing commercial centers, where they became important early investors in overseas trading ventures.<sup>54</sup> Moreover, factory records from the early eighteenth century delineate concerted efforts by the English EIC to "encourage the settlement of textile manufacturers within its own bounds."<sup>55</sup> Weavers and other high-skilled workers migrated to the newly-created factory towns such as Madras based on these inducements.<sup>56</sup> Relocation policies were used extensively across factory settlements. Seventeenth-century records from Bombay indicate, for example, that the EIC provided cotton, yarn, looms, and subsidized housing, and also developed extensive

<sup>&</sup>lt;sup>50</sup>Chaudhuri 1978, 71-74; Richards 1993, 200.

 $<sup>^{51}</sup>$ Watson 1980, 16.

 $<sup>^{52}</sup>$ Washbrook 2007, 93.

<sup>&</sup>lt;sup>53</sup>Chaudhuri 1990, 306.

 $<sup>^{54}</sup>$ Leonard 1998, 410-411. The "meteoric rise of Madras from an inconsiderable town in 1639" to a city with over 80,000 inhabitants within three decades, for instance, "was enriched by the migration of Indian merchants." Chaudhuri 1978, 51.

<sup>&</sup>lt;sup>55</sup>Chaudhuri 1996, 43-46.

 $<sup>^{56}</sup>$ Foster 1912, xlii.

support services to attract skilled labor.<sup>57</sup> Likewise, bricklayers, smiths, tailors, and braziers were regular fixtures on the streets of Calcutta well before colonial rule.<sup>58</sup>

#### Labor Transformations

Apart from funneling economic activity into geographical focal points, trading companies altered the character of local economic activity by shifting labor from part-time to full-time manufacturing and by enriching a range of occupational groups. These factors, in turn, reinforced opportunities for skills acquisition and human capital accumulation across different sections of society. During the pre-European era, weavers and other textile producers predominantly worked as part-time agricultural cultivators because the demand for manufactured textiles was "erratic, seasonal, and highly unpredictable."<sup>59</sup> With the surge in European demand for textiles, however, weavers rapidly turned to full-time manufacturing.<sup>60</sup> Moreover, after land-owning weaver families took up urban manufacturing employment, they transferred their agrarian lands to farmers and cultivators, spurring ruralization in the hinterlands.<sup>61</sup>

Long-distance maritime trade jumpstarted these occupational transformations. First, changes in international consumer preferences in favor of Indian textiles—itself a consequence of Indo-European trade—sharply increased the demand for the subcontinent's textiles.<sup>62</sup> The discovery of vast metal reserves in the Americas also generated a bullion boom that augmented the EICs' specie supply, enabling them to purchase large quantities of Indian

<sup>&</sup>lt;sup>57</sup>Chaudhuri 1996, 45-59; Chaudhuri 1978, 260; Mizushima 1986, 277.

<sup>&</sup>lt;sup>58</sup>Marshall 1987, 17.

<sup>&</sup>lt;sup>59</sup>Arasaratnam 1996, 91.

<sup>&</sup>lt;sup>60</sup>Arasaratnam 1980, 262-263. Scholars have argued that "prior to the arrival of the Companies, the Asian producer (specifically the textile weaver) had a precarious livelihood on account of the uncertain character of trade. It was only with the advent of European trade...that the textile producer ceases to be a part-time cultivator and turns full time to his manufacturing occupation." Subrahmanyam 1990, 5.

<sup>&</sup>lt;sup>61</sup>Arasaratnam 1996, 91-100.

<sup>&</sup>lt;sup>62</sup>Chaudhuri 1990, 297; Riello and Roy 2009; 25.

manufactured products.<sup>63</sup> Because the EICs were able to cater to the global demand for Indian products, manufacturing activity proliferated in the Indian subcontinent.

Second, Indian exports were concentrated in specific labor-intensive manufacturing and production activities. Apart from textiles, indigo, silk, and saltpeter production burgeoned, spurring both employment and labor utilization.<sup>64</sup> Importantly, the "long-run effect" of this trade was a "very substantial expansion in employment, as the total output was raised through a recruitment of additional labour rather than through technological improvement."<sup>65</sup> The development of labor-intensive manufacturing, as opposed to other types of extractive or resource-intensive industries, gradually shifted workers out of the agriculture sector and into manufacturing industries.

Third, the high wages that textile producers commanded further enticed workers to take up full-time manufacturing. The textile trade created a sudden influx of wealth in the Indian subcontinent, raising wages for Indian weavers above those of textile workers across Europe, and enriching ancillary parties such as traders, merchants, and administrative workers.<sup>66</sup> The "intense competition for skilled labour between different settlements and merchant groups" further created upward pressure on wages during this period.<sup>67</sup>

Long-distance trade played a central role in shifting labor to full-time manufacturing in the factory hubs and agriculture in the hinterlands. In order to meet capricious shipping schedules, traders began placing orders with intermediary merchants for hundreds of thousands of pieces of cloth well in advance of delivery dates. In turn, merchants began

<sup>&</sup>lt;sup>63</sup>Chaudhury 1995, 28; Washbrook 2007, 87-97.

<sup>&</sup>lt;sup>64</sup>These commodities transformed subsistence, agriculture-based economies into economies relying on cash crops and commercialized production. For example, evidence from Bengal suggests that peasants shifted sizable tracts of land from rice to mulberry production in response to the growing European demand for silk. Marshall 1987, 13-14; Richards 1993, 203.

<sup>&</sup>lt;sup>65</sup>Chaudhuri 1978, 510. The English and Dutch EICs created over 100,000 new jobs solely within the textile industry of Bengal, with the English and Dutch investing approximately 400,000 and 250,000 pounds per annum, respectively, in Bengali goods. Marshall 1987, 66; Prakash 1976, 173.

<sup>&</sup>lt;sup>66</sup>Parthasarathi 2001, 2, 43; Richards 1993, 197-198.

<sup>&</sup>lt;sup>67</sup>Washbrook 2009, 183; Parthasarathi 1998, 82-101.

hiring weavers, dyers, bleachers, and printers on a full-time basis to produce pieces of cloth of standardized style and quality.<sup>68</sup> These orders percolated down the social hierarchy and eventually reached sections of society that were traditionally excluded from employment such as, for example, lower caste women, who took to spinning yarn in large numbers.<sup>69</sup>

#### Social Transformations

In addition to transforming economic practices, long-distance trade reconfigured social patterns of production. The strict social codes that had regulated caste and occupational structures in the temple economies were quickly subverted in the new factory towns, where the threat of religious sanction was limited. Because ships had to be loaded quickly before the winds changed, multiple families of different castes began working the same loom over consecutive twenty-four hour periods, often with 'cleaner' castes working the day shift and 'depressed' castes working the night,<sup>70</sup> practices that would not have been sanctioned in alternate venues because weaving was traditionally a caste-based occupation.<sup>71</sup> Likewise, although birth, caste and occupation had been closely supervised in the temple environs, in the newer trading hubs where the demand for labor outpaced reproduction cycles, families frequently resorted to 'adopting' members from outside caste groups to sustain production.<sup>72</sup>

The lure of trading profits similarly transformed traditional caste norms within the merchant trades. Chaudhury 1995, 126, observes, for example, that "the distinctive feature of the mercantile world in Bengal was the co-existence of big and small merchants of different castes and regions, operating side by side."<sup>73</sup> Banking firms in the trading hubs also

<sup>&</sup>lt;sup>68</sup>Chaudhury 1995, 93; Richards 1993, 200-202.

<sup>&</sup>lt;sup>69</sup>Richards 1993, 202.

<sup>&</sup>lt;sup>70</sup>Washbrook 2009, 183.

<sup>&</sup>lt;sup>71</sup>Chaudhury 1995, 155-156.

<sup>&</sup>lt;sup>72</sup>Ramaswamy 1985; Washbrook 1993, 68-86.

<sup>&</sup>lt;sup>73</sup>The EICs transacted with merchants from a diverse range of castes, including 'Brahmins' (priestly castes), 'Setts' and 'Basaks' (weaving castes), 'Pramanicks' (barber castes), and 'Tellys' (oil-grinding castes). Marshall 1987, 15; Chaudhury 1995, 156.

hailed from different regions, religions, and ethnicities.<sup>74</sup> The movement into new physical spaces further helped transform traditional caste structures. In pre-European India, caste hierarchies were formulated according to localized settings;<sup>75</sup> caste positions were defined in relation to immediate neighbors, not in relation to communities from other regions. The social intermingling among individuals from different regions in the new urban centers challenged traditional understandings of occupational hierarchies and created openings for socio-economic mobility.<sup>76</sup>

These "caste disturbances"<sup>77</sup> were important for economic transformation because they generated opportunities for occupational entrepreneurialism. In particular, caste opportunism created niche socio-economic specializations.<sup>78</sup> The proliferation of new occupations allowed families to establish "minute status distinctions" based on "new and evolving skills" and "heavy investment in very particular forms of human capital."<sup>79</sup> It was precisely these intensive investments in human-capital that catapulted India's manufacturing industries to the forefront of global trading networks.

Together, these pieces of evidence reveal the pre-colonial era to have been a time of socio-economic dynamism, when rapidly evolving manufacturing and high-skilled production activities were becoming concentrated in the new commercial settlements of the EICs

 $<sup>^{74}</sup>$ Leonard 1998, 410-411.

<sup>&</sup>lt;sup>75</sup>Appadurai 1974, 247.

<sup>&</sup>lt;sup>76</sup>Caste reformulations are known to have taken place even in pre-European India. Appadurai 1974, 227. Yet, in contrast to the temple economies where caste structures were strictly regulated, the emerging commercial centers permitted very competitive avenues of integration. Washbrook 2007, 101-102.

<sup>&</sup>lt;sup>77</sup>Ramaswamy 1985, 150.

<sup>&</sup>lt;sup>78</sup>For example, groups producing cloth for the Malay Archipelago dubbed themselves 'Caingaloon' weavers (in Malay, 'kain' means cloth and 'gulong' means rolled); communities specializing in painted chintz became known as the 'Mambaloom' painters; and producers of the superior cotton cloth used as the base for chintz named themselves Mooree weavers. Ramaswamy 1985, 151.

<sup>&</sup>lt;sup>79</sup>Washbrook 2007, 101-103. The author writes that "no region simply had one weaving caste but, usually, dozens or even hundreds of castes and sub-castes, each having its own special kind of cloth at which it was particularly expert and for which it was renowned...the system encouraged social actors constantly to seek status distinctions from each other—which in the case of artisans, could mean the adopting of new designs and work methods to produce (marginally) distinguished forms of product. If successful, a sub-caste would then form around the refinement of skill."

while the hinterlands were becoming increasingly agrarian. I next systematically explore the empirical record to test whether these transformations were important for long-term development.

### **Pre-Colonial Trade and Long-Term Change**

I considered all the factories, ports, and settlements established in India by the various European trading companies, beginning from Vasco da Gama's historic voyage up until 1757. Identifying EIC trading centers during the pre-colonial period is challenging because European companies at times closed and relocated factories without maintaining complete records. The *Historical Atlas of South Asia* provides a comprehensive survey of what is known about trading developments in the Indian sub-continent at various historical stages, including before and during European interaction with India.<sup>80</sup> I used the *Historical Atlas* as my primary source for locating European settlements, and supplemented it by studying source documents from EIC factory records in the National Archives of India, the British Library, and in 23 volumes of original correspondence, as well as secondary economic history sources on specific colonial interactions to maximize coverage.<sup>81</sup>

Figure 1 illustrates various European factory settlements in the Indian subcontinent prior to Britain's annexation of India and Table A1 lists the names and origins of these settlements. I identified 113 settlements created by the various EICs in the pre-colonial period. Of these, I excluded 13 settlements that are located in present-day Pakistan, Bangladesh, and Sri Lanka in order to hold post-independence political institutions constant.

[Figure 1]

I studied the impact of these pre-colonial settlements on present-day political economy outcomes. Because scholars have argued that the district is the appropriate level of analysis

 <sup>&</sup>lt;sup>80</sup>Schwartzberg and Bajpai 1992.
 <sup>81</sup>Foster 1906-1927; Israel 1989; Subrahmanyam 1993.

to study the impact of historical legacies in India,<sup>82</sup> I coded districts from the 1991 Indian census to indicate whether they had a pre-colonial European settlement before 1757. I then labeled this variable *European Pre-Colonial dummy*. The EIC settlements fall into 48 unique districts out of a total of 415 districts in modern India.

Next, I accounted for the role of medieval, pre-European commercial settlements. Using the *Historical Atlas*, I collected information on all pre-European centers of trade in the Indian subcontinent during the mid-fifteenth century, when the Lodi dynasty ruled over northern India and various regional empires such as Vijayanagara and Golconda ruled over the south.<sup>83</sup> I then created a dummy variable, *Pre-European dummy*, which takes a value of one if a district contained such a settlement. There were 221 such settlements in 140 districts of modern India.

The India Agriculture and Climate Data Set provides information on geography, climate, and soil characteristics that I used to control for observable confounding factors. My primary specifications utilize the Banerjee and Iyer 2005 and Iyer 2010 set of controls for latitude, mean annual rainfall, whether or not a district is on the coast, the proportion of soil that is sandy, as well as the proportion of soil that is barren or rocky. In sensitivity specifications, I show that these results persist when I expand the set of controls to include altitude, and a dummy each for whether the district has black soil, alluvial soil, or red soil.

For my dependent variables, I used 1961, 1971, 1981, and 1991 Indian census data.<sup>84</sup> My primary outcome variables are the proportion of the workforce in manufacturing, the

<sup>&</sup>lt;sup>82</sup>Banerjee and Iyer 2005, 1199; Iyer 2010, 698. There are two primary advantages of using districts as the level of analysis in this study. First, it is possible to match modern districts to colonial-era districts, whereas such comparisons are not possible with states because these were carved out in post-independence India according to a new set of linguistic prerogatives. Second, we can unambiguously distinguish districts that were subject to direct colonial rule from those that were ruled by native princes—an essential requirement for a study evaluating the relative importance of colonial institutions. Such distinctions are not possible with states because because hearly all states comprised both direct and native ruled districts.

<sup>&</sup>lt;sup>83</sup>The availability of medieval-era maps in the *Historical Atlas* dictated my choice of dates for coding this variable. One drawback of this date range is that it overlaps partially with initial Portuguese trading; all of my results hold, however, if I exclude this control variable from my analyses.

<sup>&</sup>lt;sup>84</sup>Vanneman and Barnes 2000.

proportion of the workforce in farming, and the literacy rate. Each of these variables captures key aspects of economic transformation and development in the context of a society where the vast majority of the population continues to work in agriculture. The fraction of workers in manufacturing indicates levels of industrialization, the fraction of workers in farming reflects the importance of agriculture, and the literacy rate proxies for levels of human capital and skills. Importantly, these indicators reflect closely the political economy changes highlighted by the historiography of the pre-colonial era outlined earlier. I estimated my main dependent variables using cross-sectional data from the 1991 census. To ensure that my findings are not driven by the peculiarities of any one census, I repeated these regressions using pooled data from the 1961–1991 censuses.

My empirical strategy proceeded as follows. I first studied the partial correlation between pre-colonial trading developments and modern day outcomes. I estimated the equation,  $y_i = \beta * European Pre \, colonial \, dummy_i + \varepsilon_i$ , where  $y_i$  represents the outcome variables of interest. This specification ascertains whether the relationship between pre-colonial trading hubs and present day outcomes is stable in the absence of other explanatory variables. To account for the role of medieval commercial centers, I included the pre-treatment variable,  $\gamma * Pre European \, dummy_i$ , in the regression. I also added the term,  $\phi * \mathbf{X}_i$ , where  $\mathbf{X}_i$  is as a vector of pre-treatment geographic and soil controls, to subsequent specifications.<sup>85</sup> Next, I conducted several analyses to address major threats to inference, and I triangulated many types of qualitative and quantitative archival data and geospatial data in order to interpret my statistical findings.

### **Establishing a Partial Correlation**

Table 1 summarizes the results of OLS regressions on my main indicators of structural change. Using data from the 1991 census, Column 1 focuses on a bivariate regression where the

<sup>&</sup>lt;sup>85</sup>To avoid post-treatment bias, I did not include measures of colonial institutions in these specifications. Subsequent analyses distinguish between the effects of pre-colonial developments and colonial institutions on long-term outcomes.

independent variable is European pre-colonial settlements. Columns 2 and 3 consecutively include controls for pre-European settlements, and geographic and soil indicators. Columns 4 - 6 replicate the analyses using pooled census data from the 1961–1991 censuses after including time-fixed effects.

[Table 1]

I find the same pattern of results in both sets of analyses: Districts that contained pre-colonial trading hubs are substantively and significantly more likely to have undergone structural transformation over the long-run, even after controlling for a host of observable factors. These districts have higher proportions of their workforce in manufacturing, lower proportions of their workforce in agriculture, and better literacy rates. Figure 2 plots precolonial European trading hubs against outcome measures.

[Figure 2]

I next discuss several potential threats to inference and present analyses that help address each of these concerns. As Figure 1 shows, a large proportion of the EIC hubs were located in coastal districts. An immediate concern is that coastal districts are structurally different from mainland districts and that my analyses are merely capturing a coastline effect. Although I include a coastal dummy in Table 1, I perform a more stringent test of this hypothesis in Table 2, where I restrict the sample to only coastal districts and repeat my analyses. My results are qualitatively the same as those presented in Table 1, providing strong evidence that the findings are not driven by coastal peculiarities.

[Table 2]

As discussed earlier, the tables present the set of controls used by Iyer 2010 in its evaluation of the long-term impact of colonial institutions. To investigate whether additional observables might explain my findings, I re-run my regressions after including supplemental controls for altitude and soil characteristics and find no substantive differences in my results (Table A2). Thus, observable confounding factors do not appear to explain my findings.

One might reasonably question whether my results are simply driven by the three British

"Presidency" towns of Bombay, Madras, and Calcutta, which arguably had better colonial administrative structures compared to other regions of the India. This is clearly not the case, however. When I re-run my analyses after excluding districts containing these presidency towns, my results persist (see Table A3).<sup>86</sup>

A related concern is that my results are simply capturing cross-regional variation, or variation in institutions across either post-independence states or pre-independence provinces. To be sure, all of my specifications cluster standard errors by colonial-era states (including both British states and native states, following Iyer 2010). As a more stringent test, I re-run my analyses after including fixed effects for post-independence states (see Table A5) as well as including fixed effects for pre-independence provinces (see Table A6). I find that my results persist in both sensitivities, indicating that variation in regional or state-level political or administrative institutions does not explain my findings.<sup>87</sup>

Next, I conduct two types of matching analyses to study covariate-specific treatment and control comparisons (Table 3). In Columns 1-4, I report the average treatment effect for the treated using nearest neighbor matching. These analyses match on the pre-treatment geography and climate control variables used in Table 1, yet the results do not change if the specifications include the *Pre-European dummy*; Table A6 reports the results of covariate balance tests. In Columns 5-8, I report results using propensity score matching. Here, instead of matching directly on observables I conduct nearest-neighbor matching using a propensity score (calculated using a probit link function). The results broadly confirm my earlier findings and provide estimates that are similar in magnitude to my original estimates.

[Table 3]

Matching analyses depend on the strong assumption that the set of observed covariates completely account for the treatment assignment mechanism. To explore the validity of this

<sup>&</sup>lt;sup>86</sup>The results also hold when I exclude the historical state of Travancore, which arguably had superior public goods services. Additionally, Iyer 2010, 707, demonstrates that the distribution of landlord- and cultivator-owned land-revenue systems was similar across native and British districts, indicating that differences in land-revenue systems likely do not affect the interpretation of my results.

<sup>&</sup>lt;sup>87</sup>These results remain robust event when I restrict the sample to only coastal districts.

assumption, I perform Rosenbaum bounds analyses to ascertain how strongly an unmeasured confounder must affect selection into treatment in order to undermine the study's conclusions. As Table A7 demonstrates, the estimated treatment effects remain significant and qualitatively unchanged even in the presence of unobserved bias of a magnitude far larger than what is found in most observational studies.<sup>88</sup>

I chose farming, industry, and literacy rate indicators as my primary dependent variables because they most closely capture the pre-colonial political economy transformations—in particular, the agglomeration of high-skilled and manufacturing activities surrounding the trading hubs of the EICs, and the proliferation of agricultural cultivation in the hinterlands—outlined earlier. The relationship between structural change and other political economy outcomes such as public goods provisions or political competition, which have been the focus of prior work, is not obvious, yet it is likely that economic transformation had implications for human development outcomes. Therefore, apart from literacy rates, I consider a secondary measure, infant mortality rates (Table 4). Areas with pre-colonial trading hubs have lower infant mortality rates than other regions of India, a similar trend to the literacy rates finding.

[Table 4]

My results would reflect a spurious correlation if they are driven by unrelated transformations in the modern era. To explore this possibility, I study whether the strong associations that I find were evident in intermediate periods, such as during colonial rule. Table A8 evaluates the relationship between pre-colonial settlements and colonial-era literacy rates from the 1911 census, and reports a strong positive relationship that is qualitatively similar to the earlier results.<sup>89</sup> The existence of a similar pattern in the colonial era alleviates concerns that my results are artifacts of unrelated developments in the modern era.

 $<sup>^{88}</sup>$ Keele 2010.

<sup>&</sup>lt;sup>89</sup>The units are different in this analysis because administrative boundaries varied between the 1911 and 1991 censuses. One drawback of this approach is that the rich set of covariate data that I use in the earlier analyses is not available for the 1911 administrative boundaries. To make up for this deficiency, I follow Iyer 2010, 706, in including two available covariates, total population and gender ratio, used in prior work.

#### Addressing Selection Concerns

Did the EICs develop economically superior regions that were more likely to experience structural transformation? Scholars have argued just so with respect to the *colonial* era, when Britain used its military power to annex economically fertile territories.<sup>90</sup> In the *precolonial* era, however, because Britain was both militarily and economically less powerful than the Portuguese and Dutch, it heeded geopolitical security imperatives when deciding where to situate its factory hubs.

The case of Madras provides some clues about pre-colonial settlement patterns. The English EIC had initially established settlements at the ports of Armagon and Bhatkal further north on the Coromandel coast. Yet, factory employees decided to abandon the settlement at Armagon because "the merchants had been impoverished by the exactions of the Nayak [the local ruler]"<sup>91</sup> and the settlement at Bhatkal "owing, it would seem, to the unfriendly attitude of the Ikkeri Raja"<sup>92</sup> Exasperated by local leaders, EIC employees sought a location that they could claim as their own. A small fishing village with a few dozen inhabitants named Madraspatam appeared appealing precisely because it was commercially undeveloped. The factory employees subsequently leased the village from the local ruler, established a trading settlement, and offered pecuniary inducements to "to intice the inhabitants to people the place (*sic*)"; consequently, "weavers and others flocked to…Madraspatam."<sup>93</sup>

To ascertain whether the case of Madras is representative of broader trends, I studied the original correspondence between the factory employees and the Court of Directors of the English EIC in the period 1602–1684,<sup>94</sup> as well as factory records in the National Archives,

<sup>94</sup>I analyzed 23 volumes in the series: Letters Received by the East India Company from its

<sup>&</sup>lt;sup>90</sup>Banerjee and Iyer 2005; Iyer 2010.

<sup>&</sup>lt;sup>91</sup>Foster 1912, xxxvii.

<sup>&</sup>lt;sup>92</sup>Foster 1912, xxi.

<sup>&</sup>lt;sup>93</sup>Foster 1912, xlii. Chaudhuri 1985, 92-93, writes that after the Dutch and English EICs first settled in Masulipatam, an existing commercial center on the Coromandel coast, "political frictions" between the companies and the local rulers "caused the Dutch and the English to migrate down the coast." Furthermore, Chaudhuri 1978, 51, finds that the "rise of Madras from an inconsiderable town in 1639, when it was acquired from a local chief, to the position of a leading port in Coromandel three decades later" was a direct consequence of EIC trade and commerce. For an alternate account, see Keay 1991.

Delhi, and the British Library, London.<sup>95</sup> I searched for evidence to support or refute four potential factors that might explain pre-colonial settlement decisions (Table 5).

[Table 5]

If a colonial logic prevailed from the start, evidence should support the claim that the EIC's pre-colonial settlement strategies were predicated on the potential for extracting resources, reforming local populations, or a combination of the two. Extraction pertains to the plundering of natural resources, exploitation of local economies, or taxation of indigenous populations, and reformation refers to the colonial impetus to 'uplift' India through educational, religious, or social empowerment schemes.<sup>96</sup> If, however, pre-colonial settlements followed a different logic that was rooted in both geopolitical security considerations and commercial incentives, we would observe power struggles with other European countries and indigenous rulers, over and above profit incentives, to be major factors influencing site selection.<sup>97</sup>

#### **Historical Evidence on Settlement Patterns**

"[The EIC] found it impossible to compete with their Dutch rivals, and their trade suffered accordingly. The disputes between the two nations were rendered still more bitter by the judicial murder of the English factors at Amboyna and by the irritating restrictions which were enforced at Batavia by the Dutch. At last, in January, 1624, the English decided to take the first opportunity of quitting that city and establishing a settlement of their own. Some island...seemed to offer the fairest prospect of a suitable site; and in August Richard Swan...was

Servants in the East, 1602-1617; English Factories in India, 1618-1669; and English Factories in India - New Series, 1670-1684. Danvers and Foster 1896-1902; Foster 1906-1927; Fawcett and Foster 1936-1955.

<sup>&</sup>lt;sup>95</sup>During the colonial period, Britain annexed vast territories using military force. In order to ascertain whether different dynamics prevailed during the pre-colonial period, I limit my analysis to British trading hubs.

<sup>&</sup>lt;sup>96</sup>Dewey 1993; Metcalf 1994.

<sup>&</sup>lt;sup>97</sup>Extractive and commercial logics differ based on levels of coercion. Unlike commercial and trading processes, extractive processes are inherently coercive.

sent thither to choose a place for a settlement and to hoist the British flag."<sup>98</sup>

This eyewitness account illustrates the EIC's approach to building factories in the Indian Ocean.<sup>99</sup> Prior to arriving in India, the British factories had faced rampant attacks at the hands of the Dutch in the Indonesian archipelago, as well as at the hands of the Portuguese in Persia. The front lines of Anglo-Dutch rivalry were in East Asia, where the companies competed intensely over the initial centers of the spice trade.<sup>100</sup> For example, the English factories at Sukadana, Banjarmasin, and Balambangan (in Borneo); Bantam, and Jakarta (in Java); Achin, Tiku, Priaman, and Indraghiri (in Sumatra); Macassar (in Celebes); and Firando (in Japan) were repeatedly attacked and ransacked by both the Dutch and local bandits, and factory employees were routinely killed in these contests.

When Britain reoriented its trade networks toward the Indian subcontinent, it had to carefully mediate its relationship with both the Dutch and the Portuguese. On the western coast, during the preliminary stages of expansion, the EIC opened factories in pre-existing commercial centers, such as in Surat, Ahmedabad, and Agra. However, Portuguese flotillas and forces soon began attacking its trading routes and settlements.<sup>101</sup> Apart from open battle, the Portuguese routinely engaged in maritime military brinkmanship in order to coerce the British to abandon commercial centers.<sup>102</sup> Consequently, the British avoided foreign armadas on the high seas<sup>103</sup> and formed alliances of convenience with the Dutch and Danes against the Portuguese.<sup>104</sup>

As the Dutch began to economically dominate Indo-European trade, however, the Anglo-

<sup>&</sup>lt;sup>98</sup>Foster 1909, xxxviii.

<sup>&</sup>lt;sup>99</sup>This quotation refers to an island in the Sunda Straits, which is located in present day Indonesia, yet is indicative of the EIC's experience in establishing factories in the Indian subcontinent. For example, Subrahmanyam 1990, 173-174, writes that the EIC's "approach to trade" in India was "in large measure a reactive one" and that "their aims as well as their methods were often dictated by necessity rather than choice." See, also: Chaudhuri 1965, 56-73.

<sup>&</sup>lt;sup>100</sup>Foster 1906, xxxix-xl, xxxix; for citations and source criticism, see Appendix.

 $<sup>^{101}</sup>$ Foster 1906, xxix, xxxiii, xxv.

 $<sup>^{102}</sup>$ Danvers and Foster 1896-1902.

 $<sup>^{103}</sup>$  Danvers and Foster 1896-1902, xx.

 $<sup>^{104}</sup>$ Foster 1906, xlv; Foster 1909, x<br/>xxiii; Foster 1909, xiv.

Dutch alliance evaporated.<sup>105</sup> The EIC actively avoided Dutch trading networks on the eastern coast;<sup>106</sup> the Anjengo settlement was chosen, for example, because of Dutch interference with English trade at Karwar and Rajapur. More generally, the British, Portuguese, and Dutch were at war, either formal or informal, at various points in time, leading the British to open new factories in regions removed from foreign competition.<sup>107</sup>

Apart from European competitors, the Mughal rulers, regional Nawabs, Indian princes such as the Marathas, and government bureaucrats tormented the British.<sup>108</sup> Local chieftains, for example, repeatedly raided the factories at Kasimbazar, Masulipatam, Karwar, Vizagapatam, and Rajapur. Moreover, indigenous merchants, a class that was well connected with the political elite, often undercut British commerce.<sup>109</sup> Suffering considerable losses, the EIC sought settlement zones away from extant cities and ports.<sup>110</sup> For example, the English opened a factory at Sutanati after being expelled from the Mughal dominions of Bengal.

To summarize, I found *no* indication that demographic, socio-economic, or religious factors guided site selection, invalidating the hypothesis that a reformative logic shaped precolonial settlement patterns. I came across considerable discussion of extractive factors, but in the *opposite* direction to the hypothesis outlined above: rather than planning to tax local populations and exploit local natural resources, the EIC was worried about itself being taxed by local authorities. Indeed, there were repeated references to the EIC factors going to great lengths to avoid having to pay bribes, customs, taxes, and gifts to local rulers. Thus, extractive tendencies did not guide British pre-colonial site selection practices. Combined,

<sup>&</sup>lt;sup>105</sup>Foster 1909, v; Foster 1906, xxxvi, xxxviii.

<sup>&</sup>lt;sup>106</sup>Foster 1921, 54.

<sup>&</sup>lt;sup>107</sup>Foster 1909, xv.

<sup>&</sup>lt;sup>108</sup>Foster 1906, xxx; Foster 1906, xxiv; Foster 1921, 63. See, e.g.: "[W]hat was there to prevent the Mogul from retaliating on the persons and goods of the English, especially in the up-coming factories? Moreover, they knew how bitter was the feeling amongst the [local] Gujaratis against the new-comers, who had already encroached so seriously upon their commerce." Foster 1906, xiii.

 $<sup>^{109}</sup>$ Foster 1906, xiv.

<sup>&</sup>lt;sup>110</sup>Foster 1909, vi.

these findings suggest that the logic that scholars have ascribed to colonial-era settlement patterns does not extend backwards to the pre-colonial era.

Instead, I found that both commercial and geopolitical imperatives help explain EIC factory selection decisions. Unsurprisingly, given its mandate to earn profits, the EIC did seek sites that held promise as subsequent trading bases. Yet, the EIC did not simply establish factories in the most commercially advanced areas. Rather, in order to protect its commercial investments from both Indian and European attack, it chose many new zones at safe distances from the existing centers of commerce. In particular, it sought territories that were unattractive targets for conquest because they were either strategically positioned or unprosperous to begin with. It then developed these fishing villages and hamlets into hubs of trade and commerce. Because these geopolitical factors are likely unrelated to modern political economy outcomes, there are plausible reasons to believe that my statistical findings reflect the independent effect of pre-colonial commercial developments.

#### **Geographical Factors Guiding Site Selection**

The historical analysis suggests that natural harbors in close proximity to mountainous topography were important determinants of pre-colonial settlements. Natural harbors sheltered ships from wind and ocean currents and were key determinants of the location of historical ports;<sup>111</sup> the EICs actively sought out natural harbors while building settlements.<sup>112</sup> In 1628, for example, English factors marveled at the natural harbor at Bombay by writing, "the entrance to the southwards is a large channell, where shipps of greatest burthen may boldly enter laden and ride landlockt within a bay, free from all winds and weather (*sic*)."<sup>113</sup> Additionally, they extolled the benefits of a harbor that "is dry at low Water, and has a Channel within it deep enough for the greateft Ships to pafs (*sic*)."<sup>114</sup> Mountainous topogra-

<sup>&</sup>lt;sup>111</sup>Arasaratnam 1994; Jha 2013.

 $<sup>^{112}</sup>$ Chaudhuri 1978.

<sup>&</sup>lt;sup>113</sup>Foster 1909, 197.

<sup>&</sup>lt;sup>114</sup>Hamilton 1727, 189.

phy was also an important determinant of European trading hubs because mountains served as natural defensive barriers, shielding settlements against attack from competitors. The strategic and geopolitical utility of mountains, particularly to port towns, has been acknowledged in a variety of contexts,<sup>115</sup> and was not lost on pre-colonial traders. Commentators noted, for example, that "the space and convenience afforded by Bombay's deep-water harbour was off-set by the steep and rugged hills, the western ghats, which enclosed the island only a short distance from the sea."<sup>116</sup> Describing the role of mountains in Bombay's fortification, Hamilton writes, "it is built on the Point of Rocks that jets into the Sea…and it ftands within 800 Paces of an Hill…that overlooks it, and an Enemy might much incommode it from that Hill, as we found by Experience *in Anno* 1689 when the Mogul fent an Army on *Bombay* (*sic*)."<sup>117</sup>

I leverage these geographical features to further explore selection concerns. My approach follows yet extends in important respects the strategy adopted by Jha 2013, which uses natural harbors to instrument for the location of medieval pre-European port towns.<sup>118</sup> Using ArcGIS, I identified every single natural harbor surrounded by protective mountainous topography on the Indian coastline (the Appendix describes and illustrates the steps involved

<sup>&</sup>lt;sup>115</sup>European and Arab traders commented in detail about the utility of mountains as natural fortresses. Braudel 1972; Chaudhuri 1985. Quoting the geographer Al-Muqaddasi's description of Aden, Chaudhuri 1985, 107, writes: "The town is in the form of a sheep-pen encircled by a mountain which surrounds it down to the sea, while an arm of the sea passes behind this mountain, so that the town is only approached by fording this arm of the sea and thus gaining access to the mountain."

<sup>&</sup>lt;sup>116</sup>Chaudhuri 1978, 49. The EIC established a factory in Bombay in large part due to geopolitical considerations: "The Company had actually suggested to their servants at Surat the advisability of establishing a fortified settlement at Bombay or at some other suitable spot...recent events had shown how advantageous it would be to have some port where vessels would be absolutely safe from Portuguese attacks." Foster 1909, xxi. Bombay's naturally protected harbor provided factors safety from attacks by the local Maratha rulers, Malabar pirates, the Dutch, and the Portuguese. See, for example: Watson 1980, 244-245; Hamilton 1919, 43; Wilbur 1945, 169-180.

<sup>&</sup>lt;sup>117</sup>Hamilton 1727, 186.

 $<sup>^{118} \</sup>rm Most$  importantly, motivated by the above discussion about geopolitical concerns, I focus my analysis on natural harbors that were naturally protected by mountainous topography in their immediate vicinity. Jha 2013's analysis, by contrast, relies on *all* natural harbors. Apart from analyzing distinct geographical features, our studies focus on different periods, sources of influence, and outcome variables.

in these analysis). I then created a dummy variable, *Protected Harbor*, which indicates whether a district had a geographically protected natural harbor, and use this variable in the following analyses.

#### Controlling for Unobserved Sources of Heterogeneity

First, I re-estimate my primary specifications after restricting the sample only to districts that contained geographically protected natural harbors (Table 6).<sup>119</sup> Because these districts were particularly appealing candidates for EIC trading hubs, comparing outcomes within them further controls for unobserved sources of heterogeneity. The underlying idea here is that as the establishment of trading hubs approaches *as-if* random assignment, differences in outcomes between districts with and without pre-colonial settlements should begin to approximate the effects of pre-colonial commercial settlements. Within this restricted sample, I find qualitatively similar results to my primary analyses, providing further suggestive evidence that pre-colonial developments were crucial triggers for long-term change.

[Table 6]

I evaluate the plausibility of the *as-if* random assignment assumption by conducting balance tests of differences-in-means in the pre-treatment covariates (see Table A9). The sample achieves balance across a wide range of covariates, although significant differences persist with respect to two variables: the EICs were more likely to locate in districts that are closer to the equator and have higher rainfall levels. These differences suggest that it is possible that geographic factors might have influenced site selection. Although I am not able to adjudicate between the relative importance of geography versus pre-colonial commercial developments, I interpret these findings as providing additional evidence against the hypothesis that colonial institutions triggered long-term economic change.

A separate concern is that the migration of skilled labor from surrounding regions to the

<sup>&</sup>lt;sup>119</sup>In this analysis, instead of using a binary variable to capture a district's coastal status, I use the length of a district that falls on the coastline.

European hubs creates interference between units and biases upward the treatment estimates. One way to explore this concern is to study outcomes across regions where there was minimal potential for migration. Migration from the western to the eastern coasts, and vice versa, was far less likely than other types of migration, due to barriers created by distance, geography, and medieval kingdom boundaries. When I further partition this restricted sample, and compare treatment districts on the western coast with control districts on the eastern coast, my results persist (Table A10).<sup>120</sup>

#### Instrumental Variables Analysis

Second, as an alternate strategy to adjudicate the relative importance of the pre-colonial era in fixing development trajectories, I use geographically protected harbors to instrument for pre-colonial settlements. Naturally protected harbors were appealing to traders only during the pre-colonial period, when security concerns were paramount. By contrast, geopolitical security concerns ceased to dictate commercial organization "in the immediate aftermath of British conquest, as greater security prevailed on major routes and in the commercial cities."<sup>121</sup> Indeed, a wealth of evidence suggests that after the British established a security umbrella over the subcontinent, commerce began flourishing in new zones such as Jamshedpur and Tatanagar that were located in the interiors, along the railways and trading routes built and protected by the British.<sup>122</sup> Therefore, sheltered natural harbors likely impacted structural transformation only through developments in the pre-colonial era, as opposed to the colonial era.

[Table 7]

<sup>&</sup>lt;sup>120</sup>The opposite comparison (i.e., treatment districts on the eastern coast and control districts on the western coast) results in too few observations to conduct meaningful analyses. <sup>121</sup>Bayly 1988, 108; Raychaudhuri 1983, 26.

<sup>&</sup>lt;sup>122</sup>Roy 2009. Bayly 1988, 108, notes that "countless Indian sources refer...to the new security of life" that Pax Britannica accorded to the Indian economy; following colonial rule, interest rates fell sharply, housing prices trebled, merchant activity spiked, and moneylending practices expanded as security details safeguarded both trading routes for commercial journeys, and cities, towns, and villages for merchant activity.

Panel D of Table 7 reports the first-stage results of my IV analysis, and demonstrates that natural harbors surrounded by mountains are strong predictors of European pre-colonial settlements, even when I control for a range of observable confounders. The F-test (see Table 7), and the reduced-form relationship between the instrument and the dependent variables (Table A11), alleviate concerns that the instrument is weak. Panels A through C report the second-stage results and present finding that are again substantively the same as the OLS findings.<sup>123</sup>

Could naturally protected harbors have influenced long-term economic outcomes through pathways unrelated to pre-colonial settlements? It is possible, for example, that mountainous topography could have directly influenced economic development trends. To explore the validity of the instrument, I perform three sensitivity tests. First, I re-estimate Table 7 after including covariate data on additional geography and soil characteristics (Table A12), and obtain qualitatively similar results. Second, I add state fixed effects to the specifications in Table 7 to evaluate whether other differences that are particular to specific states (such as, for example, any of the southern Indian states) might have direct effects on my outcome variables outside of port selection. As Table A13 shows, my results persist even when I conduct this local comparison. Third, I study the extent to which the exclusion restriction can be relaxed for the instrument to remain valid.<sup>124</sup> The effect of pre-colonial trading hubs on literacy rates would remain significant at the 5% level even if the direct effect of the instrument on literacy rates reached 0.082, or 27% of the IV-estimated effect of precolonial trading hubs.<sup>125</sup> Even if the excluded instrument exerts an independent effect of a magnitude this large due to violations of the exclusion restriction, which appears to be a strong assumption, the IV results will remain significant.

<sup>&</sup>lt;sup>123</sup>For each dependent variable and sample, I present both bivariate and multivariate results. I find qualitatively similar results when I use only one control variable at a time in the multivariate specifications.

<sup>&</sup>lt;sup>124</sup>Conley, Hansen, and Rossi 2012.

 $<sup>^{125}</sup>$ Similarly, results would remain significant at the 5% level even if the independent effect of the instrument on farming and manufacturing rates reached -0.035 and 0.018, comprising 15% and 15%, respectively, of the overall effect of pre-colonial trading hubs.

## Comparing the Pre-Colonial and Colonial Eras

A core goal of this study is to isolate the legacy of pre-colonial commercial organization from that of colonial institutions. My approach to conceptualizing and measuring colonial institutions closely follows recent empirical work that studies the effects of colonial institutions by distinguishing between "direct" colonial rule and "indirect" native rule that occurred in tandem during India's colonial experience.<sup>126</sup> To be sure, the entire territory of present-day India, Pakistan, Bangladesh, and Burma was subject to some imperial oversight. Yet, the British "directly" ruled over only certain parts of the subcontinent; these regions comprised British India and contained "all territories and places within Her Majesty's dominions which are for the time being governed by Her Majesty through the Governor-General of India."<sup>127</sup>

In contrast to these regions, the British permitted native and hereditary kings to rule over large swaths of the subcontinent in regions that were dubbed "native states" or "princely states." These states maintained their indigenous systems of governance and "autonomy in administrative matters."<sup>128</sup> There were 680 native states in 1910 that were distributed across the subcontinent and that constituted 45% of the total area of British India. Scholars have advanced various arguments to explain why colonial institutions in "directly" ruled regions might have had pernicious long-term effects compared to indigenous structures in the native districts.<sup>129</sup> I thus classify "directly" ruled districts as regions that were subject to colonial institutions, and use the distinction between "direct" and "indirect" rule to evaluate the relative salience of colonial structures.<sup>130</sup>

 $<sup>^{126}</sup>$ Banerjee and Iyer 2005, 1192; Iyer 2010, 694-695; Lange, Mahoney, and vom Hau 2006, 1429.

 $<sup>^{127}</sup>$  Interpretation Act of 1889, quoted in Iyer 2010, 694.

<sup>&</sup>lt;sup>128</sup>Banerjee and Iyer 2005, 1192. Lange, Mahoney, and vom Hau 2006, 1429.

<sup>&</sup>lt;sup>129</sup>Iyer 2010, 696-698. First, colonial administrators were better able to extract the colony's resources in directly ruled areas as compared to other areas. Second, colonizers likely developed inferior institutions in regions where they did not contemplate settling over the long term. Third, because indigenous rulers enjoyed longer tenures, they faced better incentives to develop institutions providing superior public goods.

<sup>&</sup>lt;sup>130</sup>Using Iyer 2010, I first identify districts subject to direct British rule. Apart from Britain, Portugal and France also ruled over parts of India during the colonial era. For example, districts in present-day Goa, Pondicherry, Mahe, Daman and Diu, Dadra and

[Table 8]

Pre-colonial developments could potentially have impacted long-term outcomes either directly or indirectly, through colonial institutions. Short of randomly assigning both precolonial trading hubs and colonial institutions, one can explore the relative explanatory power of each stage by conducting several comparisons. Column 1 of Table 8 replicates Iyer 2010's instrumental variables approach to study the effect of colonial institutions on indicators of structural change, finding no relationship of substantive or significant importance;<sup>131</sup> Column 2 finds similar results using OLS analysis. In Column 3, I present results from my instrumental variables analysis discussed earlier. In stark contrast to the colonial institutions measure, pre-colonial trading hubs have large and meaningful positive effects on contemporary structural change indicators.

Because pre-colonial trade likely influenced colonial-era institution building, controlling for colonial institutions in a regression framework is apt to generate post-treatment bias. This key methodological concern is difficult to overcome, yet we can evaluate whether the relationship between pre-colonial trade and development outcomes is similar in regions of South Asia that either were or were not subject to colonial institutions. Columns 4 and 5 of Table 8 split my sample into direct rule districts and indirect rule districts, respectively, and present OLS estimates showing that the relationship between pre-colonial trade and modern-day outcomes is qualitatively similar in each sample.<sup>132</sup> Finally, using mediation

Nagar Haveli were directly ruled by the Portuguese and French during the colonial period. I therefore combined British-ruled districts with Portuguese and French-ruled districts to identify whether a district was subject to direct British colonial rule or Portuguese or French colonial rule. My results reveal no qualitative difference between British-ruled districts and European-ruled districts, and I thus only present results using the latter classification.

<sup>&</sup>lt;sup>131</sup>Between 1848 and 1856, the British used a policy known as Doctrine of Lapse to annex several native states in which the rulers died without natural heirs. Iyer 2010 leverages the death of a ruler without a natural heir during this period as an instrument for British annexation.

<sup>&</sup>lt;sup>132</sup>The Appendix presents results from OLS specifications that include a dummy variable capturing European colonial institutions (see Table A14). One drawback of the dummy variable indicating colonial influence is that it does not capture nuances in colonial rule. It is possible, for example, that colonialism was more extractive in earlier stages, or that certain types of regions were more likely to be annexed first, or that the length of colonial rule shaped the intensity of institutional control. Table A15 explores this concern by replacing the indicator variable for colonial rule with a more fine-grained measure for colonial influence,

analysis,<sup>133</sup> I test whether colonial-era annexation policies explain the observed relationship between pre-colonial settlements and present-day outcomes.<sup>134</sup> Colonial-era institutions that are predicted by pre-colonial settlements have a statistically indistinguishable effect on my outcome variables (see Table A16). Taken together, these findings provide strong evidence that pre-colonial trading hubs were drivers of long-term structural change and that the effects of pre-colonial trade do not appear to work through colonial institutions.

### **Triggers and Channels of Change**

My results thus far provide strong evidence against the prevailing view that colonial institutions were critical catalysts of economic change, and indicate instead that the pre-colonial era, much more so than the colonial era, was an important moment of redirection in India's economic development. In order to analyze my second claim—that the primary catalysts for long-term economic change were not the formal institutional structures that have been the focus of recent work—I draw on two definitions of institutions highlighted by the literature on colonial legacies. The more narrow definition argues that institutions "secure property rights" for a "broad cross section of the society" such that "those with productive opportunities expect to receive returns from their investments."<sup>135</sup> The socio-economic labor market realignments in pre-colonial India neither expanded property rights nor enfranchised broad sections of the population, and thus do not conform to this narrow definition of institutional change.

The broader definition understands institutions as "rules or generalizable procedures"

the number of years of colonial rule. The findings are qualitatively the same as before. The results of both sets of analyses should be viewed with caution, however, as they are subject to post-treatment bias.

 $<sup>^{133}</sup>$ Imai et al. 2011.

<sup>&</sup>lt;sup>134</sup>First, I use a probit regression to estimate how pre-colonial settlements influence colonialera settlement patterns. Second, after controlling for pre-colonial settlements, I use an OLS regression to estimate how colonial-era settlement patterns influence structural change indicators.

<sup>&</sup>lt;sup>135</sup>AJR 2002, 1262.

that either solve collective action problems or allocate resources in society.<sup>136</sup> Because of its broad scope, it is difficult to decisively study how this definition appertains to the pre-colonial developments highlighted earlier. Yet, historians agree that amongst the European trading communities, "no effort was made to build new state and economic institutions which might respond better to the circumstances of the times and provide greater security and stability to the economy."<sup>137</sup> Because the European traders "had no especial wish to alter the internal social or political arrangements of the native inhabitants of these settlements,"<sup>138</sup> they simply propagated pre-existing institutional practices.<sup>139</sup> Thus, the historical scholarship of the precolonial era argues that the EICs did not create any generalizable rules or procedures for solving collective action problems and distributing resources, indicating that pre-colonial era developments do not accord with the broader definition of institutions.

There are certainly reasons to view this interpretation with caution. First, it is possible that the physical infrastructure introduced by the EICs triggered the divergence between the entrepôt economies of the early modern companies and the temple economies of the remainder of the subcontinent. In the absence of reliable quantitative data on physical capital indicators from the pre-colonial era, we can evaluate this claim by studying whether infrastructure disparities between both sets of regions persisted into the modern era. Table 9 tests whether districts containing pre-colonial EIC settlements have superior physical capital indicators compared to other regions in the subcontinent today. Across a wide range of infrastructure investments—railways, roads, buses, telegraphs, post offices, phone, tubewells, tanks, and taps—we find that both sets of districts are statistically indistinguishable from one another. Therefore, physical capital infrastructure did not serve as the conduit by which economic developments in the pre-colonial era were transmitted to the modern era.

[Table 9]

 $<sup>^{136}{\</sup>rm Mahoney}$  2010, 14-15.

 $<sup>^{137}</sup>$ Washbrook 2009, 189.

<sup>&</sup>lt;sup>138</sup>Appadurai 1974, 246.

 $<sup>^{139}</sup>$ Washbrook 2009.
Second, it is possible that although the EICs did not alter institutional structures, pernicious state and security transformations bedeviled other regions of pre-colonial India,<sup>140</sup> suppressing long-term economic success. Yet, the company towns did not have superior legal and security systems compared to other parts of India. The companies' security provisions were targeted at eliminating specific threats, rather than establishing any general sense of law and order.<sup>141</sup> Third, some might view the labor-market changes outlined above as signs of transformations in social institutions, such as the caste system. All accounts suggest, however, that the caste system and its attendant hierarchies did not disappear; rather than erase boundaries, the pre-colonial caste disturbances created more niche categories that, in turn, propagated the institutional structures of the caste system.<sup>142</sup>

Suffice it to say that it is very reasonable to posit that pre-colonial developments did not transform formal institutional structures—there were no political or legal transformations during this period—although it is perhaps more debatable whether they impacted informal institutions. The existing historiography of the pre-colonial era does not allude to the types of institutional changes that scholars of colonial institutions have highlighted. Instead, it most closely supports my interpretation that institutional transformations were not central to the pre-colonial era.

The labor realignments of the pre-colonial era resonate more strongly with an alternate set of non-institutional theories that highlight the transformative economy-wide effects of labor market de-segmentation.<sup>143</sup> My analysis sheds light on the mechanisms by which trade engenders competitive avenues for occupational entrepreneurialism in traditionally stratified societies. By introducing long-distance commerce, the EICs generated considerable flux in the economic and social makeup of labor markets, creating openings for skills accumulation and incentives for job mobility across sections of the population traditionally excluded from

<sup>&</sup>lt;sup>140</sup>Alam and Subrahmanyam 1998.

<sup>&</sup>lt;sup>141</sup>Watson 1980.

<sup>&</sup>lt;sup>142</sup>Washbrook 2007, 101-103.

<sup>&</sup>lt;sup>143</sup>Cain 1976; Dickens and Lang 1985; Hechter 1971.

opportunities for economic advancement. These shifting employment incentives permitted the creation of niche occupational specializations that converted the factory hubs of the EICs into clusters of economic dynamism.

If this interpretation is correct, then the mechanisms that converted pre-colonial trading hubs into economic powerhouses should be apparent even today. The economic prospects of the most historically disadvantaged caste groups in India provide one way to test this hypothesis. My earlier findings establish a clear association between pre-colonial settlements and modern population-wide literacy rates. I extend this analysis by studying literacy rates amongst scheduled caste communities, groups belonging to the lowest rungs of traditional caste hierarchies. Table 10, using similar specifications to my primary analysis, demonstrates that districts that once contained pre-colonial trading hubs have substantively higher scheduled caste literacy rates than other districts. Viewed in conjunction with the historiography of the pre-colonial era, this finding indicates that the same occupational entrepreneurialism that afforded societally disadvantaged groups opportunities for economic advancement in the trading hubs of the EICs continues to persist in these regions today.

[Table 10]

How did these pre-colonial transformations persist through the colonial era? First, because territorial and settlement patterns tend to be path dependent,<sup>144</sup> regions that were first exposed to these new forms of economic organization maintained their advantage in industry and commerce and, over time, became more industrialized and less dependent on agriculture compared to regions without pre-colonial trading hubs. Second, subsequent patterns of colonial conquest both cemented and augmented the lead that pre-colonial trading settlements developed. Company settlements became the foundations on which European nations built their empires and established their economic activities, further perpetuating the economic divergence created in the pre-colonial era.<sup>145</sup> Indeed, even during periods of economic decline in the subcontinent, the relative territorial distribution of skilled and

<sup>&</sup>lt;sup>144</sup>Mahoney 2003.

 $<sup>^{145}</sup>$ Washbrook 2009, 190.

unskilled workers remained intact.<sup>146</sup>

#### Conclusion

I argue that some of the very large long-term effects that scholars have attributed to colonialism might be a product not of the colonial state but of it commercial precursors. My findings are specific to the South Asian case, yet have the potential to be of much wider importance given that many European societies first made contact with indigenous societies through commercial penetration in specific trading nodes as opposed to outright political control. For example, the Portuguese developed littoral settlements on the coast of Angola in the early-seventeenth century, but only assumed full administrative control over the interiors in the twentieth century. The Dutch state took control of Indonesia in the nineteenth century, whereas the Dutch EIC established trading posts in Java beginning in the early 1600s. French commercial involvement in Vietnam and Cambodia flourished well before France colonized Indochina, while European traders controlled Aden for centuries prior to Britain's colonization of South Yemen.

While my paper does not attempt to make claims about these or other cases, it raises a productive set of research questions about the role of pre-colonial commerce in shaping (or thwarting) colonial consolidation and influencing, in turn, long-term trends in economic development: What are the empirical implications of distinguishing between the different temporal and spatial stages of European influence? How do colonial legacies differ between regions where pre-colonial trade was a long-drawn precursor to colonial rule and those, such as in Latin America, where commercial and colonial expansion occurred in tandem? Why did early modern long-distance trade set the stage for colonialism in some regions, but not others, such as in Japan or China, where the EICs had also initially established factory hubs? By ignoring the commercial stage of European interaction, scholars of colonialism are missing

 $<sup>^{146}</sup>$ Roy 1993.

an important part of the historical narrative—one that might have important ramifications for the empirical study of colonial-era transformations and legacies. Revisiting prevailing interpretations of empires as formal, bureaucratic, or institutional structures, and exploring their informal, commercial, and non-institutional antecedents might lead us to revise our understanding of some of the core findings advanced in the extensive literature on colonial legacies.

To the extent that my results reflect the dynamics by which skills-intensive commodity trades recalibrated the social and economic organization of labor markets, they contribute new insights to the broader study of the long-term triggers of economic development. During the pre-colonial era, the Indian subcontinent largely specialized in skills- and labor-intensive manufactured commodities, yet other regions of the world focused efforts on different types of exports: Spices from Sumatra, specie from Spanish America, and slaves from Senegal entered global trading networks cheek by jowl with Indian chintzes and calicoes. Points of convergence and divergence in the localized economic effects of these very different types of trades warrant specification. Additionally, outside of the colonial context, it is possible that the socio-economic and labor transformations induced by skills-intensive commodity trades injected dynamism more broadly into the stratified and ascriptive settings of all types of early-industrializing societies, including those in Europe and North America. Investigating how commerce breaks down barriers to labor mobility in hierarchical settings promises to further unpack the channels by which trade influences structural transformation.

#### References

- Abramson, Scott and Carles Boix. 2012. "The Roots of the Industrial Revolution: Political Institutions or (Socially Embedded) Know-How?" Working Paper.
- Acemoglu, Daron, Simon Johnson, and James Robinson. 2001. "The Colonial Origins of Comparative Development: An Empirical Investigation." American Economic Review 91 (5):1369.
- ———. 2002. "Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution." *Quarterly Journal of Economics* 117 (4):1231–1294.
- Adsera, Alicia and Carles Boix. 2003. "Trade, democracy, and the size of the public sector: The political underpinnings of openness." *International Organization* 56 (2):229–262.
- Alam, Muzaffar and Sanjay Subrahmanyam. 1998. The Mughal state, 1526-1750. Delhi: Oxford University Press.
- Appadurai, Arjun. 1974. "Right and Left Hand Castes in South India." Indian Economic Social History Review 11:216–259.
- Arasaratnam, Sinnappah. 1980. "Weavers, merchants and company: the handloom industry in southeastern India 1750-1790." Indian Economic and Social History Review 17 (3):257–281.
- ———. 1994. Maritime India in the seventeenth century. Delhi: Oxford University Press.
- ———. 1996. In *Cloth and commerce: textiles in colonial India*, edited by Tirthankar Roy. Delhi: Sage.
- Bairoch, Paul. 1982. "International industrialization levels from 1750-1980." Journal of European Economic History 11 (1):269–333.

- Banerjee, Abhijit and Lakshmi Iyer. 2005. "History, Institutions, and Economic Performance: The Legacy of Colonial Land Tenure Systems in India." *American Economic Review* 95 (4):1190–1213.
- Bayly, Christopher. 1988. Indian Society and the Making of the British Empire. Cambridge: Cambridge University Press.
- Braudel, Fernand. 1972. The Mediterranean and the mediterranean world in the age of Philip II. New York: Harper and Row.
- Cain, Glen. 1976. "The Challenge of Segmented Labor Market Theories to Orthodox Theory: A Survey." *Journal of Economic Literature* 14 (4):1215–1257.
- Cameron, David. 1978. "The Expansion of the Public Economy: A Comparative Analysis." American Political Science Review 72:1243–1261.
- Chandavarkar, Rajnarayan. 1994. The origins of industrial capitalism in India. Cambridge: Cambridge University Press.
- Chaudhuri, Kirti. 1965. The English East India Company: study of the early joint-stock company, 1600-1640. New York: Taylor and Francis.
- ———. 1978. The trading world of Asia and the English East India Company, 1660-1760. Cambridge: Cambridge University Press.
- ——. 1985. Trade and civilisation in the Indian Ocean: an economic history from the rise of Islam to 1750. Cambridge: Cambridge University Press.
- ——. 1990. Asia before Europe: economy and civilisation of the Indian Ocean from the rise of Islam to 1750. Cambridge: Cambridge University Press.
- ———. 1996. In *Cloth and commerce: textiles in colonial India*, edited by Tirthankar Roy. Delhi: Sage.

- Chaudhury, Sushil. 1995. From prosperity to decline: eighteenth century Bengal. Delhi: Manohar.
- Cohen, Benjamin. 1973. The Question of Imperialism: The Political Economy of Dominance and Dependence. New York: Basic Books.
- Conley, Timothy, Christian Hansen, and Peter Rossi. 2012. "Plausibly Exogenous." *Review* of *Economics and Statistics* 94 (1):260–272.
- Danvers, Frederick and William Foster. 1896-1902. Letters received by the East India Company from its servants in the East, 1602-1617 6 vols. London: Low Marston.
- Dell, Melissa. 2010. "The Persistent Effects of Peru's Mining Mita." *Econometrica* 78 (6):1863–1903.
- Dewey, Clive. 1993. Anglo-Indian attitudes: the mind of the Indian Civil Service. London: Hambledon.
- Dickens, William and Kevin Lang. 1985. "A Test of Dual Labor Market Theory." The American Economic Review 75 (4):792–805.
- Engerman, Stanley and Kenneth Sokoloff. 2002. "Factor Endowments, Inequality, and Paths of Development Among New World Economies." NBER Working Paper 9259.
- Engerman, Stanley L. and Kenneth L. Sokoloff. 2005. "Colonialism, Inequality and Long-Run Paths to Development." *NBER working paper no. 11057*.
- Erikson, Emily and Peter Bearman. 2006. "Malfeasance and the Foundations for Global Trade: The Structure of English Trade in the East Indies, 1601–1833." American Journal of Sociology 112 (1):195–230.
- Fails, Matthew and Jonathan Krieckhaus. 2010. "Colonialism, Property Rights and the Modern World Income Distribution." British Journal of Political Science 40 (3):487–508.

- Fawcett, Charles and William Foster. 1936-1955. The English factories in India, new series, 1670-1684, 4 vols. Oxford: Clarendon.
- Feyrer, James and Bruce Sacerdote. 2009. "Colonialism and Modern Income: Islands as Natural Experiments." American Economic Review 91 (2):245–262.
- Foster, William. 1906. "The English factories in India, 1618-1621." In The English factories in India, 1618-1669, vol. 1. Oxford: Clarendon Press.
- ———. 1906-1927. The English factories in India, 1618-1669. 13 vols. Oxford: Clarendon Press.
- ———. 1909. "The English factories in India, 1624-1629." In *The English factories in India*, 1618-1669, vol. 3. Oxford: Claredon.
- ———. 1912. "The English factories in India, 1637-1641." In The English factories in India, 1618-1669, vol. 6. Oxford: Clarendon.
- ———. 1921. "The English factories in India, 1655-1660." In The English factories in India, 1618-1669, vol. 10. Oxford: Clarendon.
- Frieden, Jeffry. 1991. "Invested Interests: The Politics of National Economic Policies in a World of Global Finance." International Organization 45:425–451.
- Frieden, Jeffry A. 1989. "The Economics of Intervention: American Overseas Investments and Relations with Underdeveloped Areas, 1890-1950." Comparative Studies in Society and History 31:55–80.
- ———. 1994. "International Investment and Colonial Control: A New Interpretation." *International Organization* 48 (4):559–593.
- Gabel, M. 1998. "Economic integration and mass politics." American Journal of Political Science 42:936–953.

- Garrett, Geoffrey. 1998. "Global Markets and National Politics: Collision Course or Virtuous Circle?" International Organization 52 (4):787–824.
- Gartzke, Erik and Dominic Rohner. 2011. "The Political Economy of Imperialism, Decolonization and Development." *British Journal of Political Science* 41 (03):525–556.
- Glaeser, Edward, Rafael La Porta, Florencio Lopez-De-Silanes, and Andrei Shleifer. 2004."Do Institutions Cause Growth?" Journal of Economic Growth 9:271–303.
- Gourevitch, Peter. 1978. "The Second Image Reversed: The International Sources of Domestic Politics." *International Organization* 32 (4):881–912.
- Greif, Avner. 1994. "Cultural Beliefs and the Organization of Society: A Historical and Theoretical Reflection on Collectivist and Individualist Societies." Journal of Political Economy 102:912–950.
- Gupta, Ashin Das. 1998. In *The Mughal state*, 1526-1750, edited by Muzaffar Alam and Sanjay Subrahmanyam. Delhi: Oxford University Press.
- Hamilton, Alexander. 1727. A New Account of the East Indies. Edinburgh: John Mosman.
- Hamilton, Charles. 1919. The trade relations between England and India, 1600-1896. Calcutta: Thacker Spink.
- Hariri, Jacob Gerner. 2012. "The Autocratic Legacy of Early Statehood." American Political Science Review 106 (3):471–494.
- Hechter, Michael. 1971. "Towards a Theory of Ethnic Change." Politics and Society 2:21-45.
- Hobson, John. 1938. Imperialism. Ann Arbor: University of Michigan Press.
- Imai, Kosuke, Luke Keele, Dustin Tingley, and Teppei Yamamoto. 2011. "Unpacking the Black Box of Causality: Learning about Causal Mechanisms from Experimental and Observational Studies." American Political Science Review 105 (4):765–789.

- Israel, Jonathan. 1989. Dutch primacy in world trade, 1585-1740. Oxford: Oxford University Press.
- Iyer, Lakshmi. 2010. "Direct Versus Indirect Colonial Rule in India: Long Term Consequences." *The Review of Economics and Statistics* XCII (4).
- Jha, Saumitra. 2013. "Trade, Institutions and Ethnic Tolerance: Evidence from South Asia." American Political Science Review 107 (4):806–832.
- Jia, Ruixue. Forthcoming. "The Legacies of Forced Freedom: China's Treaty Ports." *Review* of *Economics and Statistics*.
- Keay, John. 1991. The Honourable Company: A History of the English East India Company. HarperCollins.
- Keele, Luke. 2010. "An overview of rbounds: An R package for Rosenbaum bounds sensitivity analysis with matched data." Working Paper.
- Kosack, Stephen and Jennifer Tobin. 2006. "Funding Self-Sustaining Development: The Role of Aid, FDI and Government in Economic Success." *International Organization* 60 (01):205–243.
- ———. 2012. "Trade and Human Development: A Race to the Bottom or the Top?" Paper Presented at Annual IPES Conference.
- Krugman, Paul. 1990. "Increasing Returns and Economic Geography." NBER Working Paper 3275.
- Laitin, David D. 1982. "Capitalism and Hegemony: Yorubaland and the International Economy." International Organization 36 (4):687–713.
- Lange, Matthew. 2004. "British Colonial Legacies and Political Development." World Development 32 (6):905–922.

- Lange, Matthew, James Mahoney, and Matthias vom Hau. 2006. "Colonialism and Development: A Comparative Analysis of Spanish and British Colonies." American Journal of Sociology 111 (5):1412–1462.
- Lankina, Tomila and Lullit Getachew. 2013. "Competitive Religious Entrepreneurs: Christian Missionaries and Female Education in Colonial and Post-Colonial India." British Journal of Political Science 43 (1):103–131.
- Laporta, Rafael, Florencio Lopez-de Silanes, and Andrei Shleifer. 2007. "The Economic Consequences of Legal Origins." *NBER Working Paper No. 13608*.
- Laporta, Rafael, Florencio Lopez-de Silanes, Andrei Shleifer, and Robert Vishny. 1998. "Law and Finance." *Journal of Political Economy* 106 (6):1113–1155.
- Lenin, V.I. 1970. Imperialism: The Highest Stage of Capitalism. New York: International Publishers.
- Leonard, Karen. 1998. In *The Mughal state*, 1526-1750, edited by Muzaffar Alam and Sanjay Subrahmanyam. Delhi: Oxford University Press.
- Lipson, Charles. 1985. Standing Guard: Protecting Foreign Capital in the Nineteenth and Twentieth Centuries. Berkeley: University of California Press.
- Mahoney, James. 2003. "Long-Run Development and the Legacy of Colonialism in Spanish America." *American Journal of Sociology* 109 (1):50–106.
- ———. 2010. Colonialism and Postcolonial Development: Spanish America in Comparative Perspective. Cambridge: Cambridge University Press.
- Marshall, Peter. 1987. *Bengal: the British bridgehead*. Cambridge: Cambridge University Press.
- Metcalf, Thomas. 1994. Ideologies of the Raj. Cambridge: Cambridge University Press.

- Mill, James. 1817. The history of British India. London: Paternoster Row.
- Milner, Helen V. 1988. Resisting protectionism : global industries and the politics of international trade. Princeton, N.J.: Princeton University Press.
- Mizushima, Tsukasa. 1986. Nattar and Socio-Economic Change in South India in 18th and 19th Centuries. Tokyo: Tokyo University Press.
- Naoroji, Dadabhai. 1901. Poverty and un-British rule in India. London: Sonnenschein.
- North, Douglass. 1990. Institutions, institutional change, and economic performance. Cambridge: Cambridge University Press.
- Nunn, Nathan. 2007. "Historical Legacies: A Model Linking Africa's Past to its Current Underdevelopment." Journal of Development Economics 83:157–175.
- ———. 2008. "The Long-Term Effects of Africa's Slave Trades." Quarterly Journal of Economics 123 (1):139–175.
- Nunn, Nathan and Diego Puga. 2012. "Ruggedness: The blessing of bad geography in Africa." *Review of Economics and Statistics* 94 (1):20–36.
- Parthasarathi, Prasannan. 1998. "Rethinking wages and competitiveness in the eighteenth century: Britain and South India." *Past and Present* (158):79–109.
- ———. 2001. The transition to a colonial economy: weavers, merchants and kings in South India, 1720-1800. Cambridge: Cambridge University Press.
- Pepinsky, Thomas. 2013. "Colonial Migration and the Deep Origins of Governance: Theory and Evidence from Java." Working Paper.
- Prakash, Om. 1976. "Bullion for Goods: International Trade and the Economy of Early Eighteenth-Century Bengal." Indian Economic and Social History Review 13:173–5.

- ———. 1985. The Dutch East India Company and the economy of Bengal, 1630-1720. Princeton: Princeton University Press.
- Ramaswamy, Vijaya. 1985. Textiles and Weavers in Medieval South India. Delhi: Oxford University Press.
- Raychaudhuri, Tapan. 1983. In *The Cambridge Economic History of India*, edited by Dharma Kumar and Meghnad Desai. Cambridge: Cambridge University Press.
- Richards, John. 1993. The new Cambridge history of India, The Mughal Empire. Cambridge: Cambridge University Press.
- Riello, Giorgio and Tirthankar Roy. 2009. How India clothed the world: the world of South Asian textiles, 1500-1850. Boston: Brill.
- Rodrik, D. 1997. *Has Globalization Gone Too Far?* DC: Institute for International Economics.
- ———. 1998. "Why do more open economies have bigger governments?" Journal of Political Economy 106 (5):997–1032.
- Rodrik, D., Arvind Subramanian, and F. Trebbi. 2004. "Institutions Rule: The Primacy of Institutions Over Geography and Integration in Economic Development." *Journal of Economic Growth* 9 (2):131–165.
- Rogowski, Ronald. 1989. Commerce and coalitions : how trade affects domestic political alignments. Princeton, N.J.: Princeton University Press.
- Roy, T. 2009. "Did globalisation aid industrial development in colonial India? A study of knowledge transfer in the iron industry." *Indian Economic and Social History Review* 46 (4):579–613.
- Roy, Tirthankar. 1993. Artisans and industrialization: Indian weaving in the twentieth century. New York: Oxford University Press.

- Rudra, Nita. 2011. "Openness and the Politics of Potable Water." Comparative Political Studies 44 (771).
- Sachs, Jeffrey. 2003. "Institutions Don't Rule: Direct Effects of Geography on Per Capita Income." NBER Working Paper 9490.
- Schwartzberg, Joseph and Shiva Bajpai. 1992. A Historical atlas of South Asia. New York: Oxford University Press, 2 ed.
- Spruyt, Hendrik. 1994. The Sovereign State and its Competitors: An Analysis of Systems Change. Princeton: Princeton University Press.
- Stasavage, David. 2002. "Credible Commitment in Early Modern Europe: North and Weingast Revisited." Journal of Law, Economics, and Organization 18 (1):155–186.
- ——. 2014. "Was Weber Right? The Role of Urban Autonomy in Europe's Rise." *American Political Science Review* First View.
- Subrahmanyam, Sanjay. 1990. The political economy of commerce southern India, 1500-1650.Cambridge: Cambridge University Press.
- ———. 1993. The Portuguese empire in Asia, 1500-1700: a political and economic history. London: Longman.
- ———. 1994. Money and the market in India, 1100-1700. Delhi: Oxford University Press.
- Treisman, Daniel. 2000. "The causes of corruption: a cross-national study." Journal of Public Economics 76:399–457.
- Vanneman, Reeve and Douglas Barnes. 2000. Indian District Database, 1961-1991. College Park: Center on Population, Gender, and Social Inequality.
- Washbrook, David. 1993. In Dalit Movements and the Meanings of Labour in India, edited by Peter Robb. Delhi: Oxford University Press.

——. 2007. "India in the early modern world economy: modes of production, reproduction and exchange." *Journal of Global History* 2 (1):87–111.

- ———. 2009. "The Textile Industry and the Economy of South India, 1500-1800." In *How India clothed the world: the world of South Asian textiles, 1500-1850*, edited by Giorgio Riello and Tirthankar Roy. Boston: Brill.
- Watson, Ian. 1980. Foundation for empire: English private trade in India, 1659-1760. Delhi: Vikas.
- Wibbels, Erik. 2006. "Dependency Revisited: International Markets, Business Cycles, and Social Spending in the Developing World." *International Organization* 60:433–468.
- Wilbur, Marguerite Eyer. 1945. The East India Company and the British Empire in the Far East. New York: Richard R. Smith.
- Woodberry, Robert D. 2012. "The Missionary Roots of Liberal Democracy." American Political Science Review 106 (02):244–274.



Figure 1: EIC Settlements in Pre-Colonial Era



# Figure 2: Literacy, Farming, and Manufacturing Rates (1991)

		1991 Census		Pooled 1961 - 1991 Censuses			
	(1)	(2)	(3)	(4)	(5)	(6)	
Panel A: Proportion of Workforce in Farming							
European Pre-colonial dummy	-0.1727 (0.0358)	-0.1893 (0.0353)	-0.1277 (0.0452)	-0.1640 (0.0332)	-0.1767 (0.0340)	-0.1200 (0.0480)	
Pre-European dummy		0.0387 (0.0220)	0.0391 (0.0200)		0.0286 (0.0202)	0.0366 (0.0192)	
Observations	331	331	321	1,339	1,339	1,272	
Adjusted R-squared	0.1182	0.1261	0.1875	0.1227	0.1280	0.2066	
Panel B: Proportion of Workforce in Manufacturi	ng						
European Pre-colonial dummy	0.0659 (0.0126)	0.0686 (0.0124)	0.0485 (0.0168)	0.0608 (0.0121)	0.0637 (0.0123)	0.0472 (0.0181)	
Pre-European dummy		-0.0062 (0.0057)	-0.0103 (0.0056)		-0.0063 (0.0053)	-0.0113 (0.0054)	
Observations	331	331	321	1,339	1,339	1,272	
Adjusted R-squared	0.1623	0.1622	0.1951	0.1930	0.1952	0.2253	
Panel C: Literacy Rate							
European Pre-colonial dummy	0.1605 (0.0325)	0.1694 (0.0341)	0.0706 (0.0211)	0.1536 (0.0291)	0.1596 (0.0311)	0.0752 (0.0231)	
Pre-European dummy		-0.0209 (0.0178)	-0.0298 (0.0144)	· · · · · · · · · · · · · · · · · · ·	-0.0135 (0.0150)	-0.0252 (0.0127)	
Observations	331	331	321	1,340	1,340	1,273	
Adjusted R-squared	0.1686	0.1711	0.3308	0.4106	0.4121	0.5326	
<i>Geographic and Soil Controls</i> : Latitude, Mean annual rainfall, Coast dummy, Proportion sandy, Proportion barren/rocky	No	No	Yes	No	No	Yes	
Year-fixed effects	No	No	No	Yes	Yes	Yes	

## Table 1. Indicators of Long-Term Structural Transformation

	<u> </u>	1991 Census		1 Censuses
	(1)	(2)	(3)	(4)
Panel A: Proportion of Workforce in Farming				
European Pre-colonial dummy	-0.1756 (0.0517)	-0.2219 (0.0697)	-0.1652 (0.0610)	-0.2059 (0.0741)
Pre-European dummy	0.1133 (0.0602)	0.1202 (0.0665)	0.1332 (0.0743)	0.1357 (0.0763)
Observations	50	50	197	197
Adjusted R-squared	0.1471	0.1614	0.2293	0.2726
Panel B: Proportion of Workforce in Manufacturing				
European Pre-colonial dummy	0.0838 (0.0235)	0.0916 (0.0300)	0.0758 (0.0321)	0.0863 (0.0371)
Pre-European dummy	-0.0525 (0.0168)	-0.054 (0.0179)	-0.058 (0.0279)	-0.0587 (0.0289)
Observations	50	50	197	197
Adjusted R-squared	0.0715	0.0626	0.1679	0.1796
Panel C: Literacy Rate				
European Pre-colonial dummy	0.0784 (0.0446)	0.1096 (0.0448)	0.0876 (0.0421)	0.1149 (0.0421)
Pre-European dummy	-0.0404 (0.0413)	-0.0450 (0.0437)	-0.0524 (0.0443)	-0.0541 (0.0441)
Observations	50	50	197	197
Adjusted R-squared	0.4510	0.4729	0.5978	0.6287
Geographic and Soil Controls: Latitude, Mean annual				
rainfall, Proportion sandy, Proportion barren/rocky	Yes	Yes	Yes	Yes
Additional Geographic Controls: Coast length, Altitude	No No	Yes	No Vos	Yes
rear fixed Effects	INO	INO	res	res

### Table 2. Restricting Sample to Only Coastal Districts

Table 3.	Matching Analysis
LADIC J.	Matching Analysis

		Nearest-Neigh	bor Matching		Propensity Score Matching			
	1991	Census	1961 - 199	1 Censuses	1991 Census		1961 - 199	1 Censuses
	All Districts Coastal Only		All Districts Coastal Only		All Districts Coastal Only		All Districts	<b>Coastal Only</b>
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Proportio	n of Workforce	in Farming						
ATT	-0.1323 (0.0477)	-0.3138 (0.0848)	-0.1136 (0.0237)	-0.2560 (0.0381)	-0.1367 (0.0576)	-0.2487 (0.0664)	-0.1837 (0.0321)	-0.1935 (0.0382)
Year Fixed Effects Observations	No 321	No 50	Yes 1,272	Yes 197	No 321	No 50	Yes 1,272	Yes 197
Panel B: Proportio	n of Workforce	in Manufacturing	g					
ATT	0.0621 (0.0202)	0.1514 (0.0459)	0.0528 (0.0103)	0.1086 (0.0165)	0.0303 (0.0290)	0.0846 (0.0258)	0.0611 (0.0129)	0.0643 (0.0156)
Year Fixed Effects Observations	No 321	No 50	Yes 1,272	Yes 197	No 321	No 50	Yes 1,272	Yes 197
Panel C: Literacy I	Rate							
ATT	0.0839 (0.0352)	0.1900 (0.0468)	0.0774 (0.0165)	0.1510 (0.0209)	0.1140 (0.0376)	0.2074 (0.0588)	0.0890 (0.0253)	0.1262 (0.0299)
Year Fixed Effects Observations	No 321	No 50	Yes 1,273	Yes 197	No 321	No 50	Yes 1,273	Yes 197

*Note:* Standard errors in parentheses. Sample is matched on the following pre-treatment covariates: Latitude, Coast dummy, Mean annual rainfall, Proportion sandy, Proportion barren/rocky

	Cor	relations Using (	Only Coastal Districts		
	(1)	(2)	(3)	(4)	(5)
European Pre-colonial dummy	-36.7010 (8.7838)	-38.3290 (8.7987)	-21.6123 (6.3894)	-31.4381 (13.6806)	-25.7541 (14.9533)
Pre-European dummy		3.4938 (4.7596)	7.4540 (4.4333)	11.9135 (10.7711)	18.2275 (8.8816)
Observations Adjusted R-squared	377 0.0754	377 0.0743	342 0.1954	52 0.0844	50 0.2007
<i>Geographic and Soil Controls</i> : Latitude, Mean annual rainfall, Coast length, Altitude, Proportion sandy, Proportion barren/rocky	No	No	Yes	No	Yes

## Table 4. Alternate Development Outcomes: Infant Mortality Rates in 1991

Logic Guiding Site Selection	Predicted Evidence
Moral	Consideration of demographic, socio-economic and religious characteristics
Extractive	Consideration of natural resources, wealth levels, and taxation potential
Commercial	Consideration of local economies, trading networks and investment opportunities
Geopolitical	Consideration of security threat and potential for expropriation by foreign and local actors

# Table 5. Overview of Competing Logics Guiding Site Selection

	1991 Census		1961 - 199	1 Censuses
-	(1)	(2)	(3)	(4)
Panel A: Proportion of Workforce in Farming				
European Pre-colonial dummy	-0.1775 (0.0379)	-0.2788 (0.0720)	-0.1713 (0.0363)	-0.2743 (0.0685)
Pre-European dummy		0.0598 (0.0442)		0.1077 (0.0711)
Observations	33	33	129	129
Adjusted R-squared	0.1540	0.2062	0.1707	0.3914
Panel B: Proportion of Workforce in Manufacturing				
European Pre-colonial dummy	0.0641 (0.0190)	0.1338 (0.0328)	0.0661 (0.0149)	0.1290 (0.0407)
Pre-European dummy		-0.0373 (0.0133)		-0.0478 (0.0354)
Observations	33	33	129	129
Adjusted R-squared	0.0979	0.3069	0.1497	0.3774
Panel C: Literacy Rate				
European Pre-colonial dummy	0.1364	0.1335	0.1330	0.1416
Pre-European dummy	(0.0391)	(0.0445) -0.0544	(0.0362)	(0.0418) -0.0697
		(0.0350)		(0.0402)
Observations	33	33	129	129
Adjusted R-squared	0.1995	0.6467	0.4822	0.7881
<i>Geographic and Soil Controls</i> : Latitude, Mean annual rainfall, Coast length, Altitude, Proportion sandy,				
Proportion barren/rocky	No	Yes	No	Yes
Year Fixed Effects	No	No	Yes	Yes

# Table 6. Restricting Sample to Only Districts With Geographically ProtectedNatural Harbors

# Table 7. Instrumental Variables Analysis Using Geographically ProtectedNatural Harbors

	1991 (	Census	1961 - 199	l Censuses
	(1)	(2)	(3)	(4)
Panel A: Second Stage Relationship. Dependent Varia	ble is Proportio	n of Workforce in	Farming	
European Pre-colonial dummy Pre-European dummy	-0.2286 (0.0481)	-0.2384 (0.0910) 0.0518 (0.0226)	-0.2104 (0.0238)	-0.2084 (0.0466) 0.0469 (0.0111)
Observations Adjusted R-squared	331 0.1082	321 0.1805	1,339 0.1163	1,272 0.1956
Panel B: Second Stage Relationship. Dependent Varia	ble is Proportio	n of Workforce in	Manufacturing	
European Pre-colonial dummy Pre-European dummy	0.0915 (0.0210)	0.1177 (0.0393) -0.0183 (0.0090)	0.0785 (0.0106)	0.1031 (0.0211) -0.0178 (0.0045)
Observations Adjusted R-squared	331 0.1399	321 0.1275	1,339 0.1829	1,272 0.1725
Panel C: Second Stage Relationship. Dependent Varia	ble is Literacy l	Rate		
European Pre-colonial dummy Pre-European dummy	0.2801 (0.0369)	0.3047 (0.0752) -0.0594 (0.0182)	0.2559 (0.0176)	0.272 (0.0355) -0.0508 (0.0082)
Observations Adjusted R-squared	331 0.0760	321 0.1475	1,340 0.3503	1,273 0.4047
Panel D: First Stage Relationship. Dependent Variabl	e is European P	re-Colonial Dumn	ny	
Protected Harbor Dummy Pre-European dummy	0.6467 (0.0794)	0.4467 (0.1209) 0.1181 (0.0412)	0.6421 (0.0403)	0.4385 (0.0602) 0.1203 (0.0205)
Observations Adjusted R-squared F-statistic	331 0.3007 66.42	321 0.3811 13.65	1,348 0.2940 253.18	1,281 0.3836 52.50
<i>Geographic and Soil Controls</i> : Latitude, Mean annual rainfall, Coast length, Proportion sandy, Proportion barren/rocky	No	Yes	No	Yes
Year Fixed Effects	No	No	Yes	Yes

Note: Robust standard errors in parentheses

Effect of European Colonial Institutions: Iyer (2010)			Effect of European Pre-colonial Trading Hubs					
	1991 (	Census		1991 Census				
	Instrumental			Instrumental	OLS A	pproach		
	Variable	OLS		Variable	Direct Rule	Indirect Rule		
	Approach	Approach		Approach	Districts	Districts		
	(1)	(2)		(3)	(4)	(5)		
Panel A: Proportion of Workfo	orce in Farming		Panel A: Proportion of Workfo	orce in Farming				
European Colonial dummy	0.0641	0.0004	European Pre-colonial dummy	-0.2384	-0.1850	-0.1706		
	(0.0454)	(0.0230)		(0.0910)	(0.0511)	(0.0579)		
Panel B: Proportion of Workfo	orce in Manufactur	ing	Panel B: Proportion of Workfo	orce in Manufaci	uring			
European Colonial dummy	-0.0129	0 0031	European Pre-colonial dummy	0 1177	0 0693	0.0646		
	(0.0124)	(0.0078)		(0.0393)	(0.0177)	(0.0239)		
Devel C. L'Anne en De A								
Panel C: Literacy Rate	0.0201	0.0120	Panel C: Literacy Kate	0 20 47	0.0029	0 1442		
European Colonial dummy	0.0291	0.0138	European Pre-colonial dummy	0.3047	0.0938	0.1443		
	(0.0564)	(0.0252)		(0.0752)	(0.0251)	(0.0366)		
Observations	155	155		321	198	123		

#### Table 8. Comparing Effects of Colonial Institutions and Pre-Colonial Trading Hubs

*Note*: Iyer (2010) uses the death of a native ruler without a natural heir between 1848-1856 as an instrument for British direct rule. Geographically protected natural harbors are used as an instrument for pre-colonial trading hubs. The following pre-treatment geographic and soil controls are used in all specifications: Latitude, Mean annual rainfall, Coast length, Proportion sandy, Proportion barren/rocky.

	Railways	Roads	Buses	Phones	Telegraphs	<b>Post Offices</b>	Tubewells	Tanks	Taps
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
European Pre-colonial dummy	-0.0873	6.8765	7.7315	-9.0767	-6.3991	-57.1752	-96.9092	-112.0119	34.0381
	(19.4912)	(59.5354)	(93.8811)	(21.5333)	(10.9025)	(58.8237)	(313.4181)	(120.5124)	(60.1555)
Pre-European dummy	1.0614	76.3105	81.9066	26.9167	15.7854	83.4535	-20.7742	-96.0451	-18.5824
-	(3.5728)	(49.4118)	(39.5018)	(13.5247)	(5.4891)	(38.4279)	(95.0989)	(43.1678)	(38.9430)
Observations	315	315	315	315	315	315	315	315	315
Adjusted R-squared	0.0382	0.0349	0.1651	0.1608	0.2758	0.1035	0.0215	0.0163	0.0387
Geographic and Soil Controls:									
Latitude, Mean annual rainfall, Coast									
dummy, Proportion sandy, Proportion									
barren/rocky	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

## Table 9. Channels of Causality: Physical Infrastructure Indicators in 1991

	Correlations Using OLS			Only Coas	tal Districts	Only Protected Harbors	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
European Pre-colonial dummy	0.1480 (0.0358)	0.1550 (0.0373)	0.1244 (0.0319)	0.1360 (0.0437)	0.1283 (0.0486)	0.1409 (0.0529)	0.1260 (0.0551)
Pre-European dummy		-0.0154 (0.0174)	-0.0273 (0.0129)		-0.0559 (0.0494)		-0.0626 (0.0508)
Observations Adjusted R-squared	363 0.1026	363 0.1022	342 0.2497	50 0.1503	50 0.2243	33 0.1730	33 0.3454
<i>Geographic and Soil Controls</i> : Latitude, Mean annual rainfall, Coast dummy, Proportion sandy, Proportion barren/rocky	No	No	Vec	No	Vec	No	Vec

#### Table 10. Channels of Causality: Scheduled Castes Literacy Rates in 1981

#### Supplementary Appendix

#### East India Companies and Long-Term Economic Change in India

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## Table A1. European-South Asian Commercial Contacts, 16th - 18th Century

Sources: Schwartzberg (1992); Foster (1906-1927); Fawcett and Foster (1936); Danvers (1968); British Library Archives

1 ArmagaonIndiaAndhra PradeshBritain2 BandarmurlankaIndiaAndhra PradeshBritain, France3 BimlipatamIndiaAndhra PradeshNetherlands4 DraksharamaIndiaAndhra PradeshNetherlands5 GolcondaIndiaAndhra PradeshNetherlands6 InjaramIndiaAndhra PradeshBritain	
I ArmagaonIndiaAndhra PradeshBritain2 BandarmurlankaIndiaAndhra PradeshBritain, France3 BimlipatamIndiaAndhra PradeshNetherlands4 DraksharamaIndiaAndhra PradeshNetherlands5 GolcondaIndiaAndhra PradeshNetherlands6 InjaramIndiaAndhra PradeshBritain	
2 BandarmurlankaIndiaAndhra PradeshBritain, France3 BimlipatamIndiaAndhra PradeshNetherlands4 DraksharamaIndiaAndhra PradeshNetherlands5 GolcondaIndiaAndhra PradeshNetherlands6 InjaramIndiaAndhra PradeshBritain	
3 BimlipatamIndiaAndhra PradeshNetherlands4 DraksharamaIndiaAndhra PradeshNetherlands5 GolcondaIndiaAndhra PradeshNetherlands6 InjaramIndiaAndhra PradeshBritain	
4 DraksharamaIndiaAndhra PradeshNetherlands5 GolcondaIndiaAndhra PradeshNetherlands6 InjaramIndiaAndhra PradeshBritain	
5 Golconda India Andhra Pradesh Netherlands 6 Iniaram India Andhra Pradesh Britain	
6 Injaram India Andhra Pradesh Britain	
o ngarani nana Anania Francisi Ditani	
7 Jagannathapuram (Cocanada) India Andhra Pradesh Netherlands	
8 Masulipatam India Andhra Pradesh Netherlands, Britain, France	
9 Nagelwanze India Andhra Pradesh Netherlands	
10 Narasapur/Madapallam India Andhra Pradesh Britain, Netherlands	
11 Nizampatam/Petapoli India Andhra Pradesh Netherlands, Britain	
12 Palakollu India Andhra Pradesh Netherlands	
13 Viravasam India Andhra Pradesh Britain	
14 Vizagapatam (incl. Waltair) India Andhra Pradesh Britain	
15 Patna India Bihar Netherlands, Britain, France	
16 Daman India Daman and Diu Portugal	
17 Diu India Daman and Diu Portugal	
18 Anjidiv I India Goa Portugal	
19 Goa India Goa Portugal	
20 Ahmadabad India Gujarat Netherlands, Britain	
21 Broach India Gujarat Netherlands, Britain	
22 Cambay India Gujarat Britain, Netherlands	
23 Gogo India Gujarat Britain	
24 Surat India Gujarat Portugal, Britain, Netherlands, Fran	ce
25 Swally India Gujarat Britain	
26 Bhatkal India Karnataka Portugal, Britain	
27 Coondapoor, Barcelore India Karnataka Netherlands, Portugal	
28 Honavar India Karnataka Portugal	
29 Kalianpur India Karnataka Portugal	
30 Karwar India Karnataka Britain	
31 Mangalore India Karnataka Netherlands	
32 Anjengo India Kerala Britain	
33 Beypore India Kerala Portugal	
34 Calicut India Kerala Britain, France, Denmark	
35 Cannanore India Kerala Netherlands, Portugal	
36 Chetwai India Kerala Netherlands	
37 Cochin India Kerala Netherlands, Portugal	
38 Cotacuna India Kerala Britain	
39 Cranganur India Kerala Netherlands, Portugal	
40 Eddowa India Kerala Denmark	
41 Kayankulum India Kerala Netherlands	
42 Pallipuram India Kerala Netherlands, Portugal	

#### Table A1. European-South Asian Commercial Contacts, 16th - 18th Century

Sources: Schwartzberg (1992); Foster (1906-1927); Fawcett and Foster (1936); Danvers (1968); British Library Archives

No.	Settlement	Country	Current State	European Powers
43	Ponnani	India	Kerala	Portugal, Netherlands
44	Porakad	India	Kerala	Netherlands, Britain
45	Quilon, Tengasseri	India	Kerala	Netherlands, Portugal
46	Tanur	India	Kerala	Portugal
47	Tellicherry	India	Kerala	Britain
48	Villenjum (Brinjao)	India	Kerala	Britain, Portugal
49	Vittoor (Returrah)	India	Kerala	Britain
50	Burhanpur	India	Madhya Pradesh	Britain
51	Bassein	India	Maharashtra	Portugal
52	Bombay	India	Maharashtra	Britain, Portugal
53	Chaul	India	Maharashtra	Portugal
54	Dabhol	India	Maharashtra	Portugal, Britain
55	Dharangaon	India	Maharashtra	Britain
56	Rajapur	India	Maharashtra	Britain
57	Salsette I	India	Maharashtra	Portugal
58	Thane	India	Maharashtra	Britain
59	Vengurla	India	Maharashtra	Netherlands
60	Balasore (incl. Balramgarhi)	India	Orissa	Britain, Netherlands, Denmark, France
61	Ganjam	India	Orissa	Britain, France
62	Hariharpur	India	Orissa	Britain
63	Pipli	India	Orissa	Netherlands, Britain, Portugal
64	Karikal	India	Puducherry	France
65	Mahe	India	Puducherry	France
66	Pondicherry	India	Puducherry	France
67	Yanam	India	Puducherry	France
68	Cape Comorin	India	Tamil Nadu	Netherlands
69	Conimere	India	Tamil Nadu	Britain
70	Covelong	India	Tamil Nadu	Austria
71	Cuddalore	India	Tamil Nadu	Britain
72	Kayalpatnam/Punneikayal	India	Tamil Nadu	Portugal, Netherlands
73	Kilacare	India	Tamil Nadu	Netherlands
74	Kolachel	India	Tamil Nadu	Denmark
75	Kunimedu	India	Tamil Nadu	Britain
76	Madras	India	Tamil Nadu	Britain
77	Manapadu	India	Tamil Nadu	Portugal, Netherlands
78	Nagore	India	Tamil Nadu	Netherlands
79	Negapatam	India	Tamil Nadu	Portugal, Netherlands
80	Porto Novo	India	Tamil Nadu	Portugal, Netherlands, Britain
81	Pulicat/Geldria	India	Tamil Nadu	Netherlands
82	Sadras	India	Tamil Nadu	Netherlands
83	St. Thome	India	Tamil Nadu	Portugal, Netherlands
84	Taingapatam	India	Tamil Nadu	Netherlands

#### Table A1. European-South Asian Commercial Contacts, 16th - 18th Century

Sources: Schwartzberg (1992); Foster (1906-1927); Fawcett and Foster (1936); Danvers (1968); British Library Archives

No.	Settlement	Country	Current State	European Powers
85	Teganapatam/Fort St. David	India	Tamil Nadu	Britain, Netherlands
86	Tranquebar	India	Tamil Nadu	Denmark
87	Tuticorin	India	Tamil Nadu	Portugal, Netherlands
88	Vembar/Patmadoer	India	Tamil Nadu	Portugal, Netherlands
89	Agra	India	Uttar Pradesh	Britain, Netherlands
90	Bankibazar	India	West Bengal	Austria
91	Baranagar	India	West Bengal	Portugal, Netherlands
92	Calcutta (incl. Sutanuti)	India	West Bengal	Britain
93	Chandernagore	India	West Bengal	France
94	Chinsura	India	West Bengal	Netherlands
95	Cossimbazar	India	West Bengal	Netherlands
96	Falta	India	West Bengal	Netherlands
97	Hijili	India	West Bengal	Portugal, Netherlands
98	Hooghly (incl. Satgaon)	India	West Bengal	Portugal, Britain
99	Malda	India	West Bengal	Netherlands, Britain
100	Serampore/Frederiksnagore	India	West Bengal	Denmark
101	Laharibandar	Pakistan	-	Portugal, Britain
102	Tatta	Pakistan	-	Britain
103	Batticaloa	Sri Lanka	-	Portugal, Netherlands
104	Colombo (incl. Kotte)	Sri Lanka	-	Portugal, Netherlands
105	Galle	Sri Lanka	-	Portugal, Netherlands
106	Jaffna	Sri Lanka	-	Portugal, Netherlands
107	Mannar	Sri Lanka	-	Portugal, Netherlands
108	Matara	Sri Lanka	-	Portugal, Netherlands
109	Negombo	Sri Lanka	-	Portugal, Netherlands
110	Puttalam	Sri Lanka	-	Portugal, Netherlands
111	Trincomalee	Sri Lanka	-	Portugal, Netherlands
112	Chittagong (incl. Dianga)	Bangladesh	-	Portugal, France
113	Dacca	Bangladesh	-	Netherlands, Britain, France
			_	

Total Number of Settlements	113
Non-India Settlements	13
Total Unique Districts	48

v v	1991 (	Census	1961 - 199	1 Censuses
	(1)	(2)	(3)	(4)
Panel A: Proportion of Workforce in Farming				
European Pre-colonial dummy	-0.1271 (0.0453)	-0.1148 (0.0450)	-0.1197 (0.0481)	-0.1093 (0.0478)
Pre-European dummy	0.0392 (0.0206)	0.048 (0.0216)	0.0366 (0.0196)	0.0441 (0.0200)
Observations	306	300	1,221	1,197
Adjusted R-squared	0.1904	0.2087	0.2078	0.2259
Panel B: Proportion of Workforce in Manufacturing				
European Pre-colonial dummy	0.0487 (0.0169)	0.0444 (0.0172)	0.0475 (0.0181)	0.0440 (0.0183)
Pre-European dummy	-0.0108 (0.0058)	-0.0151 (0.0060)	-0.0116 (0.0055)	-0.0149 (0.0057)
Observations	306	300	1,221	1,197
Adjusted R-squared	0.1885	0.2147	0.2215	0.2488
Panel C: Literacy Rate				
European Pre-colonial dummy	0.0691 (0.0204)	0.0676 (0.0214)	0.0741 (0.0229)	0.0736 (0.0237)
Pre-European dummy	-0.0268 (0.0143)	-0.0318 (0.0145)	-0.0233 (0.0127)	-0.0271 (0.0128)
Observations Adjusted R-squared	306 0.3763	300 0.3841	1,221 0.5485	1,197 0.5565
<i>Geographic and Soil Controls</i> : Latitude, Mean annual rainfall, Coast dummy, Proportion sandy, Proportion				
barren/rocky, Altitude Additional Soil Controls: Black soil dummy Alluvial soil	Yes	Yes	Yes	Yes
dummy, Red soil dummy	No	Yes	No	Yes
Year Fixed Effects	No	No	Yes	Yes

### Table A2. Sensitivity Analysis Using Additional Control Variables

		1991 Census		Pooled 1961 - 1991 Censuse		ensuses
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Proportion of Workforce in Farming						
European Pre-colonial dummy	-0.1387 (0.0336)	-0.1492 (0.0346)	-0.0732 (0.0272)	-0.1276 (0.0303)	-0.1327 (0.0318)	-0.0619 (0.0271)
Pre-European dummy		0.0220 (0.0220)	0.0184 (0.0191)		0.0104 (0.0191)	0.0144 (0.0168)
Observations	328	328	318	1,327	1,327	1,260
Adjusted R-squared	0.0819	0.0829	0.1565	0.0873	0.0875	0.1806
Panel B: Proportion of Workforce in Manufacturing						
European Pre-colonial dummy	0.0551 (0.0115)	0.0554 (0.0117)	0.0319	0.0476 (0.0097)	0.0474 (0.0101)	0.0277 (0.0118)
Pre-European dummy	(0.0110)	-0.0007 (0.0064)	-0.0041 (0.0062)	(0.00)7)	0.0004 (0.0051)	-0.0035 (0.0050)
Observations	328	328	318	1,327	1,327	1,260
Adjusted R-squared	0.1241	0.1214	0.1563	0.1628	0.1622	0.1951
Panel C: Literacy Rate						
European Pre-colonial dummy	0.1504 (0.0341)	0.1581 (0.0370)	0.0518 (0.0194)	0.1399 (0.0301)	0.1433 (0.0335)	0.0513 (0.0176)
Pre-European dummy		-0.0162 (0.0187)	-0.0233 (0.0149)		-0.0068 (0.0159)	-0.0165 (0.0129)
Observations	328	328	318	1,328	1,328	1,261
Adjusted R-squared	0.1456	0.1460	0.3166	0.3997	0.3997	0.5315
<i>Geographic and Soil Controls</i> : Latitude, Mean annual rainfall, Coast dummy, Proportion sandy, Proportion barren/rocky	No	No	Yes	No	No	Yes
Year-fixed effects	No	No	No	Yes	Yes	Yes

## Table A3. Sensitivity Analysis Excluding Bombay, Calcutta, and Madras Presidency Towns

<b>č</b>	1991 Census		Pooled 1961 - 1991 Censuses			
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Proportion of Workforce in Farming						
European Pre-colonial dummy	-0.1135 (0.0256)	-0.1281 (0.0253)	-0.1115 (0.0437)	-0.1030 (0.0248)	-0.1155 (0.0256)	-0.1051 (0.0457)
Pre-European dummy		0.0380 (0.0203)	0.0382 (0.0203)		0.0312 (0.0185)	0.0354 (0.0184)
Observations	325	325	318	1,315	1,315	1,260
Adjusted R-squared	0.3326	0.3404	0.3228	0.3569	0.3631	0.3441
Panel B: Proportion of Workforce in Manufactur	ing					
European Pre-colonial dummy	0.0519 (0.0111)	0.0558 (0.0109)	0.0425 (0.0183)	0.048 (0.0110)	0.0516 (0.0112)	0.0401 (0.0188)
Pre-European dummy		-0.0102 (0.0059)	-0.0108 (0.0057)		-0.0091 (0.0055)	-0.0107 (0.0053)
Observations	325	325	318	1,315	1,315	1,260
Adjusted R-squared	0.3048	0.3086	0.3078	0.3428	0.3471	0.3487
Panel C: Literacy Rate						
European Pre-colonial dummy	0.0701 (0.0123)	0.0763 (0.0142)	0.0513 (0.0168)	0.0742 (0.0124)	0.0797 (0.0143)	0.0596 (0.0195)
Pre-European dummy		-0.0161 (0.0111)	-0.0145 (0.0112)		-0.0137 (0.0099)	-0.0132 (0.0103)
Observations	325	325	318	1,316	1,316	1,261
Adjusted R-squared	0.6369	0.6384	0.6390	0.7255	0.7270	0.7212
<i>Geographic and Soil Controls</i> : Latitude, Mean annual rainfall, Coast dummy, Proportion sandy, Proportion barren/rocky	No	No	Yes	No	No	Yes
State-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year-fixed effects	No	No	No	Yes	Yes	Yes

## Table A4. Sensitivity Analysis Including State Fixed Effects

		1991 Census			Pooled 1961 - 1991 Censuses			
	(1)	(2)	(3)	(4)	(5)	(6)		
Panel A: Proportion of Workforce in Farming								
European Pre-colonial dummy	-0.1548 (0.0369)	-0.1655 (0.0397)	-0.1431 (0.0586)	-0.1377 (0.0357)	-0.1515 (0.0383)	-0.1398 (0.0614)		
Pre-European dummy		0.0295 (0.0301)	0.0464 (0.0309)		0.0364 (0.0308)	0.0553 (0.0316)		
Observations	200	200	197	788	788	776		
Adjusted R-squared	0.2111	0.2119	0.2189	0.2272	0.2338	0.2595		
Panel B: Proportion of Workforce in Manufactur	ing							
European Pre-colonial dummy	0.0593 (0.0128)	0.0609 (0.0140)	0.0474 (0.0231)	0.0557 (0.0139)	0.0601 (0.0150)	0.0488 (0.0239)		
Pre-European dummy		-0.0043 (0.0072)	-0.0115 (0.0077)		-0.0115 (0.0092)	-0.0201 (0.0095)		
Observations	200	200	197	788	788	776		
Adjusted R-squared	0.2102	0.2068	0.2129	0.2420	0.2472	0.2820		
Panel C: Literacy Rate								
European Pre-colonial dummy	0.0942 (0.0181)	0.0995 (0.0210)	0.0746 (0.0201)	0.0924 (0.0170)	0.0964 (0.0208)	0.0814 (0.0248)		
Pre-European dummy		-0.0144 (0.0214)	-0.0305 (0.0200)		-0.0105 (0.0191)	-0.0271 (0.0186)		
Observations	200	200	197	789	789	777		
Adjusted R-squared	0.3370	0.3358	0.4590	0.5439	0.5444	0.6246		
<i>Geographic and Soil Controls</i> : Latitude, Mean annual rainfall, Coast dummy, Proportion sandy, Proportion barren/rocky	No	No	Yes	No	No	Yes		
Province-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes		
Year-fixed effects	No	No	No	Yes	Yes	Yes		

## Table A5. Sensitivity Analysis Including Province Fixed Effects

			Standar	dized Bias		
	Pre-Ad	justment	Nearest-Neig	hbor Matching	Propensity Score Matching	
	Control	Treatment	Control	Treatment	Control	Treatment
Latitude	4.387	3.112	3.716	3.283	4.255	3.760
Mean annual rainfall	1.386	1.713	1.581	1.798	0.685	0.693
Coast Dummy	0.107	1.925	1.790	1.965	2.087	1.784
Proportion sandy	0.629	0.391	0.363	0.474	0.229	0.239
Proportion barren/rocky	1.011	0.648	0.704	0.710	0.412	0.350

## Table A6. Balance Tests in Matching Analysis

*Note*: The standardized bias is calculated as the difference-in-means of the covariate between the treatment and control groups divided by the standard deviation
	1991 Census: Coastal Districts Only			nly	1961 - 1991 Censuses: Coastal Districts Only			
	Significat	nce Level	Hodges-Lehn	nann Estimate	Significar	nce Level	Hodges-Lehm	ann Estimate
	Upper Bound	Lower Bound	<b>Upper Bound</b>	Lower Bound	<b>Upper Bound</b>	Lower Bound	<b>Upper Bound</b>	Lower Bound
Sensitivity Parameter Γ	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Proportion of Workforc	e in Farming							
1	0.0000	0.0000	-0.2156	-0.2156	0.0000	0.0000	-0.1803	-0.1803
2	0.0000	0.0008	-0.2806	-0.1501	0.0000	0.0000	-0.2414	-0.1206
3	0.0000	0.0082	-0.3238	-0.1157	0.0000	0.0000	-0.2824	-0.0878
4	0.0000	0.0271	-0.3523	-0.0926	0.0000	0.0003	-0.3131	-0.0669
5	0.0000	0.0564	-0.3731	-0.0723	0.0000	0.0035	-0.3375	-0.0524
6	0.0000	0.0929	-0.3899	-0.0610	0.0000	0.0157	-0.3569	-0.0416
Panel B: Proportion of Workforc	e in Manufactu	ring						
1	0.0000	0.0000	0.0711	0.0711	0.0000	0.0000	0.0512	0.0512
2	0.0009	0.0000	0.0509	0.0991	0.0000	0.0000	0.0313	0.0762
3	0.0094	0.0000	0.0379	0.1122	0.0000	0.0000	0.0218	0.0976
4	0.0307	0.0000	0.0285	0.1214	0.0012	0.0000	0.0161	0.1120
5	0.0633	0.0000	0.0228	0.1307	0.0104	0.0000	0.0120	0.1217
6	0.1036	0.0000	0.0179	0.1379	0.0407	0.0000	0.0088	0.1300
Panel C: Literacy Rate								
1	0.0000	0.0000	0.1964	0.1964	0.0000	0.0000	0.1258	0.1258
2	0.0008	0.0000	0.1367	0.2520	0.0000	0.0000	0.0782	0.1752
3	0.0079	0.0000	0.1061	0.2781	0.0006	0.0000	0.0522	0.2022
4	0.0260	0.0000	0.0827	0.3041	0.0149	0.0000	0.0341	0.2205
5	0.0542	0.0000	0.0659	0.3251	0.0831	0.0000	0.0223	0.2349
6	0.0895	0.0000	0.0574	0.3330	0.2254	0.0000	0.0123	0.2465

## Table A7. Rosenbaum Bounds Sensitivity Analysis

*Note:* Sample is matched on the following pre-treatment covariates: Latitude, Coast dummy, Mean annual rainfall, Proportion sandy, Proportion barren/rocky

	Correlations Using OLS			
	(1)	(2)	(3)	(4)
European Pre-colonial dummy	0.0428	0.0436	0.0459	0.0432
	0.0116	0.0125	0.0118	0.0124
British Colonial dummy			-0.0073	0.0017
-			0.0081	0.0080
Observations	311	311	311	311
Adjusted R-squared	0.1106	0.1781	0.1178	0.1784
Controls: Total population, gender ratio	No	Yes	No	Yes

# Table A8. Persistence in Colonial Era: Literacy Rates in 1911

	Treatn	nent	Contr		
	Mean	Ν	Mean	N	p-value
European Colonial dummy	0.708	24	0.444	9	0.209
Pre-European dummy	0.792	24	0.444	9	0.101
Latitude	15.038	24	19.691	9	0.019
Mean annual rainfall	1716.713	24	1027.665	9	0.019
Coast Length	160.777	22	308.306	9	0.313
Proportion sandy	0.003	24	0.003	9	0.749
Proportion barren/rocky	0.006	24	0.014	9	0.141
Altitude	214.552	24	138.556	9	0.106
Black soil dummy	0.167	24	0.333	9	0.383
Alluvial soil dummy	0.833	24	0.556	9	0.175
Red soil dummy	0.125	24	0.222	9	0.561

# Table A9. Balance Tests Using Pre-Colonial Settlements Treatment Restricting Sample to Only Districts With Geographically Protected Natural Harbors

## Table A10. Sensitivity Analysis Using Pre-Colonial Settlements Treatment

	1991 (	Census	1961 - 199	1 Censuses
	(1)	(2)	(3)	(4)
Panel A: Proportion of Workforce in Farming				
European Pre-colonial dummy	-0.2910 (0.0407)	-0.4277 (0.1460)	-0.2647 (0.0319)	-0.4497 (0.1113)
Pre-European dummy		0.0054 (0.0522)		0.0980 (0.0688)
Observations	22	22	85	85
Adjusted R-squared	0.2996	0.1593	0.2753	0.5623
Panel B: Proportion of Workforce in Manufacturing				
European Pre-colonial dummy	0.1166	0.1972	0.1050	0.2158
Dra Europaan dummu	(0.0143)	(0.0494)	(0.0131)	(0.0495)
Fre-European duminy		(0.0214)		(0.0358)
Observations	22	22	85	85
Adjusted R-squared	0.2542	0.3260	0.2187	0.5494
Panel C: Literacy Rate				
European Pre-colonial dummy	0.1715	0.1976	0.1635	0.2061
	(0.0590)	(0.0647)	(0.0489)	(0.0645)
Pre-European dummy		-0.0299		-0.0528
		(0.0401)		(0.0412)
Observations	22	22	85	85
Adjusted R-squared	0.2582	0.6143	0.5081	0.7858
Geographic and Soil Controls: Latitude, Mean annual rainfall Coast length Proportion sandy Proportion				
barren/rocky	No	Vec	No	Vec
Year Fixed Effects	No	No	Yes	Yes

Restricting Sample to Only Districts With Geographically Protected Natural Harbors Comparing Treatment Districts on Western Coast with Control Districts on Eastern Coast

	1991 (	Census	1961 - 199	1 Censuses
	(1)	(2)	(3)	(4)
Panel A: Dependent Variable is Proportion of Workfor	rce in Farming			
Protected Harbor Dummy	-0.1479 (0.0377)	-0.1065 (0.0476)	-0.1350 (0.0357)	-0.0911 (0.0449)
Pre-European dummy		0.0236 (0.0199)		0.0218 (0.0190)
Observations	331	321	1,339	1,272
Adjusted R-squared	0.0642	0.1385	0.0675	0.1529
Panel B: Dependent Variable is Proportion of Workfor	rce in Manufact	uring		
Protected Harbor Dummy	0.0592 (0.0156)	0.0526 (0.0236)	0.0504 (0.0145)	0.0450 (0.0222)
Pre-European dummy		-0.0044 (0.0060)		-0.0054 (0.0056)
Observations	331	321	1,339	1,272
Adjusted R-squared	0.0963	0.1194	0.1203	0.1430
Panel C: Dependent Variable is Literacy Rate				
Protected Harbor Dummy	0.1811 (0.0350)	0.1361 (0.0318)	0.1642 (0.0324)	0.1189 (0.0283)
Pre-European dummy		-0.0234 (0.0146)		-0.0180 (0.0131)
Observations	331	321	1,340	1,273
Adjusted R-squared	0.1579	0.3346	0.3874	0.5212
Geographic and Soil Controls: Latitude, Mean annual rainfall Coast dummy Proportion sandy Proportion				
barren/rocky	No	Vac	No	Vac
Year Fixed Effects	No	No	Yes	Yes

# Table A11. Reduced Form Relationship (Protected Harbor Instrument)

	1991 Census		1961 - 1991 Censuses	
-	(1)	(2)	(3)	(4)
Panel A: Second Stage Relationship. Dependent Varial	ble is Proportio	n of Workforce in	Farming	
European Pre-colonial dummy	-0.2440	-0.2404	-0.2145	-0.2170
	(0.0958)	(0.1051)	(0.0486)	(0.0532)
Pre-European dummy	0.0524	0.0597	0.0474	0.0544
	(0.0229)	(0.0224)	(0.0111)	(0.0108)
Observations	306	300	1,221	1,197
Adjusted R-squared	0.1840	0.2035	0.1950	0.2069
Panel B: Second Stage Relationship. Dependent Varial	ble is Proportio	n of Workforce in	Manufacturing	
European Pre-colonial dummy	0.1194	0.1152	0.1049	0.1043
	(0.0409)	(0.0437)	(0.0219)	(0.0238)
Pre-European dummy	-0.0189	-0.0216	-0.0182	-0.0206
	(0.0091)	(0.0085)	(0.0045)	(0.0043)
Observations	306	300	1,221	1,197
Adjusted R-squared	0.1196	0.1531	0.1657	0.1879
Panel C: Second Stage Relationship. Dependent Varia	ble is Literacy l	Rate		
European Pre-colonial dummy	0.3168	0.3331	0.2802	0.2984
1	(0.0824)	(0.0941)	(0.0380)	(0.0435)
Pre-European dummy	-0.0572	-0.0567	-0.0494	-0.0487
	(0.0187)	(0.0187)	(0.0084)	(0.0084)
Observations	306	300	1,221	1,197
Adjusted R-squared	0.1681	0.1509	0.4052	0.3881
Panel D: First Stage Relationship. Dependent Variable	e is European P	re-Colonial Dumn	ny	
Protected Harbor Dummy	0.4330	0.3940	0.4254	0.3884
	(0.1223)	(0.1170)	(0.0608)	(0.0580)
Pre-European dummy	0.1153	0.0832	0.1175	0.0852
	(0.0416)	(0.0410)	(0.0206)	(0.0203)
Observations	306	300	1,221	1,197
Adjusted R-squared	0.3796	0.4233	0.3840	0.4316
F-statistic	12.53	11.34	48.91	44.90
Geographic and Soil Controls: Latitude, Mean annual				
rainfall, Coast length, Proportion sandy, Proportion				
barren/rocky, Altitude	Yes	Yes	Yes	Yes
Additional Soil Controls: Black soil dummy, Alluvial			-~	
soil dummy, Red soil dummy	No	Yes	No	Yes
Year Fixed Effects	No	No	Yes	Yes

## Table A12. IV Analysis Using Additional Covariates

Note: Robust standard errors in parentheses

	1991 (	Census	1961 - 199	1 Censuses
	(1)	(2)	(3)	(4)
Panel A: Second Stage Relationship. Dependent Variable is Proportion	of Workforce in	Farming		
European Pre-colonial dummy Pre-European dummy	-0.1339 (0.0657)	-0.1633 (0.0942) 0.0445 (0.0258)	-0.1148 (0.0348)	-0.1510 (0.0522) 0.0412 (0.0135)
Observations Adjusted R-squared	325 0.3786	318 0.3646	1,315 0.3696	1,260 0.3528
Panel B: Second Stage Relationship. Dependent Variable is Proportion	of Workforce in	Manufacturing		
European Pre-colonial dummy Pre-European dummy	0.0711 (0.0282)	0.1009 (0.0387) -0.0185 (0.0100)	0.0605 (0.0151)	0.0944 (0.0225) -0.0179 (0.0054)
Observations	325	318	1,315	1,260
Adjusted R-squared	0.3440	0.3014	0.3518	0.3136
Panel C: Second Stage Relationship. Dependent Variable is Literacy R	late			
European Pre-colonial dummy Pre-European dummy	0.1285 (0.0341)	0.1836 (0.0538) -0.0335 (0.0146)	0.1236 (0.0180)	0.1745 (0.0284) -0.0303 (0.0072)
Observations	325	318	1.316	1.261
Adjusted R-squared	0.6459	0.6108	0.7205	0.6894
Panel D: First Stage Relationship. Dependent Variable is European Pr	e-Colonial Dumm	y		
Protected Harbor Dummy Pre-European dummy	0.5267 (0.0971)	0.4237 (0.1332) 0.1419 (0.0427)	0.5163 (0.0482)	0.4125 (0.0654) 0.1452 (0.0208)
Observations	325	318	1,324	1,269
Adjusted R-squared	0.3596	0.3993	0.3883	0.4248
F-statistic	29.4	10.12	114.61	39.74
<i>Geographic and Soil Controls</i> : Latitude, Mean annual rainfall, Coast length, Proportion sandy, Proportion barren/rocky State Fixed Effects	No Yes	Yes	No Yes	Yes Yes
Year Fixed Effects	No	No	Yes	Yes

#### Table A13. IV Analysis Adding State Fixed Effects

Note: Robust standard errors in parentheses

	1991 Census			Pooled 1961 - 1991 Censuses				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Proportion of Workforce in Farming								
European Pre-colonial dummy	-0.1727 (0.0358)	-0.1695 (0.0375)	-0.1864 (0.0363)	-0.1286 (0.0442)	-0.1640 (0.0332)	-0.1597 (0.0355)	-0.1723 (0.0356)	-0.1196 (0.0471)
European Colonial dummy		-0.0126 (0.0274)	-0.0102 (0.0266)	0.0036 (0.0218)		-0.0163 (0.0252)	-0.0150 (0.0248)	-0.0017 (0.0199)
Pre-European dummy			0.038 (0.0212)	0.0391 (0.0201)			0.0278 (0.0196)	0.0366 (0.0193)
Observations	331	331	331	321	1,339	1,339	1,339	1,272
Adjusted R-squared	0.1182	0.1167	0.1242	0.1850	0.1227	0.1242	0.1292	0.2060
Panel B: Proportion of Workforce in Manufactur	ing							
European Pre-colonial dummy	0.0659 (0.0126)	0.0655 (0.0124)	0.0682 (0.0121)	0.0482 (0.0167)	0.0608 (0.0121)	0.0593 (0.0118)	0.0621 (0.0120)	0.0463 (0.0180)
European Colonial dummy		0.0018 (0.0070)	0.0014 (0.0070)	0.0012 (0.0072)		0.0056 (0.0056)	0.0053 (0.0056)	0.0036 (0.0061)
Pre-European dummy			-0.0061 (0.0057)	-0.0103 (0.0056)			-0.0061 (0.0052)	-0.0113 (0.0054)
Observations	331	331	331	321	1,339	1,339	1,339	1,272
Adjusted R-squared	0.1623	0.1599	0.1598	0.1926	0.1930	0.1948	0.1968	0.2256
Panel C: Literacy Rate								
European Pre-colonial dummy	0.1605 (0.0325)	0.1570 (0.0352)	0.1659 (0.0364)	0.0682 (0.0209)	0.1536 (0.0291)	0.1481 (0.0322)	0.1539 (0.0341)	0.0721 (0.0228)
European Colonial dummy		0.0135 (0.0302)	0.0123 (0.0298)	0.0098 (0.0252)		0.0203 (0.0250)	0.0197 (0.0249)	0.0124 (0.0212)
Pre-European dummy			-0.0201 (0.0171)	-0.0298 (0.0144)			-0.0125 (0.0144)	-0.0252 (0.0126)
Observations	331	331	331	321	1,340	1,340	1,340	1,273
Adjusted R-squared	0.1686	0.1683	0.1704	0.3298	0.4106	0.4149	0.4160	0.5339
Geographic and Soil Controls: Latitude, Mean annual rainfall, Coast dummy, Proportion sandy, Proportion barren/rocky	No	No	No	Yes	No	No	No	Yes
Year-fixed effects	No	No	No	No	Yes	Yes	Yes	Yes

# Table A14. Sensitivity Analysis Using European Colonial dummy

<b>v</b>	1991 Census		1961 - 1991 Censuses	
	(1)	(2)	(3)	(4)
Panel A: Proportion of Workforce in Farming				
European Pre-colonial dummy	-0.1156 (0.0406)	-0.1301 (0.0423)	-0.1061 (0.0430)	-0.1199 (0.0449)
Years of Direct British Rule	0.0072 (0.0184)	0.0067 (0.0183)	0.0001 (0.0161)	-0.0003 (0.0159)
Pre-European dummy		0.0389 (0.0204)		0.0366 (0.0194)
Observations	321	321	1,272	1,272
Adjusted R-squared	0.1772	0.1857	0.1964	0.2060
Panel B: Proportion of Workforce in Manufacturing				
European Pre-colonial dummy	0.0442 (0.0156)	0.0481 (0.0161)	0.0414 (0.0169)	0.0457 (0.0174)
Years of Direct British Rule	0.0009 (0.0059)	0.0011 (0.0059)	0.0042 (0.0052)	0.0043 (0.0052)
Pre-European dummy		-0.0104 (0.0056)		-0.0114 (0.0054)
Observations	321	321	1,272	1,272
Adjusted R-squared	0.1887	0.1927	0.2196	0.2274
Panel C: Literacy Rate				
European Pre-colonial dummy	0.0623 (0.0192)	0.0733 (0.0202)	0.0661 (0.0213)	0.0756 (0.0222)
Years of Direct British Rule	-0.0078 (0.0198)	-0.0074 (0.0197)	-0.0012 (0.0165)	-0.0009 (0.0164)
Pre-European dummy		-0.0296 (0.0147)		-0.0252 (0.0128)
Observations	321	321	1,273	1,273
Adjusted R-squared	0.3227	0.3300	0.5265	0.5323
<i>Geographic and Soil Controls</i> : Latitude, Mean annual rainfall, Coast dummy, Proportion sandy, Proportion				
barren/rocky	Yes	Yes	Yes	Yes
Year Fixed Effects	No	No	Yes	Yes

# Table A15. Sensitivity Analysis Using Length of Colonial Rule Measure

Table A16. Mediation Analys	sis Using European	<b>Colonial Dummy Mediator</b>
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		1991 Census		
	Mean	95 % Confid	ence Interval	
	(1)	(2)	(3)	
Direct Effect: European Pre-Colonial Dummy; Mediated Effe	ct: European Colonial Dummy			
Panel A: Proportion of Workforce in Farming				
ACME	0.0009	-0.0091	0.0104	
Direct Effect	-0.1284	-0.1987	-0.0601	
Total Effect	-0.1275	-0.1979	-0.0604	
% of Total Effect Mediated	-0.0070	-0.0148	-0.0045	
Panel B: Proportion of Workforce in Manufacturing				
ACME	0.0003	-0.0031	0.0036	
Direct Effect	0.0482	0.0241	0.0717	
Total Effect	0.0485	0.0243	0.0716	
% of Total Effect Mediated	0.0061	0.0041	0.0122	
Panel C: Literacy Rate				
ACME	0.0023	-0.0050	0.0100	
Direct Effect	0.0683	0.0157	0.1194	
Total Effect	0.0706	0.0182	0.1209	
% of Total Effect Mediated	0.0328	0.0191	0.1273	

*Note*: The following geographic and soil controls are used in all specifications: Latitude, Mean annual rainfall, Coast dummy, Proportion sandy, Proportion barren/rocky.

## A24. Steps Involved in Geospatial Analysis

#### A24.1. Description

My geospatial analysis involved the following steps. Using ArcGIS, I mapped the Indian coastline to 1991 district administrative boundaries (All-India Digital Basemap 2010). I then identified the universe of natural harbors by tracing all concave indentations on the coast.<sup>1</sup> Next, surrounding the land boundary of each natural harbor, I projected a tenkilometer radial distance, within which I calculated the mean elevation level using the U.S. Geological Survey's *Global 30 Arc-Second Elevation* data. I use these mean elevation levels to proxy for mountainous topography. I identified geographically protected harbors that were plausible venues for pre-colonial commercial settlements according to the following rule: If the elevation level associated with any one natural harbor was greater than the median of the elevation levels surrounding the universe of natural harbors on the Indian coastline, that harbor afforded geographical protection to pre-colonial traders.<sup>2</sup>

#### A24.2. Illustration

Figure A1: Steps in Geospatial Analysis



<sup>&</sup>lt;sup>1</sup>According to several geography scholars, medieval ships would not have required extensive water surface areas or drafts in order to safely navigate harbors; hence, I did not apply any surface area and depth thresholds. My approach in identifying natural harbors differs slightly from Jha (2013). Jha considers any water body within ten kilometers of the coastline as a potential location of a natural harbor. This approach is more relevant to a study where the unit of analysis is individual cities, because one must match cities to medieval harbors that might no longer exist. Because my unit of analysis is the district, I ascertain whether districts had access to natural harbors by studying the overall distribution of indentations in each district's coastline.

<sup>&</sup>lt;sup>2</sup>Since the appropriate set of comparisons for evaluating elevation levels is the universe of natural harbors on the Indian coastline, it appears reasonable to compare relative elevation levels across these natural harbors.



## A25. Analysis of Historical Correspondence

The following analysis is based on primary source documents from the Factory Records of the English EIC found in the National Archives of India, the British Library, and in Danvers and Foster (1896-1902); Foster (1906, 1908, 1909, 1910, 1911, 1912, 1913, 1914, 1915, 1921, 1923, 1925, 1927); Fawcett and Foster (1936-1955).

#### A25.1. Selected Quotations

"President Brockedon [of the English EIC] and his Council found it impossible to compete with their Dutch rivals, and their trade suffered accordingly. The disputes between the two nations were rendered still more bitter by the judicial murder of the English factors [on hands of the Dutch] at Amboyna and by the irritating restrictions which were enforced at Batavia by the Dutch. At last, in January, 1624, the English decided to take the first opportunity of quitting that city and establishing a settlement of their own. Some island in the Sunda Straits, between Sumatra and Java, seemed to offer the fairest prospect of a suitable site; and in August Richard Swan in the [ship] *Charles* was sent thither to choose a place for a settlement and to hoist the British flag" (Foster 1909, p.xxxviii).

This account of how the English EIC developed one of its settlements is emblematic of its broader approach to building ports and factories in the Indian subcontinent. My review of historical sources suggests that the British did not simply build ports and factories in the already most commercially advanced areas. Rather, in order to protect their commercial investments from expropriation, both Indian and European, they chose many new zones at a safe distance from rivals. In particular, they sought territories that were unattractive targets for conquest because these were either strategically positioned or not prosperous. They then developed these fishing villages and hamlets into hubs of trade and commerce.

More broadly, the historical record suggests that bitter contests between the British, French, Dutch, and Portuguese played an important role in determining who traded in different territorial zones. Moreover, various sets of indigenous actors (such as the Mughal emperors, regional Nawabs, Maratha leaders, and local princes and chieftains in India) vied with one another and with different sets of European colonial powers during the initial periods of pre-colonial trade. As one commentator aptly summarized:

"[W]hat was there to prevent the Mogul [emperor] from retaliating on the persons and goods of the English, especially in the up-coming factories? Moreover, they knew how bitter was the feeling amongst the [local] Gujaratis against the new-comers, who had already encroached so seriously upon their commerce" (Foster 1906, p.xiii).

Rather than develop hubs in the already extant centers of trade and commerce, the English EIC chose many settlements in new areas in order to secure themselves against local, Portuguese, French, and Dutch invasions. The settlement at Anjengo was chosen, for example,

because of Dutch interference with English trade at Karwar and Rajapur. Likewise, the English opened a factory at Sutanati, which later developed into Calcutta, after being expelled from the Mughal dominions of Bengal. Moreover, security concerns played an important role in the selection of the port of Bombay:

"In this connexion it is interesting to note that the Company had actually suggested to their servants at Surat the advisability of establishing a fortified settlement at Bombay or at some other suitable spot. The idea of fortification was at that time very much in the air...the English merchants at Batavia and on the Coromandel Coast had already tried the experiment at Lagundy and Armagon. Moreover, recent events had shown how advantageous it would be to have some port where vessels would be absolutely safe from Portuguese attacks" (Foster 1909, p.xxi).

This drive to secure settlements against outside attacks stemmed from the rampant attacks that British factories previously faced at the hands of the Dutch in the Indonesian archipelago, especially in Amboyna, as well as at the hands of the Portuguese in Persia, especially in Hormuz. Indeed, in the early seventeenth century, the English factories at Sukadana, Banjarmasin, and Balambangan (in Borneo); Bantam, and Jakarta (in Java); Achin, Tiku, Priaman, and Indraghiri (in Sumatra); Macassar (in Celebes); and Firando (in Japan) were repeatedly attacked and ransacked by both the Dutch and local bandits, and factory employees were routinely killed in these contests.

In my analysis of the original correspondence between EIC factors and the Court of Directors, I came across *no* indication that demographic, socio-economic, or religious characteristics of target regions were factors guiding site selection, invalidating the hypothesis that a reformative logic shaped pre-colonial settlement patterns. I came across considerable discussion of extractive factors, but in the *opposite* direction to the hypothesis outlined earlier: rather than planning to tax local populations and exploit natural resources, the EIC was worried about itself being taxed by local authorities. Indeed, there were repeated references to the EIC factors going to great lengths to avoid having to pay bribes, customs, taxes, and gifts to local rulers. These references affirm that extractive tendencies on the part of the British did not guide pre-colonial site selection practices. Combined, these first two findings suggest that the logic that scholars have ascribed to patterns of colonial-era settlement patterns does not extend backwards to the pre-colonial era.

Instead, I found that both commercial and geopolitical imperatives help explain EIC factory selection decisions. Unsurprisingly, given its mandate to earn profits, the EIC did seek sites that held promise as subsequent trading bases. Yet, that geopolitical security concerns played a central role in EIC decisions suggests that settlement patterns differed sharply between the pre-colonial and colonial eras.

The primary axis of geopolitical contention was between the various European powers trading in the Indian subcontinent, in particular, the British, Portuguese, Dutch, and French. The British and the Dutch were at first quite hostile toward one another in East Asia and other parts of the Far East, competing intensely over the initial centers of the spice trade, and fighting several battles over establishing trade with local entities. The front lines of the rivalry between the Dutch and British were in Indonesia, Java, Sumatra, and the Moluccas.

"[British captains] Dale and Jourdain sailed with six ships in the early spring of 1618... The position in the Bandas was almost desperate. Courthope's two ships were in the hands of the Dutch, and he himself was blockaded in Pulo Run; an attempt made to relieve him in March, 1618, had ended in two more ships being taken within sight of their goal; while, although the Dutch had generally refrained from active hostilities outside the disputed region, their attitude was extremely threatening, and more than one collision had occurred. Hitherto, retaliation had been out of the question for want of means; but now with Pring's fleet, which was lying in the roads when Dale arrived, the English were for a time in a stronger position than their adversaries. At a consultation held on November 28, it was 'with one consent resolved to lay hold upon all occasions to redeeme the disgraces and losses done to our Kinge and countrie'... and accordingly a week later a richly laden Dutch ship, the Black Lion, was seized in Bantam Roads and held hostage for the redress of English grievances. With the ill fortune that attended all Dale's proceedings at this time, the seizure produced the worst results, for not only did it precipitate a general war in the Far East between the two nations, but the vessel herself with all her cargo was accidentally destroyed by fire... The Dutch answered the capture of the Black Lion by destroying the English factory at Jakarta, on the pretext that preparations were being made within its precincts for attacking their fort" (Foster 1906, p.xxxix-xl).

Indeed, in the Moluccas, the Dutch and the British fought several wars over territorial settlements.

"When, in the autumn of 1617, the Committees of the second joint stock were preparing their first fleet for dispatch to the Indies, the gravest question they found themselves called upon to face was the attitude to be adopted towards the Dutch claim to exclude the English from the Moluccas and the Bandas, on the ground that the trade of those islands - the sole source of the more valuable spices - belonged solely to Holland, in consequence of consessions procured from the native chiefs. This claim had always been strenuously resisted by the English Company at home and disregarded by their servants in the East. Some of the Committees, recognizing the seriousness of the situation, were in favor of opening negotiations with the Dutch East India Company for a peaceful settlement of their differences; but previous efforts of that kind had uniformly proved futile, and the majority were convinced that the only possible attitude was one of firm insistence on their rights." (Foster 1906, p.xxxix).

British and Dutch differences over trading claims in the Moluccas subsequently led to several Anglo-Dutch wars in that region. When Britain decided to refocus its trade networks in the Indian subcontinent, it encountered Dutch presence on the eastern coast and Portuguese presence on the western coast. Therefore, the British had to carefully mediate their relationship with both powers when they began to establish trading hubs on either coast.

On the western coast, during the initial stages of the English EIC's expansion, the company opened factories in pre-existing trading hubs, such as in Surat, Ahmedabad, and Agra. They soon found, however, that their maritime trading routes were subject to repeated attacks by Portuguese flotillas and that their territorial settlements were constantly marauded by Portuguese armed forces.

"They [the English] reached their destination on December 16, and found their [Portuguese] opponents waiting to intercept them, but after a stiff skirmish, and an abortive attempt to destroy the Portuguese admiral by means of a fireship, the enemy withdrew, and the English anchored in the Roads and landed their money and goods... On December 26, however, the English put to sea, followed by the Portuguese, and the two squadrons anchored within a short distance of each other... with the result that those two ships 'indured the hotest burden of this second daies fight" (Foster 1906, p.xxix).

"We can imagine Kerridge watching the disappearing ships, and speculating on their future. Were they destined to be crushed by [Portuguese leader] Ruy Freire's array of war vessels? In that case the Persian trade, in the promotion of which Kerridge had taken so large a share, was doomed to an ignominious failure. Or would they once more carry the red cross to victory, and possibly return at Ormus the hard knocks the Portuguese had dealt to Downton at Swally? (Foster 1906, p.xxxiii).

"The Persian 'venture' was planned and directed from Surat and its early history is so intimately connected with the general hostilities between the Portuguese and the English" (Foster 1906, p.xxv).

Even when the Portuguese did not engage the British directly in battle, they would play games of maritime military brinkmanship in order to coerce the British to abandon their trading interests. In March 1615, for instance, an armed Portuguese fleet followed four trading ships of the EIC as they were sailing out of the port of Swally, repeatedly threatening attack but ultimately backing down at the point of battle (Danvers and Foster 1896-1902).

This military oneupmanship led the British to take measures to avoid foreign armadas on the high seas, both near India and also in East Asia. When an EIC ship, the *Solomon*, was traveling from the Straits of Singapore to the Masulipatam factory in India, it "heard that the Achinese flotilla was near, and took special pains to avoid meeting either it or its Portuguese opponents" (Danvers and Foster 1896-1902, p.xx).

More generally, in the pre-colonial period, the British and Portuguese were at war, either formal or informal, at various points in time, leading the British to seek factories and ports in regions far from foreign competition. It is interesting to note that the Portuguese routinely attacked not only British but also Dutch and Danish ships, leading the British to form alliances of convenience against the Portuguese. Consider, for example:

"[The Danish captain] reached Ceylon in safety, but, after sending word to the King that a fleet was following, passed on to the Coromandel Coast. There he was attacked by six Portuguese galleys under André Botelho da Costa" (Foster 1906, p.xlv).

"Early in December the experience of the previous year was repeated. The [English ship] *Samuel* had been sent down to the mouth of the Tapti river,

accompanied by a Dutch vessel, to convoy to Swally some native junks. They were attacked by a number of Portuguese frigates and, although four of the assailants were sunk, the *Samuel* was burnt with the loss of thirteen men, the survivors being saved by her Dutch consort." (Foster 1909, p.xxxiii).

"At the beginning of the next month a startling event happened. [Portuguese captain] Botelho had set out from Muskat with his galleons to intercept the incoming English fleet on the coast of India. One of his vessels was wrecked near Sanjan, another at Bombay; but with the remaining four he boldly appeared off Swally, and challenged the English and Dutch to a contest. The allies, however, were not strong enough to risk an engagement" (Foster 1909, p.xiv).

In short, the letters provide vivid descriptions of the different military encounters between the various European powers in the Indian subcontinent.

"A running fight ensued, during which the [English ships] *Palsgrave* and *Dolphin* made good their retreat. The *Lion*, however, being slow of sail, was grappled by one of the enemy's ships. The Portuguese boarded her and soon gained possession of the upper deck, but could penetrate no further into the ship. The English fought with desperate valour till sunset; and then, the master, Richard Swanley, having been killed, a proposal was made to blow up the vessel rather than surrender. At this crisis it occurred to some one to let down the anchor. This brought up the drifting ship with so sudden a jerk that the ropes by which the enemy's vessel were made fast to the *Lion* snapped, and the swiftly running tide carried away the former into the darkness, leaving fifty or sixty of its crew still on the poop of the English ship. Powder barrels were rapidly fetched and placed under that part of the deck, and a few moments later a terrific explosion sent the Portuguese into the air" (Foster 1909, p.xv).

On the eastern coast, the hostilities in East Asia heavily influenced Anglo-Dutch relations. After the Treaty of Antwerp expired in April, 1621, the Dutch were again formally at war with Spain and Portugal. Since the British too were engaged in hostilities with the Portuguese in Indian waters, Britain and the Netherlands formed an alliance against the Portuguese.

"Fortunately, the Dutch, who were equally bent on developing their trade with India and Persia, come to the rescue of their co-religionists [the British]; but even then the ships of the two nations were forced to keep together for mutual protection [against the Portuguese] and to move only in strong fleets. They were fiercely attacked in the Persian Gulf and challenged in Swally itself... one English ship was destroyed with the greater part of her cargo, while her consorts were chased out of the Indian waters; and for some time the trade with Europe was seriously interrupted" (Foster 1909, p.v).

During this period, both nations provided military and economic support to one other.

"A letter from Ahmedabad refers to 'curtesies' done by the Dutch at Surat to the English 'in tyme of there freedom and your trowble, keepeinge you in there howse and giveinge you meate and drinck when you were not permitted to buy any for yourselves" (Foster 1906, p.xxxvi).

As the Dutch began to economically dominate Indo-European trade, however, this marriage of convenience quickly evaporated.

"So long as the Dutch were weak, and their competition a negligible quantity, the merchants of both nations were on excellent terms; but now that they were strong and well provided with funds the aspect of affairs was entirely altered" (Foster 1906, p.xxviii).

Over time, as the Dutch became militarily superior to the Portuguese, the British began to actively avoid their erstwhile alliance partners because they realized that it would be only a matter of time before the Dutch turned against them.

"A letter from Surat to the factors in Persia, 15 March, 1656, reflects on the anxiety that was beginning to be felt at the success of the Dutch in their operations against the Portuguese" (Foster 1921, p.54).

The British were constantly tormented not only by their European trading competitors but also by local Mughal rulers, Indian princes, government bureaucrats, and chieftains.

"It had been arranged before starting that they were to watch off Chaul and Dhabhol, the chief ports of Ahmadabad and Bijapur respectively, for the junks returning from the Red Sea, with a view to obtaining redress for the seizure of the English caravan by the [indigenous] Deccan army. For more than a month the blockade was maintained, in spite of severe storms..." (Foster 1906, p.xxx).

"He [the Mughal prince] reached the city [of Agra] at the end of May or early in June, and at once proceeded to turn out many of the principal inhabitants from their houses, which he 'liberalys bestowed' on his numerous retinue. Amongst others the English suffered a second eviction, and at the beginning of June they wrote that they had been 'theise ten dayes wanderinge to cover ourselves and goods, thoughe but with grase, to debar the heate and raynes, now in excesse" (Foster 1906, p.xxiv).

"This letter was speedily followed by another (dated 23 Feb) in which Jesson announced that he had made an agreement for the transportation of the saltpeter to Surat by: 'A parcell of Deccan oxen bound back to Brampore, willing to accept of a freight to Surratt at a very cheap rate... covenanting that they shall not come within 40 course of Brampore, whereby our feare expressed in our last of the Princes seizure of [it] is removed" (Foster 1921, p.63).

For example, the factories at Kasimbazar, Masulipatam, Karwar, Vizagapatam, and Rajapur were raided repeatedly by local chieftains. Moreover, since the British were also competing with indigenous traders and merchants, a class that was very well connected with the

political elite, they were often undercut by the schemes and maneuverings of these local traders.

"But it was soon apparent that [Thomas] Roe had underrated the opposition of the Surat [local Hindu] merchants to the new venture - an opposition in which they could rely upon the backing of the local officials, who were mostly drawn from the trading classes and had a direct interest in thwarting the commerce of the English" (Foster 1906, p.xiv).

The British consequently suffered considerable losses at the hands of indigenous rulers, leading them to seek settlement zones away from extant cities and ports.

"As a result, Jehangir issued farmans 'to the aprehending of our persons, restitucion of our recoveries, and lastlie our expultion out of his countrie'... and on February 21, 1624, the English merchants at Surat were seized and put in irons, their dwelling and warehouses ransacked, and their goods confiscated; while threats of torture were used in the hope of extorting confession of hidden treasure" (Foster 1909, p.vi).

In short, military and geopolitical considerations played a paramount role in determining the English EIC's settlement patterns in the pre-colonial era. Empirical studies of colonial legacies have largely ignored the international power politics that preceded colonialism, preferring to keep colonial origins constant while focusing instead on institution-building after colonial consolidation. My analysis suggests that geopolitical struggles are central for understanding colonial origins and, in turn, for interpreting colonial legacies.

## A25.2. Source Criticism

The original correspondence raise three distinct challenges and the edited renderings of the correspondence raise an additional challenge with regards to interpretation and analysis. First, there is a possibility that the correspondence contains systematic inaccuracies or biases in terms of factual reporting. Given that the letters were exchanged between the EIC employees (or factors) based in India and the EIC Directors in London (who had limited information about circumstances on the ground), conflicts of interest might have arisen in terms of conveying factual information between parties. When reporting back about conditions in India, for instance, did the factors have incentives to misrepresent information about site selection? A potentially concerning issue is that the private trading interests of the Indian factors led them to systematically alter certain types of information. Although the EIC itself had a monopoly on Asian trade, company factors engaged in a fair amount of private trade for personal gain; this might have led them to misrepresent details about the locations of EIC hubs. Although plausible, this concern is not particularly relevant. Given the vast amount of correspondence amongst factors in different trading hubs and between factors and their London employers, there was a fair degree of cross-verification of factual details across letters. Therefore, apart from the possibility that there was a mass conspiracy to misrepresent information on the part of *all* the factors in India, which seems implausible, the factual veracity of these letters seems relatively uncontested. Moreover,

given the intra-factor competition for salary raises and company promotions that becomes apparent in the letters, there seems to be a fair amount of competing interests amongst the Indian factors; this should also potentially offset the likelihood of coordinated ploys against the London Directors. Additionally, the Directors seemed to have particularly innovative ways of keeping tab on their Indian factors.<sup>3</sup> Combined, these trends help alleviate fears of systematic biases or factual inaccuracies in the letters.

Second, apart from factual inaccuracies, it is possible that interpretative biases might riddle my sources. For example, if people wrote using euphemisms during the seventeenth century that might not be apparent to the modern reader, then their letters might contain factual information conveyed in these euphemisms that might escape modern scrutiny. In order to mitigate these concerns I review studies of Indian economic history as sanity checks for my analyses.

Third, it is possible that crucial letters or pieces of correspondence were destroyed in the course of history. This is a valid concern because ships were the sole means of conveying information during this period and it is plausible that ships could have capsized at sea. Yet, letter writers were aware of this concern and devised ways to protect against its possibility. For instance, they made a concerted effort to refer to conversation chains in their letters; if a particular letter disappeared, the reader could be able to ascertain a missing reference in future sections of the letter chain. Moreover, letter copies, as well as references to letter copies, were mailed in different ships to the same final destination. Although it is likely that not all letters were subjected to this copy-and-mail strategy, it seems reasonable to assume that important letters like the letters related to the opening and closing of factories were duplicated such that, at the very least, some versions survived adverse historical events. Additionally, this original correspondence has been particularly well preserved by the India Office.

Last, it is possible that the edited renderings of these letters also contain systematic biases. A valid charge is that these edited versions of the factory correspondence were produced by British historians during the period of official colonialism and hence might positively showcase the EIC's initial expansion. In general, however, the editors take care to present balanced accounts of the factory correspondence. For instance, in several instances, the editors highlight the misdeeds and foibles of the English factors in India. Moreover, I searched for factual corroboration across economic history sources written by Indian scholars where possible.

## References

Danvers, Frederick and William Foster. 1896-1902. Letters received by the East India Company from its servants in the East, 1602-1617 6 vols. London: Low Marston.

<sup>&</sup>lt;sup>3</sup>For instance, when factors traveled between different hubs, the Directors would send letters of introduction to the hosts but would also specify which aspects of the travel could and could not be expensed to the company. Moreover, the letters specify guidelines for the salaries and perks of factors, and reprimand individual factors for flouting these guidelines. In general, the Directors seem to have a fair amount of inner knowledge about the potential schemes and stratagems of the factors on the ground in India.

- Fawcett, Charles and William Foster. 1936-1955. *The English factories in India, new series,* 1670-1684, 4 vols. Oxford: Clarendon.
- Foster, William. 1906. The English factories in India, 1618-1621. In *The English factories in India*, *1618-1669*. Vol. 1. Oxford: Clarendon Press.
- Foster, William. 1908. The English factories in India, 1622-1623; a calendar of documents in the India office and British museum. Oxford: The Claredon press.
- Foster, William. 1909. The English factories in India, 1624-1629. In *The English factories in India*, 1618-1669. Vol. 3. Oxford: Claredon.
- Foster, William. 1910. The English factories in India, 1630-1633; a calendar of documents in the India office, Bombay record office, etc. Oxford: The Clarendon press.
- Foster, William. 1911. The English factories in India, 1634-1636, a calendar of documents in the India office, British museum and Public record office. Oxford: The Clarendon press.
- Foster, William. 1912. The English factories in India, 1637-1641. In *The English factories in India*, 1618-1669. Vol. 6. Oxford: Clarendon.
- Foster, William. 1913. The English factories in India, 1642-1645; a calendar of documents in the India office, Westminster. Oxford: The Clarendon Press.
- Foster, William. 1914. The English factories in India, 1646-1650; a calendar of documents in the India office, Westminster. Oxford: The Clarendon Press.
- Foster, William. 1915. The English factories in India, 1651-1654; a calendar of documents in the India office, Westminister. Oxford: The Clarendon press.
- Foster, William. 1921. The English factories in India, 1655-1660. In *The English factories in India*, 1618-1669. Vol. 10. Oxford: Clarendon.
- Foster, William. 1923. *The English factories in India*, 1661-64. Oxford: The Clarendon press.
- Foster, William. 1925. *The English factories in India*, 1665-1667. Oxford: The Clarendon Press.
- Foster, William. 1927. *The English factories in India*, 1668-1669. Oxford: The Clarendon press.
- Jha, Saumitra. 2013. "Trade, Institutions and Ethnic Tolerance: Evidence from South Asia." *American Political Science Review* 107(4):806–832.