Adjusting to Obsolescence: Deindustrialization and Economic Nationalism in Colonial South Asia

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Abstract

Economically depressed communities often organize politically for policies counteracting their decline. This paper shows that successful economic adjustment to this decline can enhance their political mobilization. I study this in the context of the *Swadeshi* Movement in colonial India, an economic nationalist movement in 1905 that combined mass grievance against both colonial administration and free trade policies that exposed Indian artisans to technologically advanced competition from Britain. Using newly digitized archival data and exploiting the rollout of the Indian railways in the late 19th century, I find that regions that obtained greater access to global markets featured both successful economic adjustment of deskilled communities to agriculture and greater support for anti-imperialist economic nationalism. Probing mechanisms, I find that increased exposure to global markets brought together a coalition of deskilled artisans and urban elites into a coherent political movement for protectionism and anti-imperialism. Ostensibly successful economic adjustment may diminish economic grievances but also enhance the ability of communities to organize politically.

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1 Introduction

> "*The English cotton machinery produced an acute effect in India … The bones of the cotton-weavers are bleaching the plains of India.*"
>
> Karl Marx, *Capital*, Vol. I (1867)

> "*Machinery in the past has made us dependent on England, and the only way we can rid ourselves of the dependence is to boycott all goods made by machinery.*"
>
> M.K. (Mahatma) Gandhi, (1932)

In a world of open markets, technologies invented in one country have global effects, often rendering older methods of production in other countries obsolete. When do communities made obsolete by this process react against open markets and become receptive to economic nationalist demands for protectionism? The conventional wisdom is that communities mobilize politically against their decline if they fail to be re-employed in new comparative advantage industries. In this paper, I present evidence that challenges this view. I argue that economically successful adjustment to economic shocks may nevertheless mobilize communities politically if it enhances their ability to organize around identity-based grievances.

I use colonial India as a laboratory to test this argument.[1] In the 18th and 19th centuries, the Industrial Revolution and rapid globalization led to a steep decline in South Asia's most prominent traditional manufacturing industry: handloom textiles. In little over a century, India went from being one of the world's leading textile producers to a net importer of textile goods. This globalization-induced obsolescence displaced millions of artisans who had derived their income from employing their skills in weaving, dyeing, metalwork, and other skilled pursuits. Among these communities, many transitioned en masse into agriculture, the comparative advantage industry in South Asia. This adjustment was largely aided by the construction of a vast railway network that connected the interior of the subcontinent to international ports, facilitating the export of agricultural commodities in which South Asia had a comparative advantage.

How did this adjustment affect support for economic nationalism? To answer this, I study participation in the *Swadeshi* movement[2], a proto-nationalist boycott in 1905 that encouraged Indians to substitute machine-made British cloth with domestic Indian cloth.[3]

[1] Throughout this paper, I use the terms South Asia, Colonial India, or British India interchangeably to refer to the region that contains contemporary Pakistan, India, and Bangladesh.

[2] In Sanskrit, *swadeshi* means 'of one's own country.'

[3] The movement was sparked by the partition of Bengal (the largest province in British India) in 1905 and quickly spread from Bengal to other parts of British India.

This movement was a precursor to the eventual Indian independence movement and set the tone for its combination of anti-imperialism with protectionism. I use a region's level of political organization for the *Swadeshi* Movement to measure its preference for economic nationalism.

I argue that, while economically beneficial, adjustment to agriculture may have enhanced political mobilization for economic nationalism. To test this, I collect a novel town and district-level dataset, bringing together archival data on employment, globalization, and political mobilization in the late 19th and early 20th century in Colonial India. I measure localized exposure to global markets by calculating a town's change in market access to the nearest international port from 1855 to 1900. To account for the endogeneity of the railway rollout, I use a novel method that permutes the timing of the railway rollout to control for a town's expected propensity to be connected to the railway. I use this market access measure to estimate the effect of globalization on the likelihood of a town participating in the *Swadeshi* Movement.

I first verify that increased global market access increased agricultural cultivation. Districts with a standard deviation higher increase in global market access had a six percent higher share of land devoted to agriculture by 1900. At the same time, these districts had a higher share of their population consisting of deskilled weaving communities. How did this affect the propensity of these towns to organize for economic nationalism? I find that towns with a standard deviation higher increase in their global market access were six percent more likely to participate in the *Swadeshi* Movement, as measured by them hosting a collective action event for the movement. This is a large effect, representing a 57% increase over the average town.

Why did adjustment to agriculture increase support for economic nationalism? I rule out increased import competition as a mechanism and find evidence that handloom weaving communities and other skilled artisans moved to globalized regions to find employment. I also present evidence that shows that they were successful in doing so. Skilled artisans living in globalized regions had lower unemployment rates and higher wages than those living in regions less connected to global markets.

Why did communities that were made better off by globalization organize politically against it? I argue that adjustment to agriculture brought together two groups that formed a coalition for economic nationalism: deskilled artisans and educated urban elites. While these artisans adjusted to agriculture and were economically better off because of the adjustment, their grievance against having lost their traditional livelihoods remained. The urban elites effectively channeled this grievance into a critique of imperial policy, particularly the British insistence on free trade. Adjustment opportunities seem to have enabled political

mobilization by bringing these two groups together in the same place.

In short, adjustment to negative economic shocks may not reduce political mobilization despite being economically successful. Instead, it may enhance political mobilization by activating identity-based grievances and enhancing the collective action capacity of communities affected by economic decline. This has implications for understanding the conditions under which economic nationalism emerges as a political force.

Specifically, the results in this paper help us understand why so many nationalist movements in the global South in the 20th century adopted ideologies of economic nationalism and protectionism. As Mylonas and Tudor (2021) point out, the conditions under which nationalism emerges as an exclusionary force advocating for a turn away from the principles of global integration is not well understood. The results in this paper suggest that nationalism will take a protectionist form even when aggrieved communities have adjusted to new sectors of the economy.

Focusing specifically on colonial South Asia, the results in this paper help us make sense of the coalitions behind the Indian independence movement. As one of the earliest mass manifestations of the movement, the *Swadeshi* Movement set the tone for the subsequent independence movement. The results in this paper suggest that the movement was not just a reaction to economic decline but a reaction to successful economic adjustment. This helps us reconcile studies that find positive economic outcomes for many communities in colonial India (Donaldson, 2018) with the fact that economic decline and excessive globalization was one of the key themes of Indian anti-colonialism (Dutt, 1906; Nehru, 1946).

More broadly, this paper joins a growing body of work in international political economy that shows across contexts that economically positive adjustment to and compensation for economic shocks can create political constituencies for protectionism and economic nationalism (Kim and Gulotty, 2024; Scheve and Serlin, 2024). This paper adds to this literature by showing that one mechanism for this is elite political entrepreneurs' activation of identity-based grievances.

The rest of the paper is organized as follows. The next section presents an overview of the conventional adjustment hypothesis and the theoretical mechanisms by which it may fail. Section 3 provides background on the *Swadeshi* Movement and the economic context of colonial India. Section 4 describes the data and empirical strategy. Section 6 presents the results. Section 7 probes the mechanisms behind the results. Section 8 concludes.

2 Adjustment to Global Economic Shocks and Economic Nationalism

Political movements for industrial revival and protectionism often emphasize the experiences of a specific set of producers that experienced an economic decline after facing competition from abroad. Beyond the political rhetoric, however, the conditions under which those affected by global technological and commercial competition will demand barriers to open markets are less well-understood. Moreover, under what conditions are such movements motivated primarily by a demand for income-based compensation as opposed to a demand for the revival of a particular sector?

2.1 The Adjustment Hypothesis

An extensive literature predicts that economic nationalist movements will find their greatest support among producers who failed to adjust to other sectors of the economy. In this line of work, a domestic backlash against open markets usually reflects the breakdown of a "re-distributive bargain" between the winners and losers from globalization (Ruggie, 1982; Bisbee et al., 2020). Absent redistribution, producers[4] made obsolete by technology from abroad will seek to restrict open markets to protect themselves from technologically advanced competition.[5]

Theoretically, a lack of mobility out of one's sector of employment leads to a preference for industry-specific compensation (Alt and Gilligan, 2002). In models with high factor mobility, based on the Heckscher-Ohlin theorem, producers have attachments to their factor ownership rather than their sector. They, therefore, will demand compensation in the form of factor-specific transfers such as assistance for trade adjustment (Rogowski, 1990). In both these cases, successfully compensating obsolete producers by re-employing them in comparative advantage sectors can reduce their support for protectionism and economic nationalism.[6] Several empirical studies support the compensation hypothesis. Margalit

[4]Throughout this paper, I use the term producers to encompass different types of groups to which the theory applies. These include workers and firms, but more generally, owners of various factors of production.

[5]Of course, redistribution need not take the form of re-employing producers into new sectors. It may involve pure income redistribution through a more expansive welfare state (Scheve and Serlin, 2022). As Acemoglu and Robinson (2001) argue, however, compensation for economic decline often takes the form of inefficient policies such as tariffs and subsidies rather than simple redistribution because the winners of globalization cannot commit to sustaining income redistribution in the long run. Inefficient policies such as tariffs ameliorate such commitment problems by keeping the declining sector artificially large and therefore politically powerful.

[6]In factor-based models, relatively scarce factors oppose trade precisely because the comparative advantage sector does not have enough demand for them. In principle, however, if this demand were created, it would compensate these factors for income lost under trade.

(2013), for example, shows that support for re-distributive policies increases after people lose their jobs during recessions but returns as they regain employment. Hiscox (2002) similarly shows that high labor mobility between industries makes industry distinctions less relevant than class distinctions over trade policy. Kim and Pelc (2021) show that counties in the US that face import competition are less likely to demand protectionism if they have traditionally relied on Trade Adjustment Assistance (TAA) to compensate them for job loss.

By implication, redistributing the gains from openness by helping the non-adopters of technology to adjust to different sectors will reduce the likelihood of domestic backlash to open markets (Rodrik, 2007; Lastra-Anadón, Scheve and Stasavage, 2020). This also reflects a popular view amongst economists that new technologies create "short-term disruption, long-term benefits" (Mokyr, Vickers and Ziebarth, 2015). There might be a transitory period of unemployment for the non-adopters, but in the long run, they adjust into newly created sectors of the economy, making everyone better off eventually. This idea has a long history in political economy, going back to Jeremy Bentham, who claimed that "opposition to machinery is well grounded, [only] if no care is taken to provide immediate employment for the discharged hands." (Hollander, 2019). However, this perspective assumes that producers' main concern is their current income. It fails to explain why, even in societies with expansive welfare states and compensation programs, movements for protectionism and social revival actively seek the revival of specific sectors of the economy.

2.2 Why Adjustment Might Increase Support for Economic Nationalism

While the adjustment hypothesis relies on a well-specified mechanism by which adjustment reduces grievances about lost income and livelihoods, this overlooks the possibility that adjustment might have other effects that counteract the income-based compensation mechanism. In particular, adjustment might actively aid political mobilization by (a) activating identity based concerns and (b) enhancing the collective action capacity of communities affected by economic decline.

Identity-Based Attachments One possibility is that support for economic nationalism is rooted in an identity-based attachment to a specific sector or line of work. A large body of work in social psychology and political economy suggests that people's actions, including their sector of work, affect their identity.[7] The basic idea is that people working in a given sector over time start to think of performing particular kinds of work as part of their identity

[7]See Shayo (2009) for a model of how identities and actions are chosen together.

(Ellemers, 2001; Gaikwad, 2018; Gaikwad and Suryanarayan, 2019). These identities may be valuable in and of themselves or because they designate membership in a social group with high-status (Tajfel and Turner, 1986). Functionally, this means that people derive utility from working in that sector and dis-utility from not working in the sector *independently* of the income they derive from working in the sector. Working outside a sector prescribed by one's identity might be costly because it creates cognitive dissonance between one's identity and actions (Festinger, 1957; Acharya, Blackwell and Sen, 2018).

However, social identity theory also suggests that adjustment can exacerbate identity concerns. If adjustment involves switching to a different sector, producers might see their incomes increase but suffer the cognitive dissonance costs of working in a sector not prescribed by their identity. Beyond these costs, a mass movement of workers out of a sector may exacerbate its economic decline and, therefore, social status. To the extent that workers value the social status of their group, adjustment may create an identity-based grievance among workers who see their social status decline.[8] On the other hand, those who stay in a declining sector might be less likely to organize for protectionism since they do not suffer such identity-based costs.

Increasing Collective Action Capacity Beyond creating cognitive dissonance costs, adjustment may bring together a critical mass of deskilled workers with identity-based attachments to their old sector for work. Having an identity-based attachment and higher income may enhance their capacity to mobilize around policies that affect all group members (Aggarwal, Chaurey and Suryanarayan, 2022). Moreover, adjustment opportunities may be most plenty in regions where there exist other elites who can serve as political entrepreneurs and mobilize these workers around a common cause. These entrepreneurs could tap into identity-based grievances around lost self-esteem of groups (Horowitz, 2000) or more material considerations such as a call for protectionist and redistributive policy (Gaikwad, 2018).

Beyond mobilizing individuals with identity-based grievances, adjustment may also enable mobilization by reducing the costs of collective action. Organizing politically requires economic resources since political campaigns require funding and labor, both of which are more affordable by communities that have been enriched by adjustment. Dasgupta (2018) for example finds that the adoption of high-yield variety (HYV) crops in India as part of the Green Revolution empowered a set of political outsiders to mobilize by providing them with

[8]Of course, identities need to be 'sticky' for this mechanism to be at play. If those who adjust to the comparative advantage sector take on the identity of their new sector, they might become less supportive of protectionism than if they had stayed. If switching identities in this way is costly, however, we can still consider the adjustment process as creating identity-based costs that are unwanted ex-ante.

more economic resources needed for political participation. Adjustment may also serve as a focal point, informing communities of their shared grievances. In the context of adjustment to trade shocks in the contemporary US, for example, Kim and Gulotty (2024) find that Trade Adjustment Assistance (TAA), while compensating workers for job loss, also increases their political mobilization against incumbent politicians because it informs them about the costs of globalization. Similarly, Scheve and Serlin (2024) find that regions enriched by opportunities for export agriculture featured more protectionism because it brought together a coalition of workers who benefit from protectionist policies.

In short, adjustment can compensate for lost income but also mobilize. In contexts where identity-based attachments are particularly strong, adjustment may not reduce grievances as much as it enhances collective action capacity. The net result in these settings may be increased support for economic nationalism among communities that have adjusted to new sectors.

The next section presents a most-likely case for this hypothesis: mobilization for economic nationalism by communities displaced by international trade and technological competition in British India. This is a setting where the large-scale adjustment took place among communities that had very strong identity-based attachments to their traditional sector of work. The main hypothesis I test is that exposure to globalization increased support for economic nationalism despite providing opportunities for adjustment to new sectors.

3 Historical Context

3.1 The Decline of Traditional Textile Production in South Asia

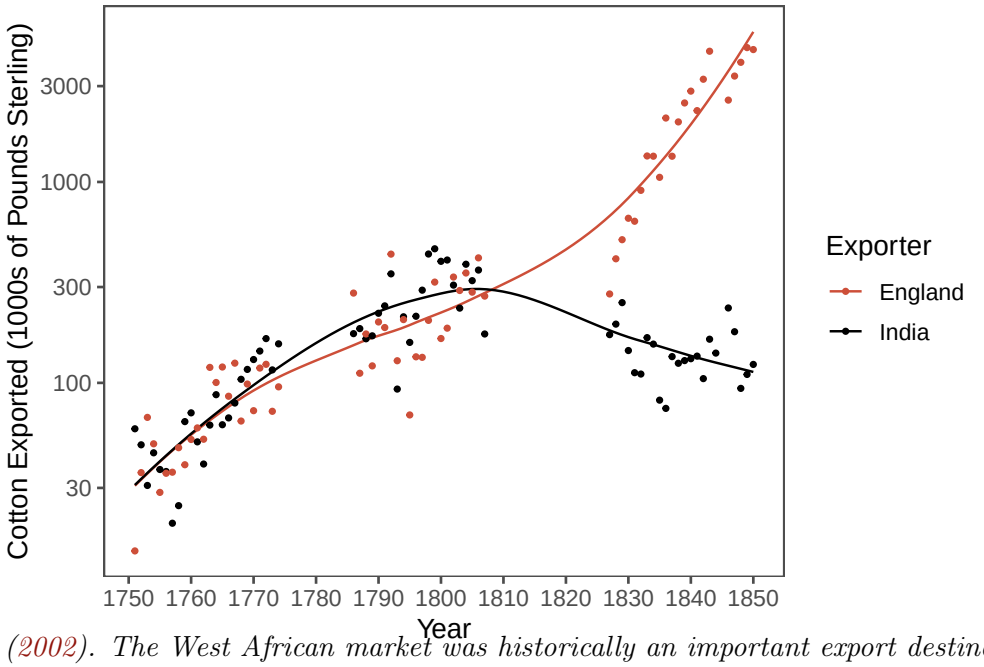
In 1750, India produced 24.8% of the worlds manufacturing output (Bairoch, 1982). By 1913, this share had dwindled to 1.4%. This stunning decline in global industrial leadership primarily reflects the devastation of India's most prominent pre-colonial industry: textiles. Before the Industrial Revolution, Mughal India was one of the leading global centers for handloom-based textile goods. Textile weaving was a well-organized manufacturing industry centered around weaving towns – what Haynes (2012) calls "small-town" capitalism. Weavers were prominent members of the local community and, before the arrival of cheaper machine-produced cloth, were also local monopolists (Roy et al., 1999). In addition to the local trade, South Asian textiles were a major export good, with Bengal being world-renowned for its high-quality fabrics.

The Industrial Revolution and its Effect on India Handloom spinning and weaving around the world had always been a labor-intensive industry, as key procedures in the spinning and weaving process required using human fingers (Mokyr, 1992). As the Industrial Revolution took off in Britain in the 18th century, a series of technological improvements in the spinning and weaving process overcame this major bottleneck, creating an enormous cost advantage for modern mill-made cloth relative to traditional handloom spinning and weaving. While Indian hand-spinners took 50,000 hours to spin 100 pounds of cotton, British Arkwright rollers and the self-acting mule brought these down to 135 hours (Chapman, 1972). Slower improvements in mechanized weaving and the rise of the factory system made hand-weaving obsolete in Britain by the late 1830s (Harley, 1998).[9] Indian handloom textiles now faced intense competition from British textiles. To understand the magnitude of this competition, Figure 1 shows the relative exports of Indian and English cotton goods to West Africa, an important market for textile goods (Inikori, 2002).[10] While Indian and English goods divided the market fairly equally before the 1800s (with a slight advantage for Indian goods), after the 1820s, Britain's market share skyrocketed as the Industrial revolution took off.

[9] Mokyr (1992) reports that the combined effect of these improvements was a drop in the price of cotton cloth by 85% between 1780 and 1850. Lancashire in northwest England became the center of the modern textile industry (and the Industrial Revolution).

[10] West African textile markets were an important part of the Atlantic slave trade, as sites where Europeans traded enslaved people for Indian (and later British) textile goods.

Figure 1:
Effect of the Industrial Revolution:
Britain Overtakes Indian Textiles in Foreign Markets
Exports of Cotton Goods to West Africa 1750-1850, (Log Scale)



Source: Inikori (2002). The West African market was historically an important export destination for Indian and British cloth. Data for after 1820 is only available in terms of yards, a constant price of 0.27 pounds per yard is applied to those years. Solid lines denote LOESS regressions.

The combination of technological change and global competition proved lethal to local communities specialized in the old handloom industry. Bagchi (2010) estimates that in Bengal alone between 1809 and 1828, at least one million people employed in the textile industry lost their jobs.[11]

Handloom weaving and factory-based production required completely different mixes of labor and capital, preventing handloom weavers from adapting to the new industry. As one editorial in the Indian Newspaper *Amrita Bazar Patrika* lamented in 1906: "... a weaver in Lancashire can do the work of at-least ... nine handloom weavers. Do you think the Indian workman ... can ever hope to compete with the European if the disparity between them is so great?".[12,13]

[11] While economic historians do actively debate whether the decline of Indian textiles was reflective of a broader industrial decline (Roy, 2013), there are few who would doubt that large populations of handloom weavers became obsolete in this time period.

[12] *Amrita Bazar Patrika*, January 20th 1906.

[13] Not all textile producers in India experience obsolescence at the hands of modern machinery, however. Some handloom weavers, especially if we look at later time periods of the 20th century, survived. In Madras presidency in 1901, for example, half a million people were actively employed as handloom weavers, 13 weavers for every 1000 people (Gait, 1902). By contrast, Bengal, which had been the historical center of

3.2 Railways and Rapid Global Integration in the late 19th Century

Complementing technological change in British textile production was the rapid integration of India into international markets. This process was led by two primary forces: improvements in international transportation technology, and a concerted state-led effort to build railways further inland in India. O'Rourke and Williamson (1999) report that improvements in steamship technology in the 19th century, as well as the opening of the Suez Canal in 1869 reduced real British freight rates by 70% between 1840 and 1910. While this deepened the integration of port towns in British India into the larger global market, inland areas in India still remained relatively isolated from world markets until mid-century. Around this time, partly to integrate British military forces in India and partly to enable a greater supply of cotton to Lancashire, the British rapidly built railway lines throughout India, replacing bullock-based transport and bringing large parts of the rural hinterland out of "near autarky" (Donaldson, 2018). The blockade of Southern Confederate ports during the US Civil War (1861-65) and the resulting 'cotton famine' further intensified British efforts to create alternative sources of raw cotton in the colonies, further galvanizing the construction of railways in British India. By 1930, India had the fourth-largest railway network in the world, with 67,247 km of track (Donaldson, 2018).

Mughal textiles, had only around 309,000 weavers, 4.14 per 1000 people. Across India in 1901, a third of the industrial workforce of 13 million was employed in cotton handloom weaving (Roy, 2018).

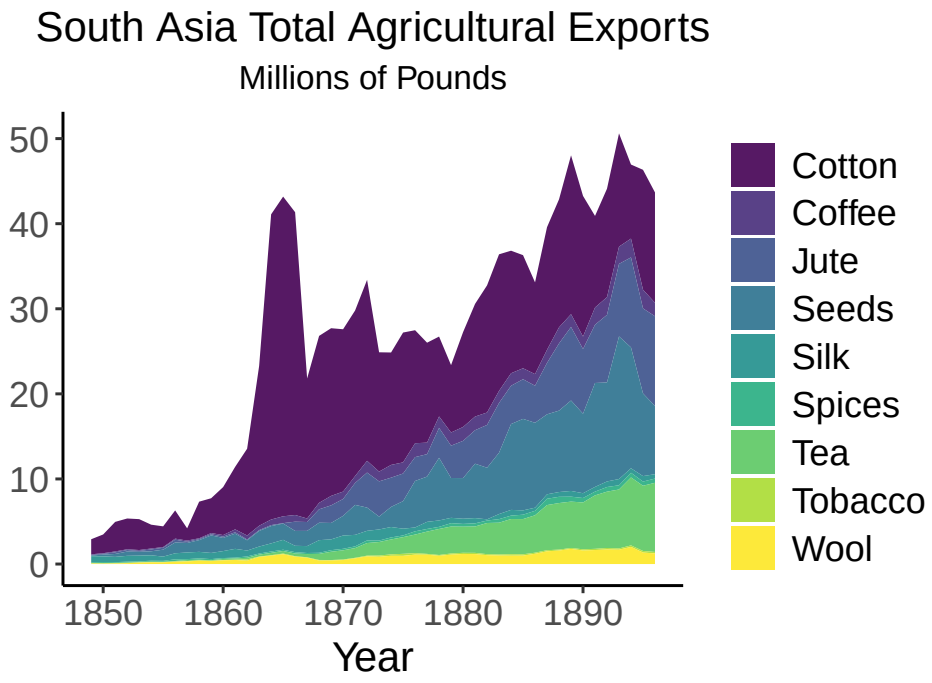


Figure 2:
Exports of Agricultural Goods in the First Era of Globalization
Source: Statistical Abstract of British India for various years.

One important effect of this rapid integration was that India could benefit from the opportunities to adjust deskilled artisans into export agriculture. In line with a Heckscher-Ohlin model of international trade, if workers could freely move from declining industries into expanding industries, they could, in principle, benefit from the opportunities of globalization. Figure 2 shows the rapid growth of agricultural exports from India in the late 19th century.

3.3 Support for Economic Nationalism: The *Swadeshi* Movement

The obsolescence of the traditional Indian textile industry did not result in an immediate mass uprising or revolt. As a slow moving process that de-skilled and de-industrialized Indian weavers in fits and spurts throughout the late 18th and 19th centuries, it is hard to pinpoint a single moment where we would expect to see a mass movement for protectionism. This process did however, inspire and animate much of the subsequent Indian independence movement. Dadabhai Naoroji, one of the founding members of the Indian National Congress, for example, blamed British commercial policy as well as excessive international openness as a cause of the 'wealth drain' from India to Britain. Ideological leaders of the movement continued to advocate versions of protectionism and economic nationalism throughout the struggle for self-rule.

In this paper, I focus on one of the earliest manifestations of this broader movement. In 1905, the colonial administration under Viceroy Lord Curzon decided to partition Bengal, the largest Indian province, ostensibly to aid its administration. The partition created a new province, Eastern Bengal and Assam, joining together districts of Eastern Bengal with the existing province of Assam. To many Indians, especially the leadership of the recently created Indian National Congress, the decision to partition Bengal was just the latest manifestation of the British policy of 'divide and rule'. The partition sparked the *Swadeshi* movement, the first manifestation of the eventual non-violent movement for home-rule by the leadership of Congress. The Swadeshi movement (specifically its first manifestation) ended formally in 1911 when the British re-united Bengal.[14] However, the movement saw a second manifestation after World War I under the leadership of Mahatma Gandhi as part of the broader non-cooperation movement and continued to inspire the remained of the Indian independence movement and post-Independence industrial policy.

While a protest movement in response to the partition was expected, a peculiar feature of the *Swadeshi* movement was its emphasis on boycotting machine-made British textile goods in favor of traditional Indian handloom woven cloth. The fact that the movement adopted an economic nationalist character allows us to study support for economic nationalism in British India. It also indicates how heavily de-industrialization and obsolescence weighed on the collective imagination of Indian leaders.

In principle, the *Swadeshi* movement could have been primarily an anti-colonial movement without preferences over trade policy. Yet its call for the purchase of Indian made cloth instead of British cloth meant that it was an explicitly protectionist movement. In fact, some *Swadeshi* leaders did demand tariff protection from the British administration, but since tariff policy at this time was not in the hands of local Indian governments, this was widely seen as a lost cause. As one editorial in a popular Indian daily put it:

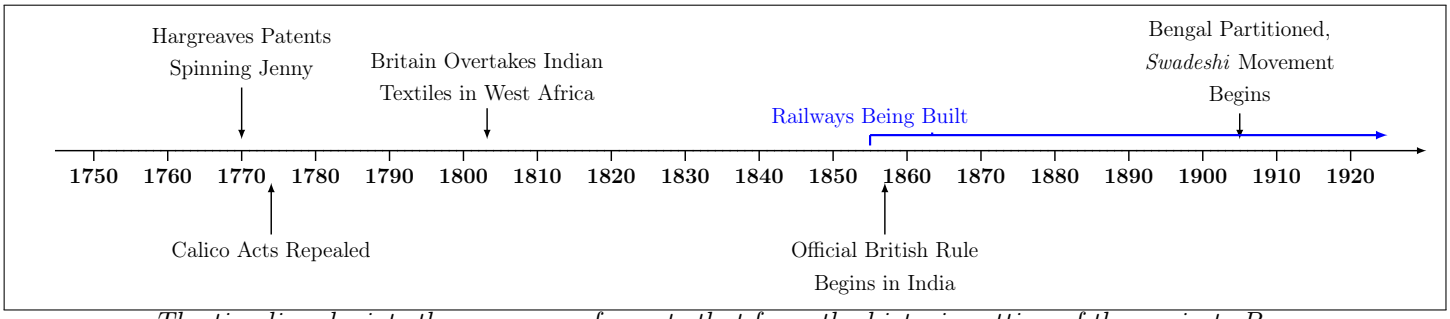
> "*The whole 'white portion' of the British Empire, in short, is for Protection, but when we poor Indians adopt a rough and ready method of Protection the shout of sedition is raised! Russia is protectionist, Germany is protectionist, France is protectionist; all the free and self-governing nations are protectionist. But Indians, because they are voiceless and helpless, must be Free Traders and must be tied to the wheels of the Juggernaut car of Lancashire!*"
>
> **- The Tribune (Lahore), 21st September 1905**

The demand for tariff protection resonated with mill owners, who had been trying for years (and who would indeed continue to do so up until independence) to get the British

[14] While Bengal was reunited in 1911, a few districts of the Bihar region and Orissa were joined into the separate province of Bihar and Orissa.

administration to place tariffs on cotton piece-goods imports (Casler and Gaikwad, 2019). However, in its first manifestation in 1905, the *Swadeshi* movement was avowedly luddite. As Kannangara (1968) states, "Swadeshism was not born out of a concern for the cotton-manufacturers[mill owners] ... There was a concern for the peasants, for urban artisans and rural handicraftsmen, especially for handloom weavers whose decline in the face of cheap mass-produced imports from Britain was one of the great themes of the nationalist case against the record of British rule". This fact allows us to use regional support for the *Swadeshi* movement as a measure, albeit an imperfect one[15], of support for protectionism.

Figure 3: **Timeline of Events**



The timeline depicts the sequence of events that form the historic setting of the project. By 1800, the Industrial Revolution was in full force in Britain. Throughout the century, competition from machine-produced textiles greatly diminished the global and domestic market share of the South Asian handloom textile industry.

Putting this historical context together, Figure 3 shows the timeline of events that are relevant for the rest of this paper. Did exposure to globalization through the building of railways affect the likelihood of a region participating in the *Swadeshi* movement? Section 2 outlined several pathways through which exposure to globalization, through its affect on adjustment, could affect support for economic nationalism. In the next section, I present the data used to test this hypothesis and disentangle the mechanisms through it could do so.

4 Data and Measurement

I use various colonial and pre-colonial data sources to create an economic and political database of colonial South Asia during the first era of globalization. Most of these data are newly digitized, enabling me to conduct a fresh, data-driven empirical analysis of century-old questions about the effects of the first era of globalization on South Asia. Appendix Table

[15]Since the movement was sparked by the partition of Bengal, adherence to it was strongest in Bengal. In analyses below, I attempt to control for this by looking at variation only within provinces.

8 summarizes the main data sources used in this paper. The two main units of analysis in this paper are towns and districts. My sample of 1,497 towns spanning 210 districts in six provinces comes from the 1901 Census of India. The towns and districts are only those in British provinces, excluding princely states[16].

I now detail how I construct this paper's main variables of interest. Appendix Table 11 provides summary statistics for these variables at the two levels of analysis.

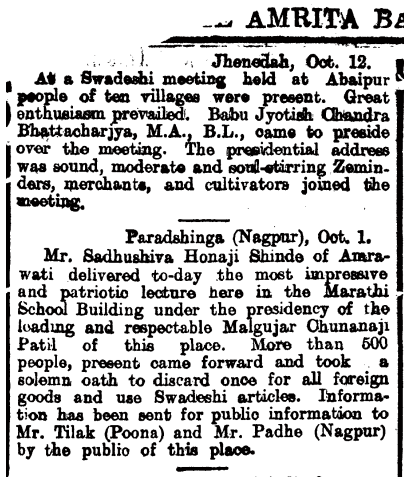
4.1 Outcome: Participation in the *Swadeshi* Movement

The main outcome in this paper is localized support for economic nationalism in colonial India. I measure a community's support for economic nationalism using the number of *Swadeshi* events held in a town in 1905, the first year of the boycott. During the movement, the main method through which political elites tried to encourage and spread awareness of the boycott was through *Swadeshi* meetings. I use the NewsBank (2021) database of South Asian Newspapers to geo-locate *Swadeshi* meetings held in 1905. Figure 4a shows an example of two meetings mentioned in a news article. A minority of events are not *Swadeshi* meetings but rather the creation or inauguration of *Swadeshi* organizations (e.g., civic organizations created to encourage indigenous goods) or bonfires of foreign goods. Since both types of events indicate collective action for the *Swadeshi* movement, I count them as *Swadeshi* events. This exercise yields 242 *Swadeshi* events held at 67 distinct districts. Figure 4b shows the distribution of *Swadeshi* meetings in this period.

[16]Colonial India was divided into provinces formally governed by the British and princely states that served as semi-autonomous vassals of the colonial regime. Data limitations prevent an analysis that includes the princely states. However, British Indian provinces comprised the vast majority (around 79% in 1901) of colonial India's population, making the analysis applicable to most of the population. Due to data availability limitations, the vast majority of the analyses focus on the six largest provinces (Bengal, Bombay, Central Provinces, United Provinces, and Oudh, Madras, and Punjab), which comprised 71% of colonial India's population in 1901.

Figure 4: **Measuring Political Organization**

(a) **News Article Mentioning two *Swadeshi* Meetings**



AMRITA B

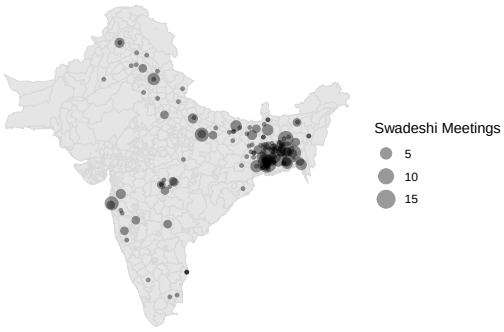
Jhenedah, Oct. 12.

At a Swadeshi meeting held at Abaipur people of ten villages were present. Great enthusiasm prevailed. Babu Jyotish Chandra Bhattacharjya, M.A., B.L., came to preside over the meeting. The presidential address was sound, moderate and soul-stirring Zemindars, merchants, and cultivators joined the meeting.

Paradshinga (Nagpur), Oct. 1.

Mr. Sadhushiva Honaji Shinde of Amaravati delivered to-day the most impressive and patriotic lecture here in the Marathi School Building under the presidency of the leading and respectable Malgujar Chunanaji Patil of this place. More than 500 people, present came forward and took a solemn oath to discard once for all foreign goods and use Swadeshi articles. Information has been sent for public information to Mr. Tilak (Poona) and Mr. Padhe (Nagpur) by the public of this place.

(b) **Swadeshi Events in 1905**



The size of each dot denotes the number of events held at this location.

It is important to note that *Swadeshi* events held in a town need not be purely organized and attended by weavers (or former weavers) for this to be a good measure of local support for economic nationalism. Instead, I think of a town's inhabitants as internalizing the interests of the weaving industry in a sociotropic manner (Duch and Stevenson, 2008; Mansfield and Mutz, 2009; Colantone and Stanig, 2018). While weaving was the most prominent skilled artisan industry in pre-colonial India, more generally, I consider the interests of the skilled artisan class as a whole to be measured by the presence or absence of *Swadeshi* events in a town.

Another indication that the *Swadeshi* Movement was a mass movement is that it was accompanied by a large shift in consumer preferences towards Indian-made goods. Appendix Section D.1 tests this in an aggregated way by measuring the differential purchases of Indian versus imported European cloth over time by administrative units called trade blocks. As Appendix Figure 9 shows, differential purchases of Indian versus European cloth increased by 25% by 1906 and 100% by 1911.

These are large effects on the differential purchase of home versus foreign cloth. Such shifts in demand are unlikely to be driven by a tiny elite, especially because imported cloth was consumed very widely by the rural population in India (Roy, 2020). Instead, the results suggest that the *Swadeshi* movement was a mass movement. This accords with the work of historians of Colonial India. Goswami (2004), for example, considers the 1905 movement the first time the idea of *Swadeshi* assumed the form of a "radical mass" movement.

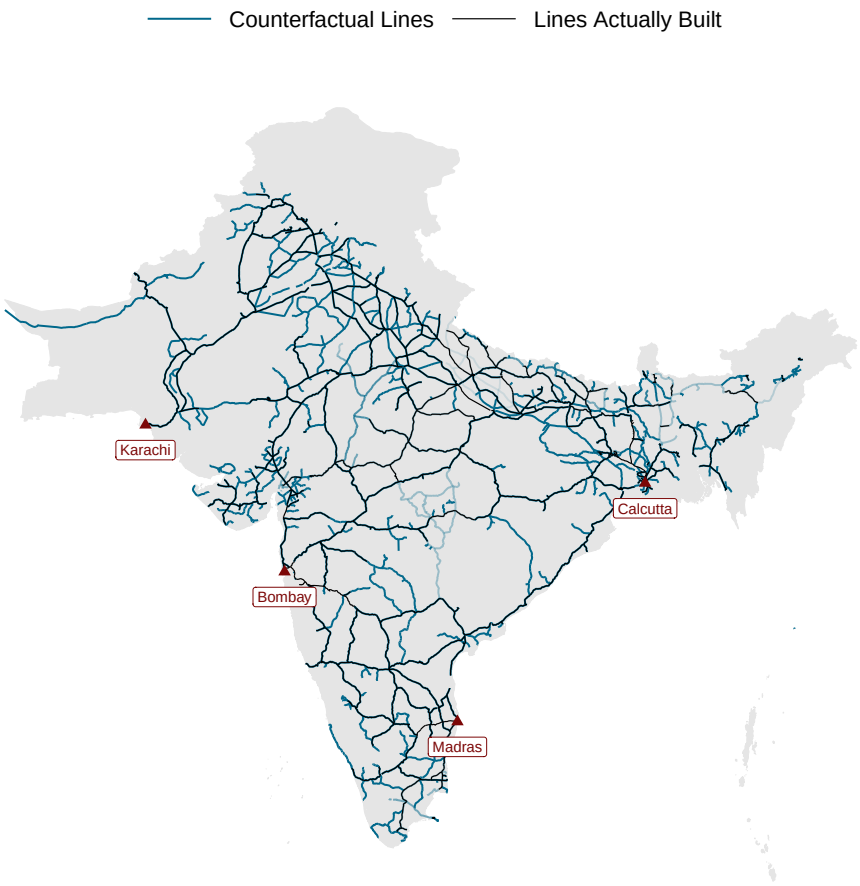
4.2 Exposure to Globalization

Change in Market Access to Ports To isolate exposure to British textile imports, I use the rollout of the railway network in India in the 19th century as a natural experiment. I collect the location of railway lines in British India from Donaldson (2018) and Fenske, Kala and Wei (2023). The earliest railway line was constructed in 1853, and the system grew rapidly until partition in 1947. To use this network to construct a yearly panel of town-level international trade costs, I convert the geospatial railway data into a yearly network dataset where the nodes are towns and edges between towns are either railway lines or straight lines if they are not connected by railways in a given year. Using this network, I calculate d_{it}, town i's effective distance to international ports in kilometers.[17] More formally, I use Dijkstra's algorithm to find the length of the shortest path between town i and the nearest port.[18]

[17] I selected the ports based on whether they appeared as major export or importing ports in the *Price and Wages Series of India*, 1901. They include Karachi, Bombay, Madras, and Calcutta. While other smaller ports engaged in overseas trade, these four ports managed the vast majority of both the import and export trade of British India.

[18] For segments of this path connected by railways, I use a weight of 1, while for segments not connected by rail, I assume a straight-line distance between points and use a weight of 10 to emphasize the role played by the railways relative to non-railway modes of transport.

Figure 5: **Measuring Change in Market Access to Ports Through Railways**



Notes: The figure shows the actual railway lines in India up to 1900 (in black) and the counterfactual railway lines constructed by randomly permuting the actual lines built after 1860. The counterfactual lines are used to construct a re-centered railway shock variable following Borusyak and Hull (2023). The four major international ports are labelled in red.

Using this measure, I follow Donaldson and Hornbeck (2012) in defining a town's market access to the nearest port in year t as the log of the inverse of the distance to the nearest international port:

$$PortAccess_{it} = log(\frac{1}{d_{it}})$$

As my my main treatment variable in the analysis, I use the change in market access to the nearest port from 1855 (before the railways) to 1900. This is defined as:

$$\Delta PortAccess_i = PortAccess_{i,1901} - PortAccess_{i,1855}$$

This variable captures the increase in a town's exposure to international markets due to the rollout of the railway system (Donaldson, 2018). For district-level analyses, I construct a district-level measure that is the average of $\Delta PortAccess_i$ for all towns in a district, weighted by town population. In all analyses, I standardize the variable to have a mean of zero and a standard deviation of one to make the estimated coefficients more interpretable.

Expected Railway Shock In the equation above, $\Delta PortAccess_i$ measures the realized change in market access to the nearest major port from 1855 to 1900. One potential concern with this measure is that it bundles together market access due to the growth of the railway system with factors that make a town more likely to be connected to the railway system. To address this, I follow Borusyak and Hull (2023) in considering the observed rollout of the railways from 1855 to 1900 as one out of any possible realizations of the railway system. As Sanyal (1930) details in his history of the Indian railways, railway companies, and administrators brought forward a multitude of possible routes that could form part of the railway system. Many routes initially planned to be built were not part of the first set of railway lines but were built later on. Many routes were never built but planned at some point[19].

To account for this, I create a set of 1000 counterfactual railway lines from 1860 to 1900 that deviate from the actual railway lines but are plausible alternative configurations of the system. Appendix Section B details the procedure I use to construct the counterfactual railway lines. The basic procedure is, for every iteration, at every year t, to add new railway lines to the network from a set of potential railway lines that (a) are drawn from lines built after t, (b) are connected to the current counterfactual network as it stands at t, and (c) if added, add the same amount of track length as the actual railway lines added in that year. Armed with the 1000 counterfactual railway networks, I calculate the change in market access to ports for each network. I then calculate the expected change in market access to ports for each town as the average change in market access to ports across the 1000 counterfactual networks. This measure, which I call $E[\Delta PortAccess]_i$, captures a town's expected change in market access to ports due to the rollout of the railway system.

In this framework, I assume that, conditional on a town's expected change in market access to ports (which captures the town's propensity to receive a railway line), the realized change in market access to ports is plausibly random. Appendix Figure 8 plots the

[19] Donaldson (2018) uses planned but never built lines as a control group to estimate the effect of railways.

distribution of the realized and expected change in market access to ports.

4.3 Economic Outcomes

Measuring Deindustrialization: Missing Weavers One important outcome in this paper is the degree to which the population of a district experienced a decline in the traditional handloom weaving industry. To measure this obsolescence or deindustrialization, one would compare a district's employment in handloom weaving in the 18th century to the number above from 1901. However, systematic India-wide data on district-level employment was not collected until the 1871 census. In the absence of this data, I construct a measure of deindustrialization by comparing a district's actively employed weavers in 1901 to the number of individuals who could have been employed in the textile industry in a district. This potential pool of weavers is measured by the population of traditionally weaving castes in a district. Handloom weaving was tied to caste in colonial India, and the vast majority of traditional weaving before the advent of competition from English textiles was done by members of weaving castes (Roy, 2020).

I use the *Report of the Fact Finding Committee (Handloom and Mills)* (1942) and caste descriptions in the 1901 census to create a list of castes whose traditional occupation was handloom weaving[20]. I then collect each district's population of traditional weaver castes and actual handloom weaving workers from the 1901 *Census of India*. I then calculate a measure of deindustrialization that I term 'missing weavers,' defined as the weaver caste population in a district minus the number of individuals listed as working in the handloom industry in 1901. This measure, though imperfect, has a clear identification assumption: absent negative economic shocks to the weaving industry and given that weaving is a strictly caste-based occupation, the number of missing weavers in a district measures the mass of *potential* weavers who could have been employed in the textile industry in a district[21]. Of course, a district's weaver caste population also includes dependents who do not work. Nevertheless, the measure is a good proxy for the number of individuals who could have been employed in the textile industry in a district since it would positively correlate with the number of unemployed weavers in a district.

Other Economic Outcomes In addition to the measure of missing weavers, I construct a variety of other economic outcomes at the district level. These include the percentage of a district's land area devoted to agriculture, the percentage of a district's land area devoted to food grains, and the percentage of a district's land area devoted to cash crops. These

[20] Appendix Table 9 lists these weaver castes as well as the provinces where they are predominantly found.
[21] I thank Aditya Dasgupta for this suggestion.

measures are constructed from the *Agricultural Statistics of India* from 1899. I also collect a host of economic and demographic variables, such as literacy rates and percentages of the working population in various sectors from (Chaudhary and Fenske, 2023).

Appendix Table 8 shows the main data sources used in this paper. Appendix Table 11 provides summary statistics for the main variables used in the analysis. The next section now presents the general empirical strategy used to estimate the effect of globalization on economic and political outcomes in colonial India.

5 Empirical Strategy

Having collected both a town and district level dataset, I estimate the effect of increased market access to international ports on both economic and political outcomes. The main estimating equation used throughout the rest of the paper is the following specification for either the set of towns or districts, indexed by i:

$$y_i = \tau \Delta PortAccess_i + \beta_1 \mathbb{E}[\Delta PortAccess]_i + \beta_2 PortAccess_i^{1855} + + \alpha \mathbf{X}_i + \gamma_p(i) + \epsilon_i \quad (1)$$

Where y_i is an outcome variable measured for town or district i, and $\Delta PortAccess_i$ is the main treatment variable as defined above, capturing a town or district's change in market access to the closest international port from 1855 to 1900, with higher values of this variable denoting a greater degree of exposure to global markets due to the railways. τ is the main coefficient of interest, capturing the average treatment effect of international market access on the outcome of interest.

As described above, all regressions also include measures of a town or district's expected change in port access $E[\Delta PortAccess]_i$ and preexisting (pre-railway) port market access $PortAccess_i^{1855}$[22]. Conditional on these two variables (as well as the relevant covariates and fixed effects, I interpret τ as the effect of a town or district gaining international market access in a plausibly exogenous way.

For all three port access variables in the analyses below, I standardize the variables to have a mean of zero and standard deviation of one. This makes estimated coefficients more interpretable as the effect of a standard deviation higher exposure to international markets.

All regressions include province fixed effects $\gamma_p(i)$ and, depending on the outcome and specification, a set of control variables $\mathbf{X}_i$. These include a town or district's population

[22]I control for initial market access because even conditional on expected change in market access, actual change in market access is still highly correlated with pre-existing distance from international ports.

(from 1901, logged), and for regressions with political outcomes the percent of a town's district that is Muslim, its latitude and longitude, as well as its literacy rate and general market access[23]. The next section presents the results from estimating this equation using the data described in Section 4.

6 Results

In this section, I present the results of the empirical analysis. I first show the effects of increased access to global markets on economic outcomes at the district level. I then show the political effects, measured by participation in the *Swadeshi* Movement at the town level.

6.1 Economic Effects of Global Market Access

I first present the effect of increasing exposure to global markets, as measured by the change in market access to the nearest major port, on various economic outcomes at the district level.

6.1.1 Agricultural Cultivation

As a first cut, I examine the effect of increased market access on the agricultural sector. Since India was a predominantly agrarian economy in the 19th century, standard Stolper-Samuelson logic implies that increased global market access should expand the size of the agricultural sector. Table 1 tests this by regressing various measures of a district's land-use in agriculture on the market access shock $\Delta PortAccess_i$, controlling for various district-level covariates. All measures come from the *Agricultural Statistics of India* and refer to values measured in 1899.

[23]General market access is from Chaudhary and Fenske (2023) and is defined at the district level and measures a district's general degree of connectedness through railways to other cities in India, not just international ports.

Table 1: Effect of Global Market Access on Agricultural Production

	Percent of District Area				
	Cropped		Cropped with		
	Total	Net	Food Grains	Cotton	Sugarcane
Model:	(1)	(2)	(3)	(4)	(5)
Δ Port Access	0.058*	0.050**	0.048*	0.014**	0.0006
	(0.032)	(0.025)	(0.027)	(0.005)	(0.001)
Expected Δ in Port Access	0.052*	0.037*	0.060**	-0.007	8.21×10^{-5}
	(0.029)	(0.022)	(0.023)	(0.005)	(0.002)
Preexisting Port Access	0.031	0.026	0.044	-0.0004	-8.63×10^{-5}
	(0.035)	(0.030)	(0.031)	(0.005)	(0.001)
Fixed-effects					
Province (6)	✓	✓	✓	✓	✓
Fit statistics					
Observations	178	178	178	175	178
Dependent variable mean	0.563	0.477	0.467	0.019	0.010
Within R^2	0.085	0.086	0.113	0.058	0.001

Clustered (District) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

As the first two columns show, increased global market access led to a statistically significant increase in the percentage of a district's land devoted to agricultural cultivation. The first column shows that a one standard deviation increase in $\Delta PortAccess$ is associated with a six percentage point increase in the percentage of a district's land area that was cropped in 1899. The second column counts only the net area cropped (i.e., the area cropped minus the area sown more than once) and shows a similarly sized effect of five percentage points. Given the that the average district had around half of its area deveoted to agriculture, this effect is roughly a 10% increase in the agricultural sector relative to the average district.

Columns 3-5 explore the composition of this change across different types of crops. Column 3 shows a large effect for food grains such as wheat and rice, with a one standard deviation increase in $\Delta PortAccess$ associated with a 4.8 percentage point increase in the percentage of a district's land area devoted to food grains. This suggests that the vast majority of the effect of increased market access on agriculture was due to an increase in food grain cultivation. While Column 5 shows a much smaller and statistically insignificant effect on the percentage of land devoted to sugarcane (a popular cash crop), the analogous result for cotton is statistically significant and positive. While small, the coefficient suggests that a standard deviation higher market access is associated with a 1.4 percentage point increase in the percentage of a district's land area devoted to cotton. This coefficient is large relative

to the average district's cotton cultivation area of 1.9%.

In sum, increased exposure to global markets seems to have expanded the size of the agricultural sector at the district level, at least as measured by the land area devoted to agricultural cultivation, consistent with the Stolper-Samuelson prediction that increased trade openness leads to the expansion of comparative advantage sectors.

6.1.2 Deindustrialized Population: Missing Weavers

Another prediction of the Stolper-Samuelson model is that increased global market access will decrease the size of the comparative disadvantage sector. In the context of colonial India, this would mean a decrease in the size of the most prominent import-competing sector: handloom weaving. This section tests this prediction by regressing the measure of missing weavers per capita in a district (as a measure of the mass of the deindustrialized population) on the market access shock $\Delta PortAccess_i$, controlling for various district-level covariates.

Table 2: Effect of Global Market Access on Missing Weavers

Dependent Variable:	Missing Weavers per Capita			
Model:	(1)	(2)	(3)	(4)
Δ Port Access	0.006**	0.007***	0.011***	0.012***
	(0.002)	(0.003)	(0.004)	(0.004)
Expected Δ in Port Access		-0.004	-0.004	-0.005
		(0.003)	(0.003)	(0.003)
Preexisting Port Access			0.007**	0.007**
			(0.003)	(0.003)
Log Population				-0.001
				(0.004)
Fixed-effects				
Province (6)	✓	✓	✓	✓
Fit statistics				
Observations	210	210	210	210
Dependent variable mean	0.025	0.025	0.025	0.025
Within R^2	0.026	0.035	0.052	0.053

Clustered (District) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Table 2 presents the results. Across specifications, an increase in global market access is associated with an increase in the population estimated to be missing weavers. Substantively, conditioning on possible confounders, Column 4 shows that a one standard deviation increase in $\Delta PortAccess$ is associated with a 1.2 percentage point increase in a district's missing

weaver population. While this is a small effect, only 2.5% of the population in the average district was estimated to be missing weavers, so this is a 48% increase relative to the average district.

Still, we might be concerned that an increase in such a small subset of the average district's population might not be very consequential. However, it must be remembered that across British India in 1901, only 11% of the average district's population was actively employed in any non-agricultural occupation (Gait, 1902). Moreover, we use weavers here as a proxy for the larger group of skilled artisans, such as spinners, blacksmiths, and goldsmiths, whose livelihoods would have been impacted by competition from global markets.

Taken together, these two economic effects of greater exposure to global markets align with the predictions of the workhorse Stolper-Samuelson model: increasing openness to international markets should expand the size of the export-oriented sector (agriculture) and reduce the size of the import-competing sector (traditional textiles) (Stolper and Samuelson, 1941).

6.2 Political Effects of Global Market Access

6.2.1 Participation in the *Swadeshi* Movement

Having established the economic effects of increased access to global markets, I now examine its political effects. Namely, I now conduct the analysis at the town level, controlling for additional covariates that might be plausible confounders such as a town's population, its position (measured by latitude and longitude), its Muslim population, as well as its level of literacy rate and general (non-port) market access. As in all town-level analyses in the paper, I estimate Conley (1999) standard errors that account for spatial correlation in the errors for towns that are within 100km of each other [24].

[24] Changing this distance cutoff to other values between 50 and 200km does not meaningfully change the results. Alternatively, clustering at the district level also accounts for spatial correlation – doing so does not alter the results in a meaningful way.

Table 3: Effect on Participation in the *Swadeshi* Movement

	Did Town Have a *Swadeshi* Meeting?			
Model:	(1)	(2)	(3)	(4)
Δ Port Access	0.054**	0.058***	0.060**	0.064***
	(0.024)	(0.022)	(0.024)	(0.024)
Expected Δ in Port Access	-0.007	-0.0008	0.016	0.014
	(0.018)	(0.017)	(0.018)	(0.020)
Preexisting Port Access	0.181***	0.186***	0.187***	0.186***
	(0.020)	(0.022)	(0.029)	(0.030)
Latitude	-0.0010	-0.003	0.0010	-0.0007
	(0.004)	(0.004)	(0.006)	(0.005)
Longitude	0.009*	0.014**	0.011*	0.010
	(0.005)	(0.006)	(0.007)	(0.007)
Log Town Population	0.058***	0.058***	0.054***	0.053***
	(0.007)	(0.011)	(0.011)	(0.011)
Muslim Population per Capita		0.177*	0.275**	0.283**
		(0.102)	(0.118)	(0.120)
Literacy Rate			0.785	0.751
			(0.487)	(0.544)
Market Access				0.014**
				(0.007)
Fixed-effects				
Province	✓	✓	✓	✓
Fit statistics				
# Province	8	6	6	6
Observations	1,494	1,273	1,031	1,010
Dependent variable mean	0.112	0.121	0.135	0.138
Within R^2	0.227	0.243	0.237	0.240

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

The main dependent variable in this analysis is an indicator for whether a town participated in the *Swadeshi* Movement, as measured by whether a town hosted a *Swadeshi* meeting in 1905. Table 3 presents the results. Across specifications, a one standard deviation increase in $\Delta PortAccess$ is associated with between a 0.5 and 0.6 percent increase in the probability that a town hosted a *Swadeshi* meeting. With 11.2% of towns in the full sample hosting a meeting, this is a between 44% and 57% increase relative to the average.

This is a substantively large effect, and suggests that towns were more likely to select into the *Swadeshi* Movement if they had experienced a greater exposure to international trade in the preceding four decades. This is consistent with the idea that the economic dislocation caused by globalization led to political mobilization against the British. While we see these effects on the extensive margin of participation, Appendix Table 12 finds no effect of increased port access on the intensive margin of participation, as measured by the

number of meetings held in a town. This suggests that the effect of globalization identified in Table 3 is not driven by a few towns hosting many meetings, but by a larger number of towns selecting into the movement.

6.2.2 Placebo: Participation in the Revolt of 1857

One concern with the results above is that we lack a measure of political mobilization preceding the global market access shock. This could lead to concerns that the results above are driven by pre-existing differences in the capacity of towns to mobilize politically against British rule. To address this, I conduct a placebo test using participation in the Revolt of 1857 as the dependent variable. Data on a town's participation in the mutiny comes from a range of primary and secondary sources. The main source is *Kaye's and Malleson's History of the Indian Mutiny of 1857-8* (Kaye, 1898), but is cross-checked with Dodd (1859) and Bayly (1988). As the coefficient in Table 4 shows, I fail to find a statistically significant effect of global market access on a town's participation in the 1857 mutiny. This helps allay concerns that the political effect above is driven by globalized towns having a greater degree of pre-existing anti-colonial resentment or collective action capacity.

Table 4: Effect on Participation in the 1857 Revolt

	Town Participated in 1857 Revolt?			
Model:	(1)	(2)	(3)	(4)
Δ Port Access	0.012	0.014	0.018	0.014
	(0.010)	(0.011)	(0.015)	(0.014)
Expected Δ in Port Access	0.006	0.006	0.003	0.008
	(0.017)	(0.020)	(0.028)	(0.027)
Preexisting Port Access	-0.006	-0.007	-0.015	-0.017
	(0.009)	(0.010)	(0.015)	(0.016)
Latitude	0.001	0.001	0.0008	0.0003
	(0.002)	(0.003)	(0.004)	(0.004)
Longitude	0.004	0.006	0.007	0.006
	(0.004)	(0.005)	(0.006)	(0.005)
Log Town Population	0.051***	0.056***	0.059***	0.058***
	(0.010)	(0.011)	(0.011)	(0.011)
Muslim Population per Capita		0.024	0.027	0.036
		(0.042)	(0.053)	(0.052)
Literacy Rate			0.216	0.205
			(0.366)	(0.404)
Market Access				0.007
				(0.007)
Fixed-effects				
Province	✓	✓	✓	✓
Fit statistics				
# Province	8	6	6	6
Observations	1,494	1,273	1,031	1,010
Dependent variable mean	0.041	0.047	0.053	0.053
Within R^2	0.057	0.062	0.064	0.064

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

It must be cautioned here that the 1857 revolt was largely a military rebellion led by mutinous cadres of parts of the British Indian Army. While this makes it an imperfect measure of pre-existing anti-colonial sentiment in town populations, it is the best available measure of political mobilization against British rule in the 19th century. Moreover, mutineers often found local support in the towns they revolted in, allaying some concern about the validity of this measure (Bayly, 1988).

7 Mechanisms

The previous section established two sets of results that are consistent with the standard model of support for protectionism from the international political economy literature: trade openness creates a pool of losers who are owners of relatively scarce factors (in this case traditional artisan skills), who then have an incentive to organize politically for policies

that counteract their economic decline, in this case economic nationalism (Rogowski, 1990). This section presents tests of this causal mechanism that complicate the story. I show that increased market access did not cause deindustrialization, but rather provided ample well-paid opportunities for already deindustrialized artisans to adjust to agriculture. This adjustment, while economically beneficial, did not diminish political mobilization but rather enhanced it. I present suggestive evidence that this might have been because adjustment itself enabled political mobilization by bringing together a critical mass of workers who had lost their traditional livelihoods with urbanized elites who could articulate their grievances in the form of a mass movement.

7.1 Deindustrialization Versus Adjustment

Deindustrialization Caused by Import Competition? For the results above to be driven by a deindustrialization effect, it must be true that the increase in missing weavers per capita identified by Table 2 (and replicated in Column of Table 5 below) was driven by a decrease in the number of accessible employment opportunities for weaving in a district. Table 5 tests this by estimating the effect of increased global market access on the two components of the missing weavers measure: the number of weaver caste members per capita in a district and the number of actively employed handloom weavers in a district. As Columns 2 and 3 show, the effect is driven entirely by an increase in the number of weaver castes per capita in a district. Increased market access has no statistically detectable effect on the number of actively employed weavers in a district. This suggests that import competition from British (and other foreign) textiles did not cause a decrease in the number of weavers employed in a district. This accords with much of the historical record of deindustrialization in colonial India, which finds that the vast majority of the decline in handloom weaving in India took place (and was largely complete) by the 1860s, before the period of rapid integration into the global economy through railways (Clingingsmith and Williamson, 2005).

Table 5: Decomposing Deindustrialization and Adjustment

Dependent Variables:	Missing Weavers per Capita	Weaver Caste per Capita	Handloom Weavers per Capita
Model:	(1)	(2)	(3)
Δ Port Access	0.012***	0.011***	-0.0008
	(0.004)	(0.004)	(0.0008)
Expected Δ in Port Access	-0.005	-0.005	-0.0001
	(0.003)	(0.003)	(0.0007)
Preexisting Port Access	0.007**	0.006**	-0.0010
	(0.003)	(0.003)	(0.0007)
Log Population	-0.001	0.001	0.003***
	(0.004)	(0.004)	(0.0007)
Fixed-effects			
Province (6)	✓	✓	✓
Fit statistics			
Observations	210	210	210
Dependent variable mean	0.025	0.036	0.011
Within R^2	0.053	0.051	0.108

Clustered (District) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Why are the number of weaver castes higher in these highly exposed districts? The natural explanation is that regions better connected to international markets were attractive locations for deskilled artisans like handloom weaving communities to migrate to. This is consistent with the historical record. As Haynes and Roy (1999) argue, migration to regions of economic opportunity was a widespread method of adjustment and survival in weaving communities in colonial India. If the main effect of increased global market access on skilled artisan communities was to provide them with ample opportunities to adjust to agriculture, this then complicates the traditional story of the political effects being driven by the grievances of the losers from globalization.

Evidence of Successful Adjustment of Skilled Artisans A shortcoming of this analysis is that it does not provide direct evidence that deskilled weavers or other artisans actually moved into agricultural employment. Instead, more exposed regions simultaneously featured more deindustrialized weavers (presumably looking for employment) and greater agricultural production. If weavers moved to areas of opportunity but were, for some reason, unable to actually adjust to (or were locked out of) the agricultural sector, then the political effects could be driven by a frustration effect. That is, participation in the *Swadeshi* Movement could be driven by a mismatch between the presence of adjustment opportunities and the ability of weaver to take advantage of them. Moreover, the analysis focuses only on weaving communities, whereas the adjustment of deskilled artisans into agriculture might have been a more general phenomenon.

This section conducts an analysis to directly measure whether weaver caste members

(and other skilled artisans) actually moved into agriculture in response to increased global market access. Due to data limitations, I focus on Bengal, the largest province in British India and the center of the *Swadeshi* Movement [25]. The 1901 census provides, for a subset of 136 prominent castes, the province-wide distribution of caste members by current (1901) occupation. It also provides the traditional occupation of the caste. While this is a subset, the caste members in this subset comprise 85% of the province's population. The castes are divided into those whose traditional occupation was agriculture and those whose traditional occupation was some form of skilled work, whether that be weaving, working as blacksmiths, or as goldsmiths. 85 of these castes are non-agricultural (skilled castes), comprising 45% of the population among this set of castes. Appendix Figure 10 shows the distribution of caste members by traditional occupation.

I measure a caste's exposure to the global economy by aggregating up from district-level exposures to caste-level exposures, based on the distribution of caste populations across districts in 1901. Specifically, for caste c, I calculate the change in market access to ports as:

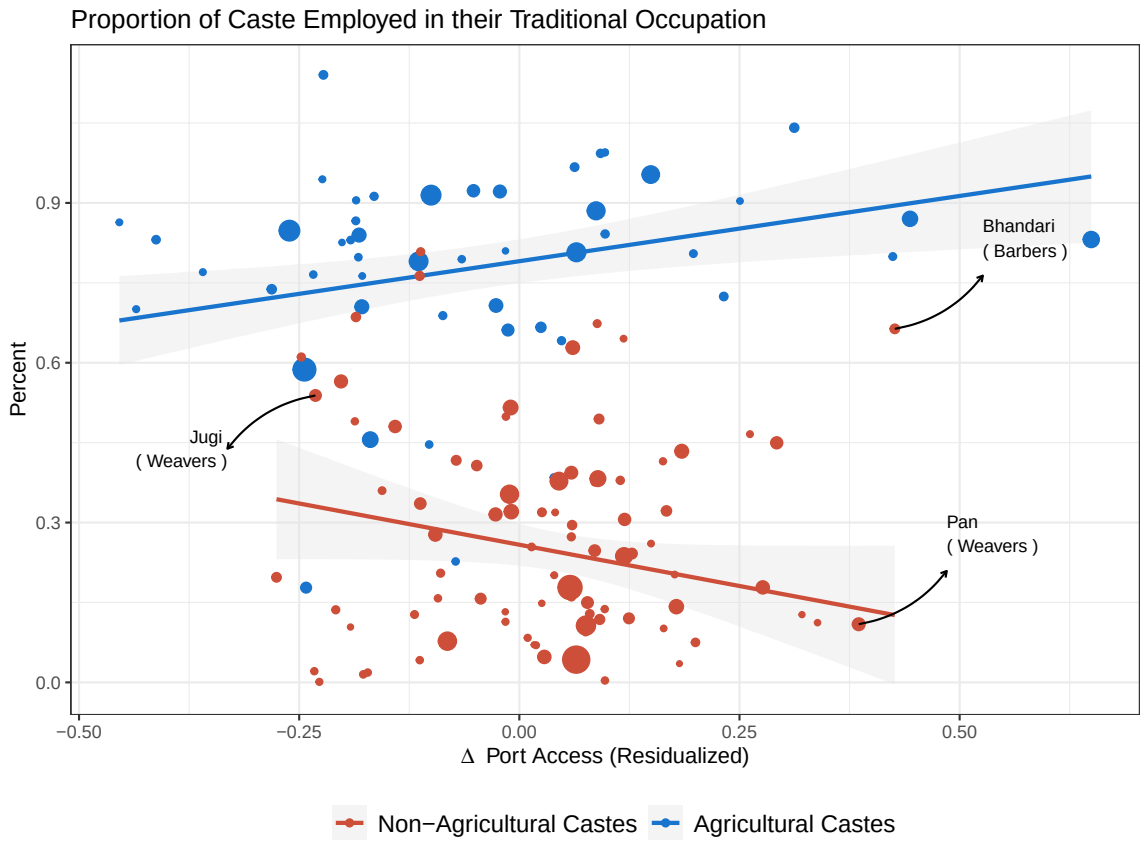
$$\Delta PortAccess_c = \sum_{d \in D} \frac{Pop_{c,d}}{Pop_c} \times \Delta PortAccess_d \tag{2}$$

Where $Pop_{c,d}$ is the population of caste c in district d in 1901, Pop_c is the total provincial (Bengal) population of caste c in 1901, and $\Delta PortAccess_d$ is the change in market access to the nearest major port in district d. In other words, a caste's exposure to global markets is a weighted average of the exposure of the districts it is present in, with the weights being the percent of the caste's provincial population that lives in a district.

Since population is measured in 1901, it is important to note that this variable measures exposure of a caste to globalization, net of any endogenous migration that might have taken place between 1855 and 1901. In other words, a highly exposed caste could be highly exposed because it happened to traditionally live in districts that became highly exposed, or because it migrated to such districts in the late 19th century.

[25] The effect of $\Delta PortAccess$ on participation in the movement is also strongest in Bengal.

Figure 6: **Exposure to Globalization and Deindustrialization**



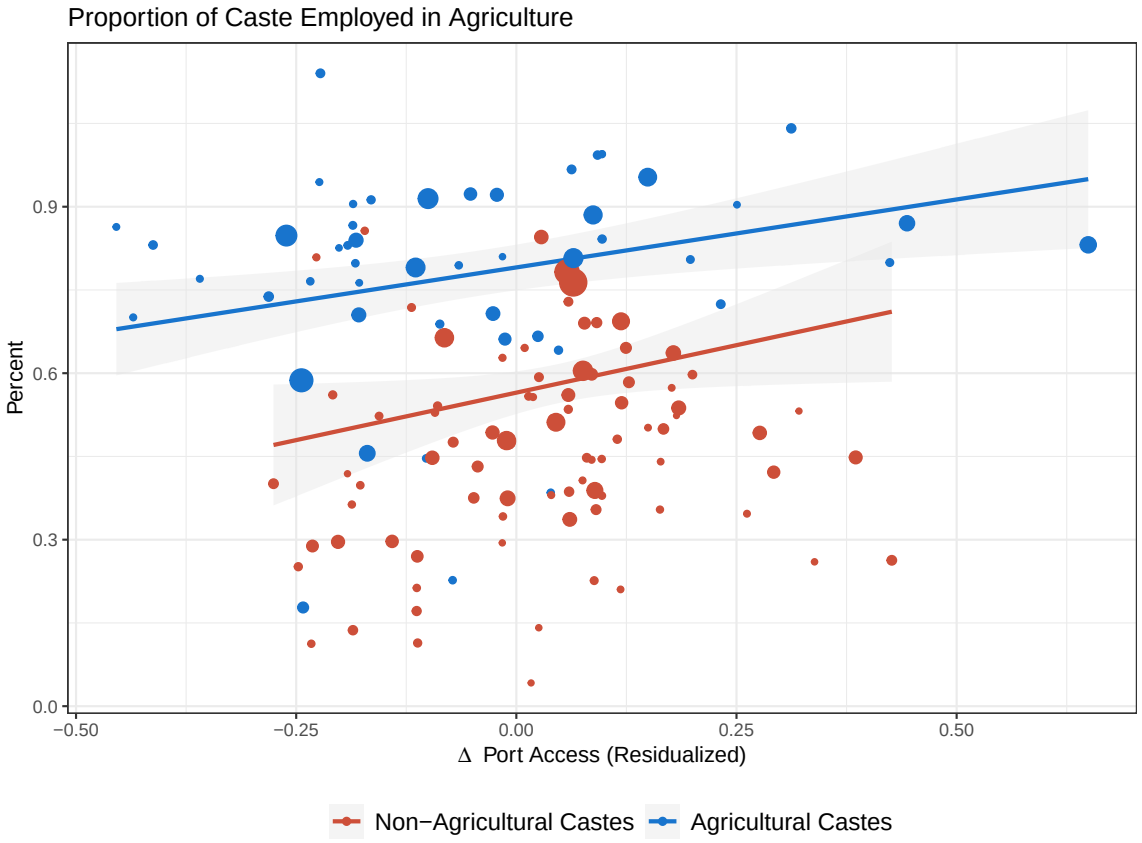
Notes: The figure plots the relationship between the percent of a caste's actively working population that is employed in its traditional occupation in 1901 and the change in a caste's market access to the nearest major international port, partialling out the effect of expected market access and pre-railway market access. The analysis consists of 136 castes in Bengal for whom data is available, comprising in total 85% of the province's population.

I regress measures of a caste's occupational distribution from the census on this measure of exposure to global markets, controlling for analogous measures of both expected and pre-existing market access, and weighting the regression by the caste's population. Figure 6 shows the relationship between a caste's exposure to global markets and the percent of its actively working population that is employed in its traditional occupation in 1901[26]. In line with the results above on missing weavers, I find that, for non-agricultural castes as a whole, a one standard deviation increased exposure to global markets is associated with a 12.4 percentage point decrease in the percent of the caste's actively working population that is employed in its traditional occupation. This effect is noisy, with a p-value of 0.11 but provides suggestive evidence that castes that live in highly globalized districts are less

[26]Appendix Table 15 presents the caste-level results in tabular form.

likely to be employed in their traditional occupation. Conversely, for agricultural castes, increased exposure to global markets is associated with a roughly equivalent 13 percentage point increase in the percent of the caste's actively working population that is employed in agriculture. This effect is statistically significant at the 5% level.

Figure 7: **Exposure to Globalization and Adjustment to Agriculture**



Notes: The figure plots the relationship between the percent of a caste's actively working population that is employed in agriculture in 1901 and the change in a caste's market access to the nearest major international port, partialling out the effect of expected market access and pre-railway market access. The analysis consists of 136 castes in Bengal for whom data is available, comprising in total 85% of the province's population.

We can then also track the degree to which these castes actually work in agriculture as well. Figure 7 shows the relationship between a caste's exposure to global markets and the percent of its actively working population that is employed in agriculture in 1901. For both agricultural and non-agricultural castes, increased exposure to global markets is associated with a large increase in the percent of caste labor force that is employed in agriculture. This effect is statistically significant at the 5% level for both types of castes. Substantively, a one standard deviation increase in $\Delta PortAccess_c$ is associated with a 13 percentage point

increase in the proportion of the caste's labor force in agriculture, a 22% increase over the average.

Next, I show that while both agricultural and non-agricultural caste members moved to agriculture in regions exposed to global markets, these adjusters came from different parts of the population. As Appendix Figure 11 shows, global market access does not affect the unemployment rate of agricultural caste members, but massively decreases the unemployment rate of non-agricultural caste members. Appendix Table 15 further confirms that for agricultural castes, the increase in agricultural workers is driven by a reallocation from other sectors, while for non-agricultural castes, the increase in agricultural workers is driven by a pulling of previously unemployed caste members into employment.

Further, in contrast to the small coefficients for the results on the number of missing weavers, these results, if extrapolated to the entire province, suggest that a one standard deviation increase in exposure to global markets was associated with the movement of 5% of the province's population, or an estimated, 2.2 million people from a state of unemployment in their traditional occupation to employment in agriculture.

7.2 Did Adjustment to Agriculture Lower Incomes?

While the results above suggest that increased exposure to global markets led to a large-scale adjustment of skilled artisans into agriculture, one possibility that might be driving political grievances among this population is that they were economically worse off in their new occupation than if they had not adjusted.

To test this, I regress a town-level measure of change in agricultural wages on $\Delta PortAccess$, conditional on relevant covariates. I construct an agricultural wage series using the *Prices and Wages in India* from 1902, a colonial-era document that recorded yearly wages for agricultural labor at given stations (often district centers) from the 1870s to the 1890s. I use spatial interpolation to estimate the agricultural wage at any given town in my sample. I use simple interpolation with a quadratic kernel to estimate this town-level wage series. This approximates a situation where the prevailing agricultural wage in a town is a weighted average of the wages in nearby towns, reflecting the tradeoff between moving to a town with a higher wage and having to travel farther to do so. Since I use spatial interpolation, the results below employ Conley (1999) standard errors with a relatively large distance cutoff of 500km to account for spatial correlation. I average the wage series by decade and then take the percentage change from the 1870s to the 1890s as the dependent variable to smooth out temporary shocks.

Table 6: Nominal Agricultural Wages

Dependent Variable:	Change in Agricultural Wages, 1870s-90s		
Model:	(1)	(2)	(3)
Δ Port Access	0.018**	0.020**	0.025***
	(0.009)	(0.010)	(0.009)
Expected Δ in Port Access	0.003	0.004	-0.006
	(0.013)	(0.013)	(0.016)
Preexisting Port Access	0.041**	0.043**	0.030
	(0.020)	(0.020)	(0.022)
Latitude	-0.004	-0.004	-0.005
	(0.005)	(0.005)	(0.008)
Longitude	-0.016***	-0.016***	-0.007**
	(0.004)	(0.004)	(0.003)
Log Town Population		-0.009*	-0.007**
		(0.005)	(0.003)
Market Access			-0.0005
			(0.003)
Fixed-effects			
Province (5)	✓	✓	✓
Fit statistics			
Observations	1,353	1,351	948
Dependent variable mean	0.122	0.122	0.121
Within R^2	0.150	0.156	0.065

Conley (500km) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Table 6 presents the results. Across specifications, increased access to global markets is associated with a statistically significant increase in agricultural wages. While the average town experienced a 12 percent increase in agricultural wages in this time period, a district with one standard deviation higher market access experienced a 2.5 percentage point higher increase in agricultural wages, a 21% increase over the average. This suggests that adjustment to agriculture was occurring among deindustrialized communities and that they were earning a higher wage in their new occupation than they would if they had not adjusted.

Of course, a booming town enriched by trade may also have had higher prices for goods commonly consumed by workers, such as textiles and food. To account for this, I conduct a similar analysis at the district level with data from Donaldson (2018), who constructs a district year level of aggregate real agricultural income using data on prices and agricultural yields from 1875-1905. I regress the log of real agricultural income on $\Delta PortAccess$ separately for each year, controlling for expected and pre-existing market access, a district's population, and province fixed effects as in the main district level specifications. Appendix Figure 12 plots each year's estimated coefficients on $\Delta PortAccess$. Except for 1899, all coefficients are positive, and the average coefficient is 0.19, suggesting that a one standard deviation increase in market access is associated with a 19% increase in real agricultural

income. The coefficients are very noisy and larger in earlier years, suggesting that price increases may have eroded the real income gains from increased market access later in the century.

Nevertheless, these results do allow us to rule out the idea that deskilled artisans, once they adjusted to agriculture, were worse off economically than they would have if they had not adjusted. Further confidence in this is provided by the finding that, at least in Bengal, these artisans adjusted from unemployment to employment in a sector with a positive wage, likely making them better off economically.

7.3 Increased Capacity to Mobilize

If skilled artisans adjusted to agriculture and were economically better off because of it, why did the regions they lived in mobilize politically for economic nationalism? One possibility is that the income gains from adjustment itself enabled political mobilization.

As pointed out in Section 2, to the extent that political mobilization requires not just a group of aggrieved workers but also economic resources to organize events, organizations and meetings the economic gains from adjustment could have enabled political mobilization.

While the income results above do not allow us to fully test this mechanism, a richer version of the income-based hypothesis is that regions with increased market access saw both an increase in deskilled population and the presence of an indigenous urban elite. This elite could have formed the leadership of the mass movement, channelling and articulating the grievances of deskilled workers into a coherent movement with an anti-imperial critique. To test this, Table 7 presents the results from regressing a district's share of population that is urban and literate from Chaudhary and Fenske (2023) on $\Delta PortAccess$, controlling for the same covariates as in the main district-level regressions.

Table 7: Urbanization and Literacy

	Share of Population	
	Urban	Literate
Model:	(1)	(2)
Δ Port Access	0.040***	0.008***
	(0.011)	(0.003)
Expected Δ in Port Access	-0.012	-0.007**
	(0.012)	(0.003)
Preexisting Port Access	0.117***	0.028***
	(0.032)	(0.005)
Log Population	-0.044***	-0.016***
	(0.014)	(0.005)
Fixed-effects		
Province (6)	✓	✓
Fit statistics		
Observations	160	160
Dependent variable mean	0.102	0.048
Within R^2	0.323	0.450

Clustered (District) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

The table shows that increases in global market access translated into relatively large gains in both the share of a district's population that was urban and the share that was literate. Specifically, a standard deviation increase in $\Delta PortAccess$ is associated with a 4 percentage point increase in the urban share and a 0.8 percentage point increase in the share that is literate. These represent 40% and 16% increases relative to the average.[27]

Putting the results together, increased global market access increased both the number of deskilled artisans gainfully reemployed and the presence of an educated urban elite. Appendix Table 13 further shows that increased market access shifted the composition of district employment away from agriculture and towards services[28]. How do these two groups interact to drive political mobilization?

One possibility is that deskilled workers moved into elite industrial and service jobs. The caste-level analysis presented in Section 7.1 definitively provides evidence against this possibility. Therefore what seems to be happening is that district exposed to global markets

[27]This accords with the findings of Chaudhary and Fenske (2023), who show that increased exposure to railways (not just ports) in British India led to an increase in literacy through increased enrollment in elite secondary and primary schools.

[28]Importantly, this does not mean that exposure to international markets depressed the agricultural sector in these regions. Rather, increased employment opportunities in agriculture likely had a stimulating effect on service and industrial jobs in the district. This matches similar findings by Scheve and Serlin (2024), who show that increased port access in the 19th century US was associated with a structural shift towards non-agricultural employment while simulating the agricultural sector.

saw both an inflow of workers looking for and successfully finding employment in agriculture, and a general increase in the size of the urban, educated elite in the district. This presents us with two mechanisms by which globalization might have increased the capacity of a district to mobilize politically: by creating a coalition between urban elites and deskilled workers, or simply by increasing the size of the urban elite, with deskilled workers remaining politically inactive.

The Pure Urban Elite Hypothesis Could the results above be driven purely by the presence of an educated urban elite? This explanation, the rise of an urban educated elite as the driver of the movement accords well with a long tradition of scholarship on nationalism, particularly proponents of modernization theory. Gellner (1983) for example connects nationalism to industrial society, which creates a class of educated elites that underwent standardized education, leading to a common political culture.

If the results are driven by a simple increase in the share of urbanized elites in a district, the effect of globalization should not be limited to economic nationalist movements like the *Swadeshi* Movement. Rather, there should be a general effect on mobilization against anti-imperialism. To test this possibility, I collect data on collective mobilization in the next major mass movement in British India: the *Khilafat* Movement. This movement began in 1919 as a reaction against the British decision to dismember the Ottoman Empire after World War I. The movement called for the protection of the institution of the caliphate, and ended soon after the new Turkish nationalist government itself abolished the caliphate. While the movement was initially led by Indian Muslims, the Indian National Congress under Gandhi's leadership soon allied itself with the movement, seeing it as part of the broader non-cooperation movement for *Swaraj* or self-rule.[29]

Across specifications, Table 14 tests and fails to find evidence of any effect of increased global market access on participation in the *Khilafat* Movement. The estimated coefficients are very small, and the standard errors rule out even small positive effects. While the test is an imperfect one, it does suggest that the effect of globalization on political mobilization was not driven purely by increasing the presence of an urban educated elite in a district.

Coalition between Urban Elites and Deskilled Artisans What then explains why participation in the *Swadeshi* Movement *was* affected by increased global market access? The

[29]Two features of the *Khilafat* Movement make it a good test of the pure urban elite hypothesis. First, the movement involved a similar method of organization through mass meetings held in towns across India. Second, the scale of the movement, at least as measured by the prevalence of meetings, was similar to that of the *Swadeshi* Movement. While around 11% of towns in the full sample hosted a *Swadeshi* meeting, 8% of towns in the full sample hosted a *Khilafat* meeting.

many mechanism tests above, while individually suggestive, taken together point towards the following story. Late 19th century globalization, while not causing deindustrialization, brought together in the same place a coalition of deskilled artisans and urban elites. While these artisans adjusted to agriculture and were economically better off because of the adjustment, their grievance against having lost their traditional livelihoods remained. This grievance was effectively channeled by the urban elites into a critique of imperial policy, particularly the British insistence on free trade. Adjustment opportunities seem to have enabled political mobilization by bringing these two groups together in the same place.

This accords with the work of scholars of mass mobilization in the colonial period in India. For example, Tudor (2013) argues that the *Swadeshi* Movement's success as a spontaneous contagion of mass agitation convinced the tiny urban elite forming the leadership of the Indian National Congress that the route to political autonomy lay in mass mobilization rather than the petitioning of the colonial state for incremental reform. This paper adds to this idea by showing that such a coalition might already have been part of the mass mobilization of the *Swadeshi* Movement. As Goswami (2004) argues in her study of the broader ideology of *Swadeshi*, the movement was the "first systematic campaign to incorporate and mobilize the 'masses' within the elite structure of institutional nationalism" (Goswami, 2004, p.242). While Moore (1993) also ascribes the development of the Indian nationalism to a coalition of urban elites and middle-peasantry, he argues that such a coalition only materialized after Gandhi's arrival in 1915. The results in this paper show that the coalition started forming earlier, and was enabled not just by centralized leadership but also by the effects of adjustment to globalization by deskilled artisans.

8 Conclusion

This paper has tested the hypothesis that successful adjustment to economic shocks diminishes political mobilization by those affected. I study political mobilization for economic nationalism in Colonial India, where global technological change had created a large pool of deskilled artisans who had lost their traditional livelihoods. This deindustrialization or deskilling featured prominently as a major grievance in the Indian independence movement, particularly in one of its earliest mass movements, the *Swadeshi* Movement.

Using various historical sources, I constructed an archival database to study the economic and political consequences of increased 19th-century globalization. I find that access to global markets in the late 19th century enriched regions newly connected to international markets. Regions where railways plausibly exogenously increased market access to ports provided opportunities to adjust to agricultural cultivation. By 1900, these regions had a

greater portion of their land devoted to agricultural production, higher wages, and lower unemployment rates for the deskilled artisans who had moved there. Yet, I find that these regions were more likely to participate in the *Swadeshi* Movement, a mass boycott of British textiles in 1905. This movement was a precursor to the Indian independence movement and was characterized by its economic nationalism: a call to boycott British goods and promote Indian-made goods.

Probing mechanisms, I find evidence that globalization, by providing opportunities for deindustrialized communities to adjust and move into agricultural production, brought together a critical mass of workers who had lost their traditional livelihoods. Even though these workers were better able to adjust economically, this adjustment did not diminish their political mobilization but rather enhanced it. Moreover, I find evidence that these grievances were effectively channeled into political mobilization because adjustment also brought to these regions a new crop of educated urban elites who could serve as political entrepreneurs.

A peculiar feature of the setting in this paper is that groups of workers seem to have retained a grievance against their lost livelihoods despite being better off economically than they would in the absence of adjustment. One possible reason for this is that in the setting of India, particularly in the colonial era, the caste system tied together occupation and identity in a way that made it difficult for adjustment into new sectors to compensate workers for the loss of their identity. If this is true, India presents a particularly easy case for the theory. However, it also suggests that the theory may have limitations. In other settings, where social identity is not so closely tied to occupation, adjustment to better-paying jobs might be more effective in reducing political grievances. This highlights the need for further research in this area.

The results of this paper also suggest that compensation programs for displaced workers, particularly those that target entire regions in place-based policies, might not be as effective in reducing political grievances, even if they are effective in reducing economic hardship. This is because successful adjustment may enhance the ability of affected communities to mobilize politically against their decline.

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Supplementary Appendix

Contents

A Data Appendix

The following table lists the variables used in empirical analyses in the paper and the sources from which the data was obtained.

A.1 Archival Data Sources

Variable	Source
Locations of Railway Lines	Donaldson (2018) & Fenske, Kala and Wei (2023)
Swadeshi Meetings	South Asia Newspapers Archive
Khilafat Meetings	
Agricultural Wages	*Prices and Wages in India*, 1901
Agricultural Cultivation	*Agricultural Statistics of India*
Internal Trade	Various issues of provincial internal trade reports
District Level Employment	*Census of India*, 1901 & Chaudhary and Fenske (2023)
District Level Literacy and Urbanization	
District Level Caste Population	
Town Level Population	
Locations of Towns	Imperial Gazetteers, Google

Table 8: Summary of Archival Data Collection

A.2 Identifying Weaving Castes

Table 9 details the names of castes in India that historically specialized in weaving.

Table 9: Castes Historically Specialized in Handloom Weaving

Caste Name	Provinces where Found
Balahi	Central Provinces & Berar
Bhulia	Central Provinces & Berar
Chik	Bengal
Devanga	Madras
Jolaha	Bombay, Bengal, United Provinces & Oudh, Madras, Punjab
Jugi	Bengal
Kaikolan	Madras
Kosti	Bombay, Madras, Central Provinces & Berar
Kori	United Provinces & Oudh, Central Provinces & Berar
Khatri	Madras
Mallik	Bengal
Momin	Bombay
Mehra	Central Provinces & Berar
Pattunulkaran	Madras
Pan	Bengal
Panka	Central Provinces & Berar
Sali/Padmasali	Bombay, Madras
Tanti	Bengal

B Constructing Counterfactual Railway Routes

This section describes the construction of the expected global market access shock variable used in the main analyses. The main idea is to account for the non-random exposure to the rollout of the railway network by thinking of the constructed railway line as one realization of a natural experiment that had an exogenous component.

B.1 Construction of Counterfactual Railway Routes

I construct counterfactual railways by reconstructing the railway network, starting in 1860 by randomly permuting railway lines built after 1860 in a way that preserves the structure of the network. The algorithm below details the procedure.

Algorithm 1 Steps to Create Counterfactual Railway Lines

start ← 1860 ▷ We take the state of the network at 1860 as given
end ← 1900 ▷ Counterfactual lines should go up to 1900
N ← 1000 ▷ Number of counterfactual networks to create
Initialize full network including actual lines
for each counterfactual network **do**
    Set current network to lines built before 1860.
    for each year from 1860 to 1900 **do**
        Set of candidate lines: added after current year *and* connected to current network.
        Determine total length of lines actually built in current year.
        Start counter for total length of lines added.
        while total length of lines added is less than target length **do**
            Randomly select a line from candidate lines.
            Add this line to current network.
            Increase total length of lines added.
        end while
    end for
    Return current network after all lines are added.
end for

B.2 Validation of Recentered Variable

As recommended in Borusyak and Hull (2023), I validate the conditional shock variable by regressing it on geographic and contextual features that the original global market access shock was correlated with.

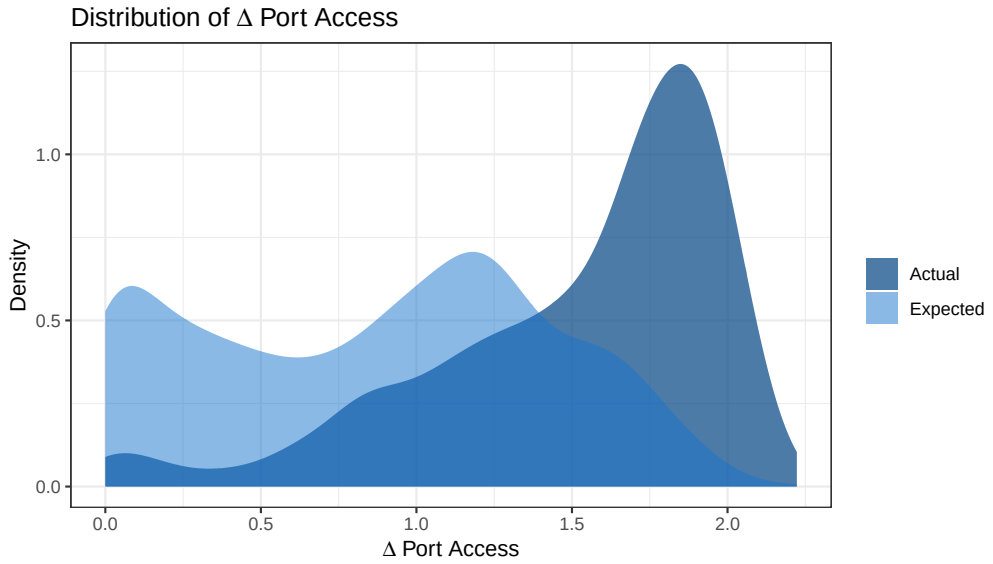
Table 10: Controlling for Expected and Preexisting Port Access Removes Correlation with Geographic Variables

Dependent Variable:	Δ Port Access	
Model:	(1)	(2)
Expected Δ in Port Access		0.261***
		(0.070)
Preexisting Port Access		-0.274***
		(0.038)
Log Town Population	0.036*	0.053***
	(0.021)	(0.010)
Distance to Calcutta	0.026*	0.011
	(0.014)	(0.012)
Distance to Bombay	0.023	-0.001
	(0.022)	(0.013)
Muslim Population per Capita	-0.450**	-0.066
	(0.180)	(0.116)
Cash Crops Suitability	0.002	-0.0002
	(0.002)	(0.001)
Fixed-effects		
Province (6)	✓	✓
Fit statistics		
Observations	1,254	1,254
Dependent variable mean	1.56	1.56
Within R^2	0.056	0.504

Conley (100km) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

B.3 Distribution of Actual and Counterfactual Railway Shocks

Figure 8: **Distribution of Actual and Counterfactual Port Access Shocks**



Notes: The figure plots the distribution of the realized and expected change in a town's market access to the nearest major international port from 1853 to 1900.

C Summary Statistics

The following table presents summary statistics for the town and district-level variables used in the analyses in the main body of the paper.

Table 11: Summary Statistics

	N	Mean	SD	Min	Max
Town Level					
Δ Port Access	1497	1.51	0.48	0.00	2.21
Expected Δ in Port Access	1497	0.86	0.56	0.00	2.22
Preexisting Port Access	1497	-8.55	0.98	-9.61	-2.49
Any *Swadeshi* Meeting?	1497	0.11	0.32	0.00	1.00
Number of *Swadeshi* Meetings	1497	0.42	1.93	0.00	15.00
Participated in 1857 Revolt	1497	0.04	0.20	0.00	1.00
Participated in Khilafat Movement	1497	0.08	0.27	0.00	1.00
Log Town Population	1494	9.07	0.89	4.11	13.65
District Level					
Δ Port Access	210	1.58	0.43	0.03	2.16
Expected Δ in Port Access	210	0.93	0.55	0.00	1.96
Preexisting Port Access	210	-8.62	0.92	-9.53	-4.53
Percent Labor Force in Industry	156	0.12	0.06	0.03	0.33
Percent Labor Force in Services	156	0.22	0.10	0.07	0.75
Percent Labor Force in Agriculture	156	0.65	0.14	0.03	0.89
Percent of Land Cropped	178	0.48	0.20	0.07	0.84
Percent Non-Food Crops	178	0.01	0.08	-0.20	0.28
Percent Cotton	175	0.02	0.04	0.00	0.28
Literacy Rate	160	0.05	0.03	0.01	0.25
Urbanization Rate	160	0.10	0.13	0.00	1.00
Market Access	158	3.06	14.87	0.00	113.07
Muslim Population per Capita	210	0.23	0.27	0.00	0.95
Missing Weavers per Capita	210	0.03	0.03	-0.02	0.23
Weaver Caste per Capita	210	0.04	0.03	0.00	0.24
Handloom Weavers per Capita	210	0.01	0.01	0.00	0.04

D Robustness and Additional Results

D.1 Home Purchases of Indian Versus British Cloth

This section tests whether the *Swadeshi* movement was truly a mass movement by assessing a different measure of participation in the movement: the differential purchase of home (Indian-made) cloth relative to European cloth as part of the movement. To do this, I digitize internal trade reports for three provinces: Bengal, Bombay, and Madras, yielding a total of 21 out of 44 trade blocks, for the time period 1900-1910. The reports detail, for a wide range of goods, the imports of into and exports from a given trade block to (a)

other provinces of British India and (b) other blocks within the province. I record the flows of Indian as well as European piece-goods between blocks where the data exist. Since the coverage from these data is limited to three provinces at a fairly high level of aggregation, the results from this section are suggestive.

$$log(V^{Indian} - V^{European})_{i,j,t} = \sum_{t \in 1900:1911} \beta_t \mathbb{1}\{Year = t\} + \gamma_{ij} + \epsilon_{i,j,t} \tag{3}$$

Where V^{Indian} and $V^{European}$ are the value, in Rupees, of block j's imports of Indian and European cloth (piece goods) in year t. The coefficient β_t captures the preference for Indian versus European cloth by block j in year t relative to the omitted reference year 1904. γ_{ij} are a set of fixed effects for each pair of blocks i and j.

Figure 9: **Home Purchases of Indian Versus British Cloth**

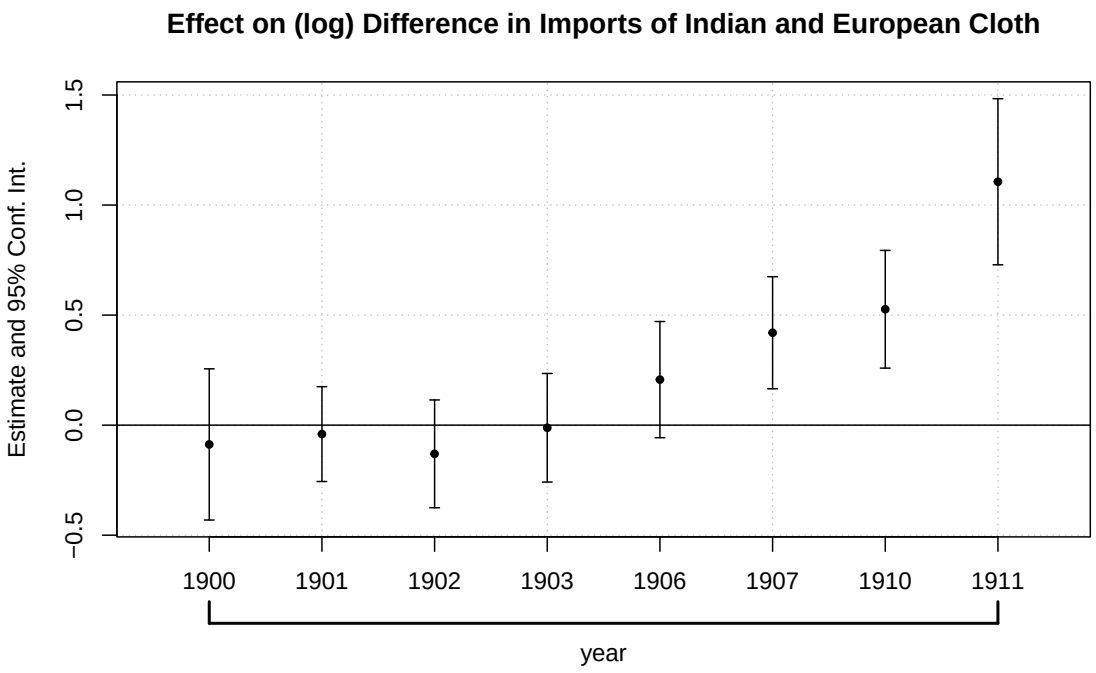
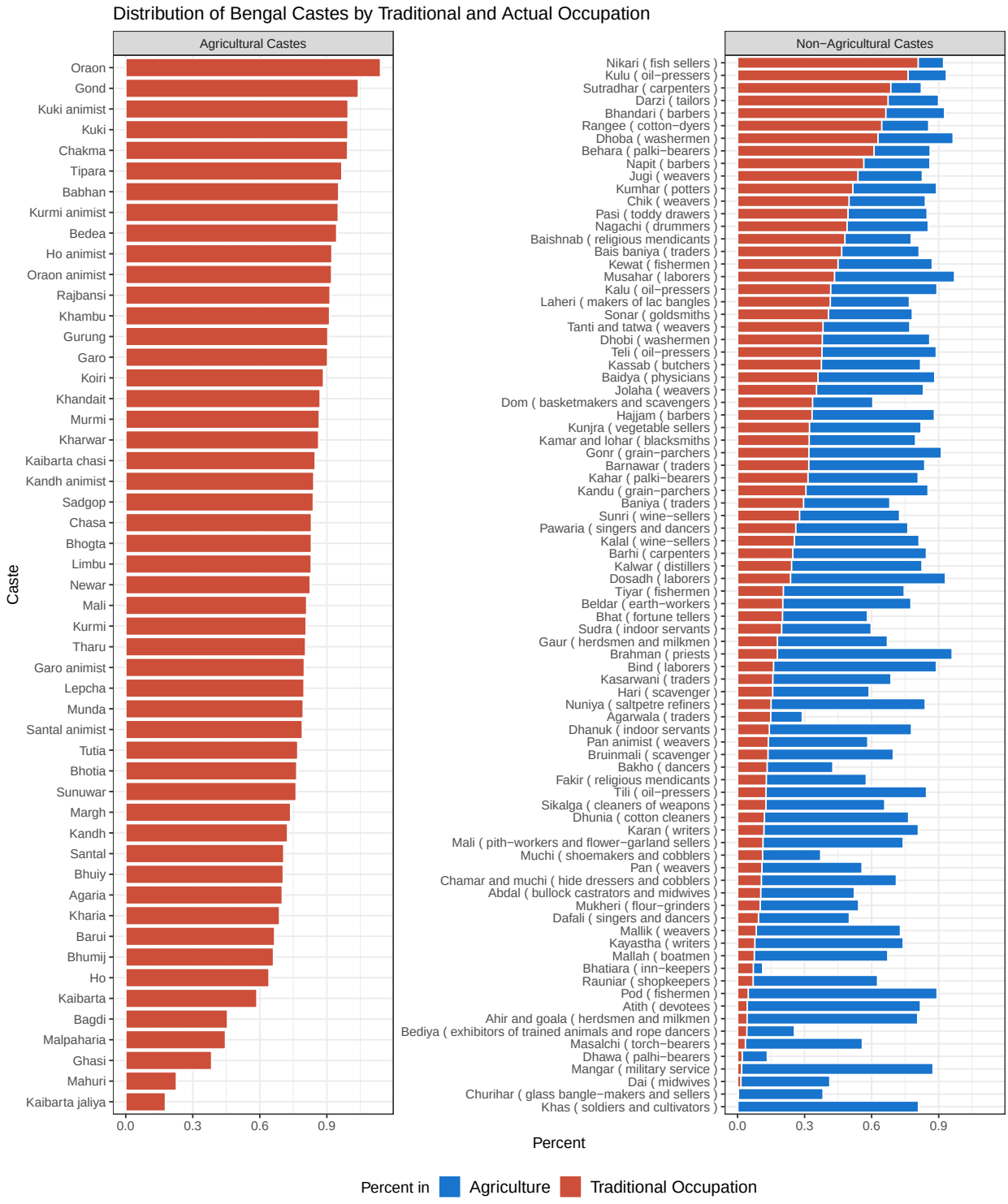


Figure 9 plots the estimated coefficients by year. The coefficients are all negative and not statistically significant before 1905, but become positive, statistically significant and increasing after the *Swadeshi* Movement begins in 1905. The coefficients suggest that relative to 1904, the average importing trade block in British India increased its relative purchases of Indian cloth by 25% by 1906, and 100% by 1911. This suggests that the *Swadeshi* Movement was associated with a massive shift in consumer preferences towards Indian cloth.

D.2 Distribution of Castes in Bengal by Traditional Occupation and Actual Occupation in 1901

The figure below plots the distribution of 1901 occupation of 136 selected castes in Bengal, along with the traditional occupation of the caste.

Figure 10: **Distribution of Castes by Traditional and Actual Occupation**



Notes: The figure plots the distribution of caste members in Bengal by traditional occupation and actual occupation in 1901. The analysis consists of 136 castes in Bengal for whom data is available, comprising in total 85% of the province's population.

D.3 Effect of Global Market Access on Extensive Margin of Participation

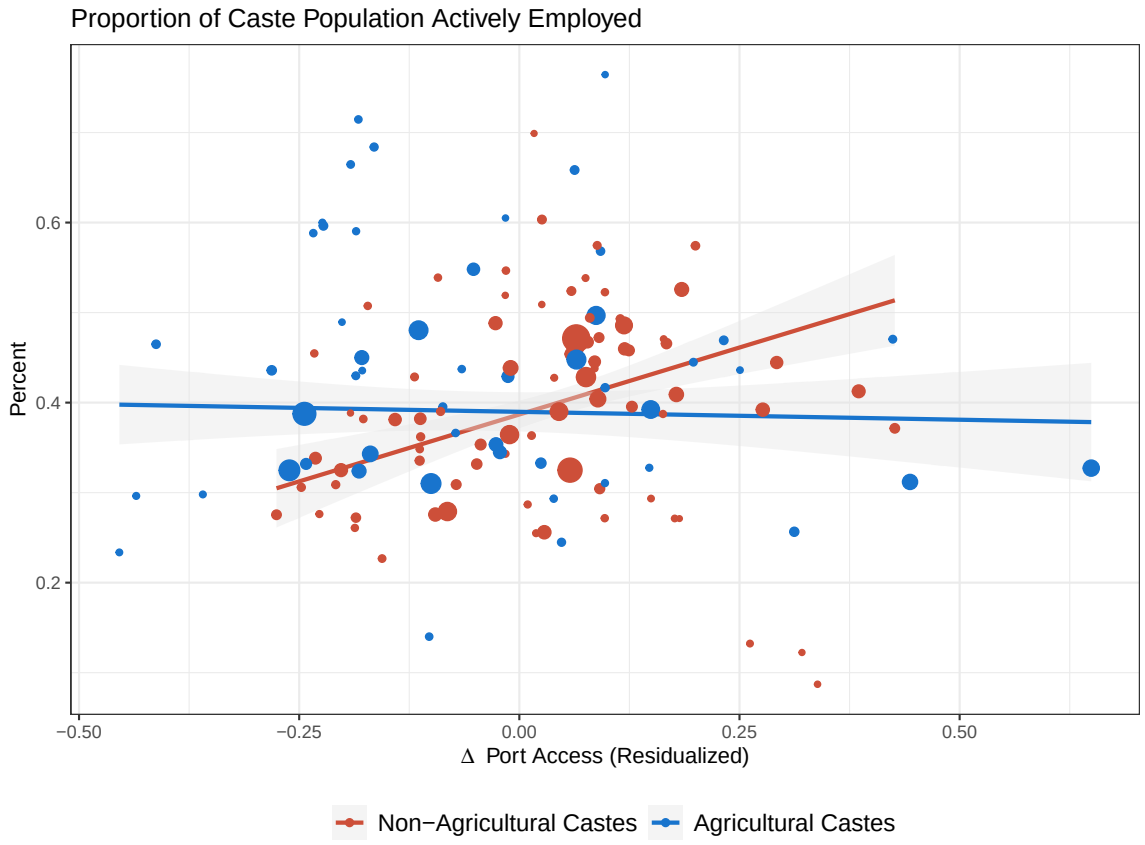
Table 12: Extensive Margin Effect

Dependent Variables:	Number of Swadeshi Meetings	log(meeting+1)	Swadeshi Meetings per Capita
Model:	(1)	(2)	(3)
Δ Port Access	-0.098	0.036	0.012
	(0.157)	(0.024)	(0.009)
Expected Δ in Port Access	0.091	0.025	0.011
	(0.158)	(0.028)	(0.014)
Preexisting Port Access	1.65***	0.363***	0.118***
	(0.628)	(0.099)	(0.042)
Log Town Population	0.250***	0.072***	-0.037**
	(0.085)	(0.014)	(0.017)
Latitude	0.115	0.016	0.005
	(0.083)	(0.013)	(0.004)
Longitude	0.004	0.012	0.005
	(0.061)	(0.012)	(0.004)
Muslim Population per Capita	0.486	0.312**	0.101**
	(0.431)	(0.124)	(0.050)
Literacy Rate	10.9***	2.21***	0.633*
	(3.02)	(0.647)	(0.366)
Fixed-effects			
Province (6)	✓	✓	✓
Fit statistics			
Observations	1,031	1,031	1,031
Dependent variable mean	0.533	0.170	0.048
Within R^2	0.428	0.414	0.157

Conley (120km) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

D.4 Effect of Global Market Access on Caste Unemployment

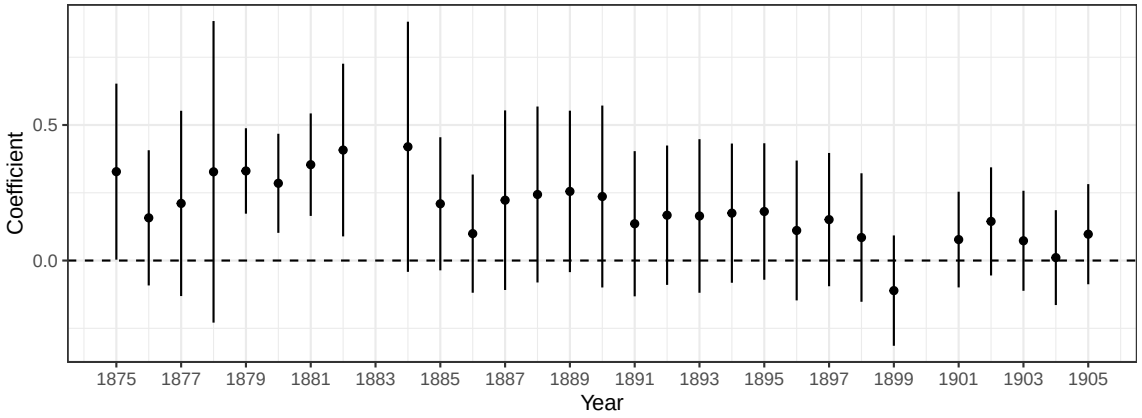
Figure 11: **Exposure to Globalization and Caste Unemployment**



Notes: The figure plots the relationship between the percent of a caste's actively working population that is employed in agriculture in 1901 and the change in a caste's market access to the nearest major international port, partialling out the effect of expected market access and pre-railway market access. The analysis consists of 136 castes in Bengal for whom data is available, comprising in total 85% of the province's population.

D.5 Effect on Real Agricultural Income

Figure 12: **Effect of Δ Port Access on Real Agricultural Income**



D.6 Structural Composition of District Employment

Table 13: Effect of Global Market Access on the Composition of District Employment

	Percent of 1901 Labor Force in		
	Agriculture	Industry	Services
Model:	(1)	(2)	(3)
Δ Port Access	-0.053***	0.017***	0.036***
	(0.016)	(0.006)	(0.011)
Expected Δ in Port Access	0.062***	-0.022***	-0.040***
	(0.016)	(0.007)	(0.011)
Preexisting Port Access	-0.104***	0.030***	0.074***
	(0.027)	(0.009)	(0.018)
Log Population	0.016	0.011*	-0.027**
	(0.014)	(0.007)	(0.011)
Fixed-effects			
Province (6)	✓	✓	✓
Fit statistics			
Observations	156	156	156
Dependent variable mean	0.652	0.123	0.224
Within R^2	0.334	0.192	0.341

Clustered (District) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

D.7 Effect on the *Khilafat* Movement

Table 14: Effect on Participation in the *Khilafat* Movement

	Town Participated in Khilafat Movement (1919-22)?			
Model:	(1)	(2)	(3)	(4)
Δ Port Access	0.014	0.004	-0.011	-0.010
	(0.020)	(0.020)	(0.017)	(0.017)
Expected Δ in Port Access	0.027*	0.028*	0.033	0.035
	(0.015)	(0.017)	(0.022)	(0.024)
Preexisting Port Access	0.147***	0.142***	0.126***	0.124***
	(0.021)	(0.021)	(0.029)	(0.030)
Latitude	0.010**	0.007	0.009	0.007
	(0.005)	(0.005)	(0.007)	(0.007)
Longitude	-0.007	-0.005	-0.005	-0.007
	(0.006)	(0.007)	(0.008)	(0.009)
Log Town Population	0.066***	0.072***	0.073***	0.073***
	(0.011)	(0.012)	(0.013)	(0.013)
Muslim Population per Capita		0.035	0.029	0.040
		(0.085)	(0.089)	(0.087)
Literacy Rate			1.23***	1.20**
			(0.478)	(0.537)
Market Access				0.014***
				(0.003)
Fixed-effects				
Province	✓	✓	✓	✓
Fit statistics				
# Province	8	6	6	6
Observations	1,494	1,273	1,031	1,010
Dependent variable mean	0.081	0.085	0.094	0.096
Within R^2	0.175	0.183	0.178	0.181

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

D.8 Caste-Level Results Table

Table 15: Caste-Level Analysis Table

	Percent of Caste			
	Workers in			Population
	Traditional Occupation	Agriculture	Other	Employed
Model:	(1)	(2)	(3)	(4)
Δ Port Access × Non-Agricultural Caste	-0.254***	-0.005	0.136**	0.110***
	(0.090)	(0.087)	(0.067)	(0.033)
Expected Δ in Port Access × Non-Agricultural Caste	0.014	0.053	-0.059	-0.041
	(0.070)	(0.067)	(0.051)	(0.025)
Preexisting Port Access × Non-Agricultural Caste	-0.229***	0.116	0.057	0.048*
	(0.076)	(0.073)	(0.057)	(0.028)
Δ Port Access	0.130***	0.130***	-0.137***	-0.004
	(0.045)	(0.043)	(0.034)	(0.016)
Expected Δ in Port Access	-0.017	-0.017	0.026	0.043***
	(0.033)	(0.032)	(0.024)	(0.012)
Preexisting Port Access	0.070	0.070*	-0.084***	-0.0007
	(0.043)	(0.041)	(0.032)	(0.015)
Non-Agricultural Caste	-0.551***	-0.226***	0.005	-0.020*
	(0.030)	(0.028)	(0.022)	(0.011)
Constant	0.800***	0.800***	0.171***	0.397***
	(0.021)	(0.020)	(0.016)	(0.008)
Fit statistics				
Observations	136	136	136	136
Dependent variable mean	0.465	0.587	0.241	0.410

IID standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*