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Competitive religious entrepreneurs: Christian missionaries and female education in colonial and post-colonial India

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Paper Title:

Competitive Religious Entrepreneurs: Christian Missionaries and Female Education in Colonial and Post-colonial India

Abstract

The paper explores the long-term developmental legacies of Protestant missionary involvement in colonial India, specifically missionary effects on male-female inequalities in educational attainment. Our causal mechanisms draw on studies in the sociology and economics of religion that highlight the importance of the dynamics of religious competition for the provision of public goods. We argue that missionaries played a key role in the development of mass female schooling because of the competition among rival religious and secular groups that they spurred in education provision. We explore these causal mechanisms in a case study of the state of Kerala, and statistical analysis covering most of India's districts. For the statistical analysis, we assembled original district-level datasets covering colonial and post-colonial periods. Our data allow us to establish whether missionary effects hold after we account for other factors hypothesized to have a bearing on human development like British colonial rule, modernization, European presence, education expenditures, post-colonial democracy, Islam, caste and tribal status, and land tenure. Our analysis reveals that colonial-era Christian missionary activity is consistently associated with better female education outcomes in both the colonial and post-colonial periods.

Introduction

There are established lines of theorizing linking religion to socio-economic and political regime outcomes. Depending on the specific doctrinal or contextual factors, religion and the institutions and actors associated with it have been either vilified as reactionary, or, conversely, perceived as progressive forces shaping political culture, human capital, and development.¹ The controversy is particularly true for an important set of religious entrepreneurs, Christian missionaries, operating in colonial contexts. Branded as “workhorses of empire,” “precursors of the flag,”² and “helpmates of ... imperialists”³ or, alternatively, as benign and principled crusaders for social justice⁴, their links with colonial authority have been often taken for granted, and any independent effects they might have had on development have been under-explored and under-theorized. Only recently have social scientists begun to analyze systematically aspects of missionary activity, which might have long-term independent political and developmental effects. For instance, Trejo found that Christian missions provided an impulse to social mobilization among indigenous groups in Latin America. Bolt and Bezemer have argued that missionary education in vernacular languages in Africa have had long-term economic growth effects. Woodberry gathered cross-national data on missions and found strong missionary effects on post-colonial democracy. And Posner found that missionaries in Africa shaped post-colonial nations’ linguistic landscapes because they selectively codified vernacular languages.⁵

An important area of missionary work, female education, has however remained outside of the purview of much of the recent social science scholarship dealing with missionary effects or more generally with the legacies of colonialism. While colonial historiography is replete with references to missionaries as important to the development of female education,⁶ hardly any rigorous studies⁶ of the long term effects of this aspect of missionary work have been conducted. This omission is puzzling given the overwhelming empirical evidence of the impact of women’s education on development, on policy, and the quality of governance.⁷

How do we begin to study missionary effects on female education given the complexity and diversity of religious and colonial contexts in which they operated? By the end of the nineteenth century, missionary work represented a transnational multi-denominational enterprise: American Salvationists were just as likely to be active in a British colony as were Anglicans in French West Africa.⁸ Western missions also often operated in contexts with

established indigenized Christian Churches. Finally, they had to reckon with western colonial powers, as indeed with native secular authorities and ideological movements. These various religious and secular actors espoused diverging positions with regard to social modernization and female education in particular.

This paper draws on classic theorizing on religion, which highlights the importance of religious competition in the provision of public goods.⁹ The competition mechanism is useful for understanding how one set of religious entrepreneurs could trigger female education provision by a wider group of religious and secular authorities. In opting for religious competition theory as our analytical vantage point, we do not dismiss the importance of doctrinal matters in shaping missionary educational preferences. Our framework is rooted in the long-standing scholarship on the role of Protestant Christianity in the spread of mass education.¹⁰ It differs however from established strands of social science theorizing on religion that mostly focus on the importance of doctrinal nuances or Church-state relationships for developmental outcomes.¹¹

We illustrate how missionary-triggered religious competition might have long-term effects on female education, and in particular on gender education inequalities, based on a sub-national study of colonial and post-colonial India. Colonial India resembled a patchwork quilt comprised of directly ruled British territories and indirectly ruled princely states. Missionary involvement had been spatially uneven: while some, particularly coastal areas had experienced missionary activity predating, and overlapping with, British colonial rule in others it had been sporadic or non-existent. Colonial-era censuses point to substantial spatial variations in female education. These variations have persisted into the present: while states like Kerala boast universal literacy, in many others, a large percentage of women remain illiterate and there has been limited progress in reducing male-female inequalities in access to education. We hypothesize that spatial patterns of institutionalization of co-educational and female schooling in the colonial period could explain this variation. These outcomes are in turn attributable to Protestant missionary activity in the nineteenth-early twentieth centuries, which spurred competition among religious and secular authorities in the status elevation of hitherto disadvantaged groups.

We make this case by conducting a process-tracing case study of Kerala, India's most progressive state when it comes to female education, and district-level statistical analysis to establish whether missionary-female education links hold throughout India. Kerala illustrates how prior to the arrival of Protestant Christian missions

native governments and established religious groups showed limited interest in female education outside of a narrow elite. By the end of the nineteenth century, following activity by Protestant missions, they became strong advocates of mass, including female, education, and key education providers.

For our statistical analysis, we assembled original district-level datasets. Our exploration of variation in missionary involvement in India's provinces reveals that Christian missionary activity is consistently associated with better female education outcomes as measured by differences in education among men and women, in the colonial period; it also continues to affect post-colonial variation in female education. These effects hold when we include the usual controls of direct British rule, modernization, European settlement, education expenditures, post-colonial democracy, as well as those specifically employed in studies of India such as Islam, caste and tribal status, and land tenure. Interestingly, we also find that direct British rule is not consistently associated with better female education outcomes; furthermore, it has had a deleterious effect on post-colonial gender education equality at some levels of schooling. These findings allow us to interrogate both the established assumptions about the human capital effects of British colonialism,¹² and those postulating links between colonial authorities and missionary activity.¹³

In the following section, we contextualize our approach in the broader literature on colonial legacies and discuss the religious competition theory and its utility for our analysis. Next, we illustrate the workings of competition by setting out the historical context in which Protestant missionaries operated in colonial India and conducting a process-tracing study of their involvement in Kerala. We then discuss our data and estimation approach and present results of district-level India-wide statistical analysis. A discussion summarizing our findings and their implications for debates on developmental effects of colonial-era legacies follows.

Theoretical Framework

Insofar as our focus is on colonial-era religious entrepreneurs and their effects on the gender aspects of human capital, our study differs from established and recent burgeoning politics and economics scholarship on the long term developmental effects of western engagement in former colonies. This literature has highlighted the importance for long term development of colonial political institutions¹⁴; the colonial powers' legal systems¹⁵; patterns of European settlement¹⁶; the political economy of colonialism, notably land tenure¹⁷; geographical factors affecting

colonial policy¹⁸; and western policies specifically targeting native schooling.¹⁹ With few exceptions,²⁰ religion has been only superficially addressed in these analyses, while the gender aspects of western engagement, whether missionary-led, or driven by the above alternative factors, have received even more scant attention. Our study therefore differs from existing scholarship in terms of both our key explanatory variables, namely missionary effects, and our outcome variables, namely female education.

Our proposed causal mechanisms linking missionary involvement to female education draw on studies in the sociology and economics of religion highlighting the role of interdenominational competition in the provision of public goods.²¹ This scholarship is distinct from predominant approaches to religion and its societal, economic, and political effects, which focus on denominational nuances or the institutional structures governing Church-state relationships characteristic of particular faiths.²²

In a classic study of religion, Peter Berger highlights the importance of studying the constellations of various religious actors in a given setting. He distinguishes among “religious monopolies” and a religious “pluralistic situation.” Religious monopolies, which Berger refers to as “regulatory agencies for both thought and action,”²³ exist when particular faith systems enjoy dominant status in society. Hinduism in predominantly Hindu areas prior to Western missionary involvement in colonial India, pre-Revolutionary Russian Orthodoxy sanctioned and protected by the state, and Calvinism in Calvin’s Geneva are examples of monopolistic systems. In such settings, dominant religions become notorious for religious “totalism” and a tendency for unchecked societal and/ or political control. A shift towards a plurality of competing actors involving both the established and non-dominant religions helps mitigate the “totalising” aspect of a dominant religion.²⁴

Berger characterizes a “pluralistic situation” as one in which “... religious ex-monopolies can no longer take for granted the allegiance of their client populations.”²⁵ As a result, a religious tradition, previously “authoritatively imposed” now has to be “marketed” to a discerning audience.²⁶ A “pluralistic situation” is therefore akin to a marketplace, in which various actors compete for the loyalty of the consumer. The existence of a religious marketplace affects both the strategies of dominant religious actors and those of the non-dominant competing religious entrepreneurs. The emergence of competing actors on the religious arena undermines the monopoly of existing religious institutions. Simultaneously, it forces the dominant and contending non-dominant actors to

compete in the delivery of consumer “goods,” spiritual and profane. Where the dominant religion helped maintain the status quo either through association with the Caesar, or by way of sanctifying the existing social order, it is now forced to reckon with its failing authority by incorporating aspects of competing doctrine and practice. Competition stimulates ecumenical processes and convergence in the provision of consumer goods. The competition dynamic is not limited to religious actors however, as they often confront competitive pressures in the redefinition of the world and the status of individual within it from non-religious rivals. These secular competitors could be political authorities or groups espousing rival ideologies like nationalism or communism.²⁷

Berger’s framework focuses more on the competition mechanism itself than on the doctrinal nuances of various religions conducive to the delivery of certain types of public goods. Nevertheless, he follows in the long tradition of scholarship linking Protestant Christianity in particular to social modernization. In his framework, Protestant groups are initial triggers to social engagement by other entrepreneurs.²⁸ As Berger, Eisenstadt, and Walzer have noted, Protestantism’s disposition to “modernity” is rooted in the wars of religion and counter-reformation, contexts in which Protestants were often an oppressed minority, denied the right to participate in the political life of host communities.²⁹ Initially “totalistic” in their orientation much like their Catholic counterparts, their oppressed status led them to elaborate a completely new set of approaches to the construction of polity and society.³⁰ The historical conditions of the origins and development of these groups, as Berger argues, were conducive to the emergence of secularizing impulses within Protestant Christianity.³¹ In contrast to Catholicism, Eastern Christianity, or Islam, characterized by greater ritualism and even withdrawal from active social life, Protestantism is more strongly associated with a “this-worldly” orientation whereby ritualistic institutional mediation is downplayed or abhorred, and personal responsibility for one’s life and that of the wider community are stressed.³²

What are the goods that Protestant religious entrepreneurs might offer to a discerning religious consumer? Max Weber highlighted the profane nature of incentives leading individuals to affiliate with specific Churches in America, such as the provision of good character certificates in acquiring bank credit.³³ Recent studies point to other types of goods that might be particularly valued in contemporary developing contexts.³⁴ Trejo found that faced with competition from Protestant challengers, the Catholic Church in Mexico’s indigenous regions, a traditional ally of

the landed rich and the elites, was more likely to provide such public goods as schooling to the most downtrodden groups in society.³⁵ In their study of missionary work in colonial Africa, Gallego and Woodberry likewise suggest that new entrants to the religious marketplace might opt for educational work even when existing religions already occupy a share of the market. This is because where the dominant political authority favors one religion over others, as did the French colonial powers vis-à-vis Catholic missions, the latter have little incentive to provide quality schooling, otherwise highly valued in local societies. Protestant competitors in these contexts seize the opportunity to cater to potential consumers by improving education, hence the higher quality of Protestant schooling in French colonies.³⁶

While the above few empirical studies provide some insights into the dynamics of religious competition in developing states, competition theory has been rightly criticized for being underspecified.³⁷ The theory, developed largely with reference to competition in western settings, for instance, is silent on religious entrepreneur strategies when applied to female education in non-western cultural contexts. In particular, it is unclear how doctrinal aspects of missionary activity may interact with missionaries' overall competitive objective of capturing a wide market where Protestant Christianity is an external cultural import. Our empirical study should help further develop and specify the theoretical mechanisms linking competition to strategies of religious groups operating in a colonial education marketplace.

Given the competitive environment of a "pluralistic situation" in which various actors are "optimizers"³⁸ seeking to cast their net as widely as possible, we would expect competition in the provision of female and not just male, education. Historically, doctrinal aspects of Protestantism that stressed personal relationship to God through scriptural readings in vernacular languages compelled Protestants to educate both boys and girls of pre-confirmation ages. In eighteenth-nineteenth century Europe, Protestant female literacy rates were higher than Catholic; the former generally maintained gender parity in primary education; and the Church had a reputation for providing better quality girls' education among all social classes wherever Protestant communities settled.³⁹

While Protestants developed modern schooling for girls in their own communities, their female education practices may differ in proselytizing contexts. Colonial historiography suggests that missionaries may face substantially higher barriers of entry into the female, compared to male, education marketplace.⁴⁰ In European

overseas colonies, men tended to value modern education, whether provided by colonial or missionary authorities, because of its perceived links to improved job prospects.⁴¹ In contexts where cultural practices sanctioned the seclusion of women, however, missionaries often faced substantial native resistance to female education.⁴² Colonial authorities also cited cultural sensitivities as grounds for neglecting female education.⁴³ Furthermore, some missionaries' pre-conceived notions about native societies, colored by prevailing colonial prejudices and Victorian-era "downward filtration" theories encouraged them to court the cultivated elite, male or female, and not the mostly uneducated mass populations.⁴⁴

Under these circumstances, we would anticipate several potential scenarios and strategies of missionary involvement. Under the first scenario, we would expect missionaries to focus on male education provision so as not to alienate a large segment of prospective, male, clients. Under the second possible scenario, missionaries would advance female education by devising strategies that would make it appealing and acceptable given the peculiarities of the wider cultural environments in which they operate. For instance, because of the facility of operating in a market that is already comparatively more advanced, and hence, more receptive to education, they could court the traditionally better educated elite females by providing education that is innovative and superior to existing education opportunities, but one in tune with cultural sensitivities prevailing in elite society. Such a strategy would tally with numerous accounts of missionaries preferring to work in the higher-class market; however, it would limit their influence to tiny elite, which may be in any case less amenable to conversion because of its high status.⁴⁵ Alternatively, they could concentrate on the uneducated and underprivileged mass population, likewise, by tailoring their incentives to this particular social stratum. The two strategies of female education need not be exclusive as missionaries may seek to cast their net as widely as possible. Whichever female education strategy they choose, their efforts are likely to trigger competition among religious monopolies and other groups in the provision of female education.

Under the scenario of missionaries concentrating on male education, we would expect missionary involvement in India to have had marginal, non-existent, or deleterious effects on reducing the gaps in education between men and women. In the female education scenario, we would expect missionaries to not only *directly* help improve elite or general female education through their own schooling efforts, but also *indirectly*, because of the

education provision competition that they trigger, and because of this competition's effects on greater social acceptability of educational parity for men and women.

We explore these potential causal mechanisms in the Kerala case study and statistical analysis sections that follow. The case study illuminates the dynamics of religious competition in a way that statistical analysis alone would not be able to capture given the limited sub-national data on Christian denominational composition and growth over time in colonial India. Statistical analysis employing proxies of missionary influences allows us more systematically to ascertain whether patterns uncovered in the case study hold throughout India when rival theoretical explanations of female education are taken into account.

Uncovering the Mechanisms of Missionary-led Competition in Education Provision in Colonial India

The context

Western Christian missionary involvement in India's education dates back to Portuguese and French presence in pockets of coastal territory in the sixteenth-eighteenth centuries. These early conquests led to the setting up of Jesuit schools for boys.⁴⁶ Active Protestant engagement in India dates back to the early eighteenth century when German and Danish Evangelicals established missions in South India and set up schools for men and women of all social classes.⁴⁷

The eighteenth century is also when the East India Company began expanding its operations in India. Until 1813, when the Company passed a Charter Act that admitted some responsibility for the education of elite Indians, it took limited interest in education and in particular female education. Colonial education policy changed over time under pressure from Evangelical missionaries, who were part of the nineteenth century transatlantic ecumenical movement of revivalist Protestant Christianity.⁴⁸ In the mid-nineteenth century, the British introduced a grants-in-aid system whereby private schools for boys and girls, a large share of which had come to be missionary-run, received subsidy.⁴⁹

Despite the expansion of schooling over time, colonial education results were unimpressive. According to some estimates, in 1916, less than 3 percent of the population in directly ruled territories went through elementary schooling.⁵⁰ Nurullah and Naik estimate that between 1835 and 1931 India-wide literacy rates had dropped by 0.5

percent. An alternative estimate is that they increased by only 1.75 percent.⁵¹ The mediocre outcomes were particularly pronounced for women. While in 1854, there were 2,875 schools for boys in the Bombay Presidency, there were only sixty-five girls' schools and they were all privately run.⁵² As late as 1920 most of the female education provision remained with the voluntary sector.⁵³ Female literacy retention rates were also extremely low and male-female gaps in literacy rates tended to widen with age. In 1930, the total "wastage" in girls' schooling, that is, a failure to continue education after the first grade, was 90 percent.⁵⁴ Utilitarian motives underlie the colonial authorities' hands off approach to female education. Boys' education resulted in cheap and abundant supplies of clerks. Female schooling would have been a more altruistic undertaking due to women's limited employment prospects.⁵⁵

There were substantial variations in the provision of female education among India's provinces however. Little evidence exists to suggest that these disparities stemmed from colonial education in directly ruled territories. In fact, education results in British provinces notoriously lagged those in some native states. In 1921, in British Bihar and Orissa there was one literate female per fifteen literate males, while in princely Cochin and Travancore the ratio was one to two.⁵⁶

Although no clear patterns could be discerned in education results among British and indirectly ruled territories, there was a tendency for Christians of all social classes to have comparatively high female literacy. In 1931, Christians were above Sikh, Buddhist, Hindu, Muslim, and tribal communities in overall literacy with Parsis, Jews, and Jains topping the list. They came third in female literacy however after Parsis and Jews. While Muslims had fifteen and Hindus had twenty-one literate females per 1,000 people, Christians had 203.⁵⁷

Christians however represented a tiny minority in most of colonial India and Catholics or, as in Kerala, Syrian, Romo-Syrian, and Latin Catholic Christians, often outnumbered Evangelical groups most active in education provision.⁵⁸ Moreover, by the end of the nineteenth century, native education provision eclipsed Christian schooling. Yet, colonial censuses indicate that where Protestants had been active there were superior female education outcomes.⁵⁹ The Kerala case study that follows illustrates how our religious competition framework could be useful for addressing this puzzle.

Women's Education in Kerala: Religious Competition and Secular Responses

Kerala, which comprises the Malayalam-speaking Malabar, formerly part of the British Madras Presidency, and districts formerly in the Travancore and Cochin princely states, has been lauded for its progressive female education policies. To what extent are they rooted in colonial-era missionary activity? We contend that colonial Kerala represents a classic case of a competitive religious marketplace in which established religious monopolies emulate new entrants' consumer strategies. These competition dynamics in turn have profound effects on gender educational outcomes.

Kerala's religious diversity notwithstanding, before the arrival of Protestant missions the territories now comprising the state had an uncompetitive religious market in which the various religious and secular authorities did little to promote mass female education. Christians constitute 19 percent, while Hindus and Muslims, 56 and 25 percent, respectively, of the state's population.⁶⁰ Kerala's Syrian Church, which links its origins nearly two millennia back to the work of Thomas the Apostle, boasted relatively high female education levels due to its elite status in society.⁶¹ The Church, which practiced existing caste taboos and hierarchies, until the end of the nineteenth century did not actively promote mass female literacy.⁶² Neither the Syrian Catholic Church, comprised of converts from Syrian Christianity, nor the Roman Catholic (Latin) Church, dating back to sixteenth century Portuguese conquests, showed much interest in the promotion of mass education either until the 1880s.⁶³

Native governments meantime remained "supremely indifferent" to female education.⁶⁴ As late as 1863, T. Madhava Rao, the Travancore Dewan admitted that government role in female education had been minimal. The two government girls' schools were elite Syrian Christian and Brahmin institutions opened in 1858-59. The Cochin and Travancore governments actively obstructed low status boys and girls education. As late as 1889, the Cochin government sided with Hindu upper castes in their opposition to the admission of low caste children into a mission school in Trichur. Travancore only abolished caste discrimination in schools in 1910, while Cochin conceded to eliminating caste discrimination policy nine years later.⁶⁵

British Residents, who held advisory positions vis-à-vis native governments in Travancore and Cochin took a more active interest in education. They did not obstruct, and at times actively aided missionaries for instance by facilitating their travel arrangements or liaisons with native governments.⁶⁶ The Travancore Resident in 1810-1819,

Thomas Munro, was even a known fervent Evangelical.⁶⁷ Nevertheless, because Residents pursued alliances with native royal dynasties and landed elites, they were complicit in “consciously or unconsciously abetting” local customs and hierarchies that Protestant missionaries sought to reform.⁶⁸

Mass female education in Kerala could be traced back to the establishment in the early nineteenth century of the missions of the London Missionary Society (LMS), comprised of Evangelical, Anglican, and Dissenter groups, and the Church Missionary Society (CMS), comprised of Church of England Evangelicals. These missions opened the first modern girls’, and co-educational, schools in Kerala. In Travancore, the wife of a CMS missionary, the Reverend Thomas Norton, set up the first girls’ school in Alleppey in 1820, while the LMS set up a girls’ boarding school in 1819 under the patronage of the wife of the Reverend Charles Mead. Another female mission worker also opened a formal girls’ school in Kottayam in 1819. By 1846, the LMS Trivandrum mission opened three further girls’ schools. A Mrs. Joseph Peet’s school for girls was also opened in Mavelikara in 1838, a Mrs. John Chapman school in Kottayam around 1847, and a Mrs. Henry Baker school at Pallom in 1871. In Cochin, the wife of the CMS missionary Samuel Ridsdale, the pioneer of female instruction, opened the first girls’ school in 1826; subsequently, she and her successors set up four further girls’ day and boarding schools. In the 1820s, another CMS missionary Thomas Dawson set up four girls’ schools with a total of sixty-four pupils in Cochin. In what was an important step in institutionalizing women’s education, in 1848, Protestant missionaries set up Kerala’s first female teacher training school. By 1920, CMS and LMS alone were running approximately 700, or 27 percent of Kerala’s 2581 schools.⁶⁹

While Protestant missionaries were motivated to promote mass female education as part of their objective to propagate the Gospel to all social groups, their education policy showed skillful strategic adaptation to native environments that would solidify their footing in local societies. These adaptation strategies were evident in their choice of types of schooling; the social strata that they targeted in their female education initiatives; and the incentives that they provided to various segments of the female population to embrace education.

Co-educational schools were often the Protestants’ preferred option as a matter of policy that stressed educational equality. Much of the early female schooling effort however went into the creation of separate girls’ schools because families refused to send girls to co-educational institutions. In what had been unheard of in India,

missions also employed female teachers. This practice gave missionaries competitive advantage over potential other education providers insofar as it catered to native concerns for the seclusion of females from males after puberty.⁷⁰

Although noted for their abhorrence of the caste system,⁷¹ Protestant missionaries also expended considerable energy devising strategies for winning over the traditionally elite segments of society. The Church of England Zenana Missionary Society (CEZMS) and its CMS affiliates in Kerala founded in 1864 in Trivandrum the Fort School for Girls aimed at the exclusive education of caste women under the patronage of Travancore's royal dynasty.⁷² By 1906, CEZMS ran a network of fifteen girls' schools. Zenana teachers often faced hostile reaction from male heads of household because of overt or subtle proselytizing. In response, the Evangelicals had come to downplay Christianity and instead focus on non-religious subjects.⁷³ Over time, Kerala's elites had come to perceive mission schooling as superior to traditional education and as an asset for their daughters' social status.

Nevertheless, doctrinal motives of social egalitarianism and a desire to cast their net as widely as possible encouraged missionaries to also target low caste women. Characteristic of Kerala society was an elaborate hierarchical system of practice, dress, and ritual distinguishing high status from low caste women. Hindus were comprised of the elite Brahmins and nairs; and the low caste groups like the ezhavas and slave castes of pulayas, pariahs, and kuravas. The low castes faced degrading treatment ranging from the prohibition to carry umbrellas and the wearing of shoes or golden accessories, to the requirement to refer to themselves in derogatory terms, to the prohibition for shanar women to cover their breasts.⁷⁴ Slaves "could be let on hire or transferred at the choice of the owner, offered as presents to friends or as gifts to temples, and bought, sold, or mortgaged in the same manner as the land on which they dwelt or as the cattle and other property of their owners."⁷⁵ Education represented an important element in this elaborate system of social taboos and exclusion. Caste Hindus refused to be in the same premises as "polluting groups" and there had been no question of admitting the latter into the education system. While low caste men had some access to segregated vernacular schooling, women remained overwhelmingly illiterate.⁷⁶

The German missionary Rev William Tobias Ringeltaube, who set up the first Protestant Church in Travancore in 1809, created the earliest precedent for integrated schooling. By 1816, his mission ran seven single-teacher schools that had 188 pupils. Subsequently, between 1817 and 1839, the first CMS missionary in Travancore, the Rev Thomas Norton set up eight further integrated schools. These schools were considered the first modern

educational establishments: they admitted boys and girls from amongst lower and upper caste Hindus, Muslims, Protestants, Catholics, and other Christians⁷⁷; rather than rote memorization of ancient texts characteristic of prevalent vernacular schooling⁷⁸, they also taught practical subjects like writing, reading, and arithmetic in English or vernacular languages. Early on, Protestant missionaries also pursued collaboration with Syrian Churches aiming to set up a school with each Syrian parish, however, disagreements over the prevalence of caste practices in Church practice led them to broaden their activities to focus more on the disadvantaged groups.⁷⁹ Missionaries provided higher quality schools with their modern curricula insisted that both low and high caste children be educated together and provided incentives to teachers to bring in girls and untouchables into the educational system—cash incentives per new pupil were common.⁸⁰ Such actions set an important precedent for modern, integrated, co-educational schooling that native providers would be forced to emulate in the context of religious competition.

Protestant missionaries' initiatives encouraging caste integration in schooling, as indeed their campaigns to abolish such practices as the prohibition for shanar women to wear a breast cloth, were bound to attract converts from amongst these disadvantaged communities because of instant rewards of status elevation.⁸¹ As elsewhere in India, conversion proceeded from a handful of socially marginal individuals to voluntary petitions of entire villages to convert.⁸² Conversions in turn not only helped introduce literacy to low caste females, but to ensure literacy retention over time and the likelihood of progression to higher levels of schooling. Among Protestant Christians, female relapses into illiteracy after puberty were comparatively lower because Church practice and vernacular Bible recitation ensured the continued reproduction of reading and writing skills. The Bible was often the only book in a Christian village home.⁸³

The alarmingly high rates of low status conversions in turn fuelled competition among established religious groups for adherents.⁸⁴ Bayly writes with regard to the shifting strategies of the traditionally elite Syrian Churches: "Gone were the days when the St. Thomas Christians had ... greeted with horror any suggestions that they might be identified with their region's ... low-caste Christian converts. Now their priests and eminent landholders ... compet[ed] energetically to win over more low-caste 'neophytes' than their rivals in other Syrian denominations."⁸⁵ Consumer strategic mobility further fuelled this competition: recent converts moved freely between groups as varied as Jesuit and Evangelical.⁸⁶ Similar movements between Hinduism and Christianity occurred.⁸⁷ Non-establishment

Christianity provided a “set of bargaining counters” to low caste “contestants.” “If a group failed to win new rights and shares in a locality’s ranking scheme as Hindus, they could convert to Christianity, restage their campaign for new honours, and hope to win on the next round,” writes Bayly.⁸⁸ While the shanars converted en masse to Christianity, others like the ezhavas, threatened conversion if caste Hindus would not address their social integration demands.⁸⁹

Education was central to religious competition strategies. “Opening a grant-in-aid school in the parish became ... one sure way of ensuring the loyalty of the parish leaders,” writes Mathew.⁹⁰ Between 1879 and 1895, the number of St. Thomas Syrian Church schools grew from 134 to 195, and of Syrian Catholic Church schools, from twenty-five in 1890 to forty-nine in 1895. By the end of the nineteenth century, indigenous schooling eclipsed Protestant missionary schools.⁹¹ Although government grants to mission schools, which the Evangelicals secured after sustained lobbying, played a role in this competition, many new schools, accounting for over 50 percent of total enrollment in late nineteenth century Kerala, were unaided.⁹²

Eventually, competing religious groups, particularly Hindus alarmed by Christian conversions, lobbied the government to open more low caste native schools.⁹³ Low caste social movements like the Sree Narayana Dharma Paripalana (SNDP) Yogam and Sadhu Jana Paripalana (SJP) Sanghom,⁹⁴ fuelled by missionaries’ modernization initiatives, also became active lobbyists for inclusive schooling. In 1909-10, the Travancore government adopted an Education Code, which stipulated that schooling provision would be “without distinction of class or creed”.⁹⁵ By 1929-1930, only twelve of Travancore’s 3641 schools banned the untouchables.⁹⁶ Similar processes were under way in other districts that later became part of Kerala. New secular entrepreneurs likewise contributed to competitive pressures to expand education. From the 1930s onwards, the Communist party, which became Kerala’s governing party in 1957, identified education of disadvantaged groups among its key priorities.⁹⁷

Although the key issue in these competitive pressures was low caste schooling and integration in general, they were bound to affect educational access for Kerala’s low caste female population. The rapidly narrowing male-female literacy gaps reflected these processes. Male literacy among ezhavas grew from 13.71 to 61 percent between 1901 and 1941; in what was a substantially higher increase, female literacy rose from 0.98 to 32.2 percent. The

pulayas and other low caste groups recorded similarly higher female, compared to male, literacy growth rates in this period.⁹⁸

These missionary-fuelled processes of educational expansion account for Kerala's post-colonial success in female education. Many of Kerala's female and co-educational schools date back to the colonial period. A one-room CMS school set up in 1849 for the Mala Arayans hill tribe grew into an English high school in 1939; and a tribal school set up in Melukavu in 1852 became a high school in 1968.⁹⁹ Similar processes of expansion and institutionalization of co-educational and female schooling could be traced to other modern schools, which started in the nineteenth century as a thatch-and-mud-floor operation. These schools represent a notoriously strong lobby group: they help shape state education policy, while fiercely defending their independence.¹⁰⁰

Although our historical discussion helps illuminate missionary impacts on female educational advancement, we have yet to establish whether these effects hold throughout India. We also need to explore more systematically, whether potential rival explanations of education variations in Indian states still hold when missionary effects are taken into account. We do so in the next section by conducting statistical analyses.

Statistical Analysis

Data

To analyze systematically how colonial-era missionary activity may have had long-term impacts on female education, we have assembled two district-level datasets covering most of India.

Employing the first dataset, we seek to uncover the relationship between missionary activity and female education as measured by differences between male and female literacy in the colonial period. The second dataset will allow us to ascertain the effects of Christianity on female education in post-colonial India. The advantage of employing district data is that it allows us to link observations from the two periods. This would not have been possible with state-level data because of the India-Pakistan partition and because in the 1950s states were reorganized along linguistic lines. The *India Administrative Atlas, 1872-2001* enabled us to match colonial with post-colonial districts.¹⁰¹

Data for the first dataset¹⁰² are from the censuses of 1901, 1911, 1921, and 1931. They contain the most comprehensive data preceding India's independence as World War II affected the scope of the 1941 census. Districts presently in Pakistan, Burma, and Bangladesh are excluded, and so are Portuguese- and French-ruled districts.¹⁰³ We do this for the sake of establishing data equivalence over the colonial and post-colonial periods.

Our key dependent variable is differences between male and female education. Our choice of this particular measure is justified on the following grounds. Traditionally, indices of absolute levels of female education were employed in development scholarship. Recently, scholars have urged the employment of ratios of male-female literacy and of access to primary, secondary, and higher levels of schooling as a complementary or superior measure of women's human capital.¹⁰⁴ The UN, OECD, EU, World Bank and other international bodies have likewise moved towards incorporating gender equality/ equity measures into their comparative cross-country rankings of human development. Since 1995, the UN has been employing a Gender Development Index (GDI), whereby Human Development Indices (HDI) adjust for male-female inequalities, rather than simply capturing overall male and female educational levels. Other equality indices, such as the Gender Equity Index (GEI), the Relative Status of Women Index (RSW) and the World Economic Forum Gender Gap Index (GGI) have been also proposed.¹⁰⁵

The introduction of these indices into scholarship and development policy is driven by empirical evidence that gender equality, rather than simply levels of female empowerment, significantly affect economic competitiveness, growth, and democracy.¹⁰⁶ Empirical studies utilizing gender gaps indexes have demonstrated that a country's developmental levels are affected by gender education gaps even when absolute levels of educational attainment are eliminated from the analysis, or when overall female education levels are accounted for in the analysis.¹⁰⁷

A World Bank study found that even when holding overall female education levels constant, higher disparities in male-female education could lead to substantial reduction in GNP in countries that are otherwise similar along other dimensions of development.¹⁰⁸ Sen and Anand suggest some plausible mechanisms whereby gender inequalities could have adverse developmental outcomes.¹⁰⁹ A woman's potential to negotiate household expenditures and access to them for herself and her children might be affected by the higher educational stock of her

husband; the wife's household decision-making power is also likely to be affected—she may have limited influence over her reproductive rights, the education of her children, and other matters.¹¹⁰

Our case study likewise demonstrates the utility of the gender gap measure. As we have shown, female literacy rates among Kerala's backward castes grew at a much faster pace than male literacy during colonial-era expansion of education. The gender gaps measures capture these “catching up” processes; and so do measures of gaps in various stages of schooling that we employ in our post-colonial analysis. These measures may also capture the shifting cultural attitudes to male-female equality in access to schooling and generally female status elevation that came with missionary involvement. For illustrative purposes, we also replicate our models with the alternative measures of overall female literacy levels (appendix, Tables A4 and A5).¹¹¹

The measures for the dependent variables for the colonial analysis are the ratio of literate males to literate females at the ages of ten to fifteen; fifteen to twenty; and twenty and over. The ratios are calculated by dividing numbers of male literates by numbers of female literates for each of the three age groups. The censuses also recorded data for age five to ten. Because many districts had missing data for this age group, we exclude them from our analysis. The definition of literacy is “the ability to write a letter and to read the answer to it.” It excludes individuals without writing skills, for instance many Muslims at the time, who could read the Quran in Arabic, but not write.¹¹²

Our measure of the key independent variable in the colonial analysis is the percentage of Christians in the total population. Unfortunately, district-level data for adherents of various Christian denominations over time are not available from colonial censuses. Our measure is therefore the best proxy of missionary activity for the purposes of our analysis. The appendix Table A9 contains India-wide data on growth of Christian adherents by denomination in the late colonial period. These data show that rapid growth in Christian adherents was largely due to increases in affiliations with Western Christian, particularly Protestant, and not indigenized, Churches like the Syrian Churches.

The control variables are urbanization; the census category of “European and allied races” (which we refer to as “Europeans”); Muslims; state-level per capita educational expenditure;¹¹³ and British colonial status. We employ urbanization to proxy for modernization, as colonial sources do not contain district-level GDP data.¹¹⁴ The variable “Europeans” is included because scholars have postulated links between European settlement and

development.¹¹⁵ Islam is included due to the recorded lower literacy levels among Muslim populations.¹¹⁶ It would also account for the effects of Muslim Moghul ruler legacies: during the colonial period, missionaries were particularly active in southern India, where there had been limited Moghul influence.

The employment of colonial status will allow us to establish whether direct colonial rule had educational effects that were distinct from those in indirectly ruled princely states.¹¹⁷ We assign the value of one to directly ruled territories and zero to princely states. Unfortunately, district-level education expenditure data are not available. We therefore use per capita state-level expenditure data to control for state education policies, for instance those of progressive native rulers.¹¹⁸ We also employ the variables of population percentage shares of “exterior castes” and tribal groups’ census categories (we refer to them as “caste” and “tribe”). Only state-level data are available for these variables. These variables will enable us to capture the effects of lower literacy in these communities, among which there were many Christian converts.¹¹⁹

In the post-colonial dataset, we use the Vanneman et al. Indian Districts Data, although we also include additional data that we gathered.¹²⁰ The data represent cross-sections and cover the census years 1961, 1971, 1981, and 1991. Abhijit Banrjee and Lakshmi Iyer also provided additional time-invariant colonial land tenure data.¹²¹

The post-colonial analysis dependent variables are male-to-female ratios of attendance at primary, secondary, and matriculation levels of schooling. We obtained these figures by dividing numbers of male by female attendees for the respective education levels. Our key independent variables in the post-colonial analysis are as follows. The first variable pertains to modernization. Unfortunately, district-level data for urbanization, which could be a proxy for modernization processes, are not available. We therefore employ a substitute measure, namely percentage share of individuals in agricultural employment. Additional control variables are population shares of scheduled castes and tribes. Another variable that scholars have linked to public goods provision is electoral participation.¹²² The quality of electoral democracy varies across Indian states.¹²³ We therefore include the measure of district-level turnout for state legislative elections. In order to account for potential path-dependent effects of British colonialism we also include the colonial status variable. We note that in some post-colonial districts, areas from British as well as native states were included after states reorganization. We replicate Lakshmi Iyer’s strategy in addressing this issue by treating a district as British if a major part of it had been under direct rule.¹²⁴ As in the

colonial period analysis, another variable that we include is state-level per capita educational expenditures.¹²⁵ To test for colonial land tenure effects, which scholars have also linked to variable education outcomes in India (discussed below), at one stage of the post-colonial analysis, we also include a variable of the share of landholdings under the non-landlord tenure system.¹²⁶

Our key variable of interest included as a proxy for colonial-era missionary effects is the district population share of Christians in 1931 given the hypothesized importance of colonial-era missionary involvement for female education development in India. As our Kerala case study has demonstrated, where missionaries had been active early on, they laid the foundations of modern education, which triggered education provision by other groups and native governments and long-term institutionalization of female schooling. Alongside this measure, we also include the variable of the share of Christian populations in the post-colonial period. We hypothesize that although post-colonial missionary activity is likely to affect post-colonial literacy colonial-era foundations have particularly strong path-dependent effects on post-colonial literacy. Post-colonial missions, after all, operate in contexts of already established educational systems and their effects on the provision of education are likely to be different.

We opted for 1931 data for our key measure of colonial-era missionary influence because the 1931 census was the last comprehensive colonial census: World War II limited the scope of the 1941 census operations. It therefore represents the best, and the most recent, available measure of Christian missionary influence prior to India's independence in 1947. We present the summary statistics for the two datasets in Table 4.¹²⁷

Estimation approach

Our dataset in the colonial period consists of cross-sectional data from districts with observations over time. To account for unobserved cross-sectional heterogeneity, we employ a panel data method to estimate our models. We use the population-averaged (PA) panel data estimator, also known as the generalized estimation equation (GEE), which allows us to recognize the panel nature of our dataset while eschewing the question of whether or not the cross-sectional effects are correlated with the regressors.

The PA panel data estimator controls for cross-sectional heterogeneity as well as possible effects-regressor correlation by averaging the panel-specific effects across all panels. Since our main interest is not in uncovering the

magnitudes of district- or subject-specific (SS) effects, this sort of averaging allows us to obtain estimates that reflect average effects across all districts as well as estimates that are consistent. The PA estimator takes account of within-panel, or district, correlation as well as among-panel, or between-district, heterogeneity when estimating a given model.¹²⁸

Our data in the post-colonial period consists of three cross-sectional datasets from 1971, 1981, and 1991. Since our main explanatory variable is time-invariant, and pre-determined before the outcome variable, we employ a cross-sectional ordinary least squares estimator (OLS) with robust standard errors to estimate our models for each period. In particular, we use the Huber–White or heteroskedasticity-consistent (HC) standard errors, which are discussed in several papers including Mackinnon and Halbert (1985).¹²⁹

Colonial analysis

For our colonial period analysis, we employ a balanced panel data with 621 observations, corresponding to 207 districts or cross-sections over four time-periods. In this part of the analysis, we explore the hypothesized links between male and female literacy gaps and additional factors that may impinge upon the outcome variable. We employ a log-linear model in which the logged values of our several measures of gender discrepancies in literacy are regarded as functions of logged values of the combinations of the variables of Christianity; urbanization; Europeans; Islam; caste; tribe; education expenditure; and colonial status.¹³⁰ The model has the form

$lliter_{it} = \alpha_i + x_{it}\beta + z_i\gamma + \varepsilon_{it}$, $i = 1 \dots N, t = 1 \dots T$, where the left hand side term represents the log of male-female literacy discrepancies, x represents logged values of explanatory variables and z represents time-invariant variables that are logged only if continuous, α, γ and β represent model parameters, ε represents a stochastic term, and i and t subscript district and time period.

In the colonial literacy Models 1, 2, and 3, the dependent variables are the ratio of literate males to literate females for the ten to fifteen, fifteen to twenty, and twenty and over age groups. We lagged our independent variables by a decade such that they correspond to the previous census. Table 1 contains the results.¹³¹

The results that emerge from the three models in Table 1 highlight the importance of Christianity in reducing the literacy gap among all age groups, even after accounting for the similar role played by educational

expenditure and, to a lesser degree, modernization; urbanization is only significant in Models 1 and 3. While a 1 percent increase in Christianity contributes to an 8 to 11 percent reduction in this disparity, similar increase in educational expenditure contributes to about 6-7 percent reduction, and urbanization to 2-4 percent reduction. That the coefficients for Christianity are consistently higher than those for educational expenditures and urbanization suggests that in colonial India the variables commonly associated with bridging the gaps in education among men and women, such as modernization or greater educational expenditures, are not as powerful or as consistent in explaining gender gaps in education progression and retention over time as Christianity. In general, the presence of Europeans, the proportion of Muslims, and caste do not have a discernible or consistent effect on the measured gender gaps in literacy. On the other hand, tribes seem to have a consistently deleterious effect on gender disparity in literacy, aggravating the problem by a statistically significant level of 3-4 percent. Colonial status has a consistently positive association with gender educational inequalities, though its effect is not always significant. [Table 1 about here]

In the appendix Table A1, we replicate these models but without the Kerala districts as an additional robustness check given Kerala's exceptionally high success in female education. We see that the results with regard to our key variable of interest, missionary activity, still hold even when we omit Kerala from the analysis.

Post-colonial analysis

In this second stage of the analysis, we establish whether there are colonial-era missionary effects on differences in male and female educational attainment in the post-colonial period. Similar to the colonial period analysis, we employ log-linear models, which we estimate using OLS with robust standard errors. We estimate the model $leduc_i = \alpha_i + x_i\beta + \varepsilon_i$, $i = 1 \dots N$. As in the colonial models, α and β are model parameters, ε is random noise, and $leduc$ is the log of the male-female ratios in education attainment measure while x represents the matrix of explanatory variables: our main explanatory variable Christianity in 1931, and the control variables colonial status, Muslim, farming, castes, tribes, and educational expenditures. In the post-colonial analysis dataset, there are 279 observations for each cross-section covering three time-periods. A number of colonial districts were divided into several districts during the post-colonial period. We therefore have a larger number of observations per time-period

in this set of datasets. Although we use data from the 1961, 1971, 1981, and 1991 census decades, we have three periods because the post-colonial Christianity, caste, tribe, farming, and educational expenditures have been lagged by a decade. Our education variables cover data for 1971, 1981, and 1991, and the lagged variables cover the census decades 1961, 1971, and 1981. The results are presented in Table 2, Models 4-6.

The results in the post-colonial models are broadly similar to those found in the colonial period. The effect of colonial era Christianity is still strong in each decade even when other important factors that affect the gender gap are taken into account across all educational levels. This effect is stronger, contributing to 5-10 percent declines in this gap for every 1 percent increase in its level, than contemporaneous levels of Christianity that contribute to about 2-4 percent declines in the gap for every 1 percent rise. We note that the effect of colonial era Christianity persists even though its effect has been declining with passing time. We also observe that its effect is more pronounced as we go across higher levels of educational attainment. Further, the contribution of colonial era Christianity is still substantial when we consider that the effects of post-colonial educational expenditures and modernization are relatively stronger on reducing the gender educational gap than in the colonial period. The coefficients on both farming and educational expenditure are higher than are those on both measures of Christianity. Scheduled tribes have a largely positive and statistically significant effect on male-female educational divergence, Islam does not have a statistically significant effect across the educational levels and time periods, while caste does not have a consistent or statistically meaningful effect on the outcome variables. We do observe, however, that British territories are more likely to have lower levels of gender inequalities in schooling over time. The coefficient for the colonial status variable is negative and significant in the 1981 and 1991 primary and middle school stage regressions, though it is positive and statistically significant for middle school and matriculation stages in 1971; it is also negative though not significant at the matriculate stage regressions in 1981 and 1991. As noted above, the coefficients for the colonial era Christianity variables are slightly higher at the higher educational level. We infer from these results that the positive influence of missionary involvement on gender educational equality becomes more pronounced for higher educational levels at which the “wastage” and slippage into illiteracy begins to occur among females in Indian society. In the appendix Table A2, we replicate the models without the Kerala districts to demonstrate that the results with regard to colonial missionary activity still hold.

[Table 2 about here]

Next, we seek to ascertain the effects of an additional set of variables on gender gaps in education attainment over time. The variables are democracy as measured by district-level voter turnout in state-level elections; and colonial land tenure. The inclusion of these measures is justified on the following grounds. Well-known long-standing theorizing and cross-national empirical scholarship (discussed above) have linked democracy to positive educational outcomes. Scholars have also linked land tenure to education in a recent study of colonialism's long-term effects on post-colonial India's modernization. Because of the complexity of this novel argument, we describe it here at some length. Banerjee and Iyer distinguish among three types of land tenure that British colonial administrators set up in colonial India—the landlord-, individual cultivator-, and village-based systems. The arbitrary power that landlords enjoyed over peasants in landlord areas arguably discouraged public goods provision. Because of the facility of capturing productivity gains from non-landlord areas, the British were also more inclined to invest in infrastructure and public goods in areas under this type of land tenure as compared to those under the landlord system. While not specifically concerned with female education, Banerjee and Iyer link the landlord-based arrangements with generally poor education provision in post-colonial Indian states.¹³²

To instrument for democracy we gathered State Assembly elections data. In contrast to constituencies of the Lok Sabha, the national parliament, State Assembly constituencies are usually confined within district boundaries (Delimitation of Parliamentary and Assembly Constituencies Order, 1976). Since as a rule each district has multiple constituencies, we calculated district averages for approximately 4000 constituencies covering all our districts. Because State Assembly elections dates vary for each state, we chose an election period of one to three years that corresponds to either the end or start of a decade in which most states had elections. To instrument for land tenure, we employ Banerjee and Iyer's measure of district proportion of territories with non-landlord systems.¹³³

The disadvantage of including the electoral and land tenure variables is that we now have fewer observations to work with. We employ the 1970-1990s district-level electoral data since most electoral constituencies are neatly contained within districts in that period. Because the turnout variable has been lagged by a decade, we have two data points in this set of regressions. The education data cover 1981 and 1991, while the

electoral variables are for the 1970s and 1980s, respectively. Adding the land tenure data also reduces the number of observations as there are missing data for a number of our districts in the Banerjee and Iyer dataset. Furthermore, Banerjee and Iyer gathered continuous measures of the proportion of non-landlord territories in some districts, while for others (including Kerala), for which precise data were not available, the values of either one or zero were assigned. We also exclude the latter group of observations from the analysis to ensure consistency with the log-linear structure of our data. After all the exclusions, we have 65 observations per time group in this set of regressions. The regression results are presented in Table 3, Models 7-9.

In these models, we find that colonial era Christianity still explains a decline in the educational gender gap across all educational levels, even when contemporaneous Christianity and educational expenditures that work in reducing this gap are taken into account. As in the earlier set of post-colonial period models, educational expenditures have stronger impact than both measures of Christianity, with colonial era Christianity having a more pronounced effect on this gap than its current counterpart does. Islam, colonial status, caste, and tribe have no consistent or statistically significant effect on this gap, while farming has the predicted positive effect on gender inequalities in education. The results also suggest that the level of democracy does not have a statistically discernible effect in reducing the educational gap, while the share of land under non-landlord systems has a positive and statistically significant effect on inequalities in the 1981 regression for matriculates, while being insignificant in other models.

[Table 3 about here]

In a further set of regressions performed as an additional robustness check, we include a more limited set of variables because of possible multicollinearity that may mask the effect of the newly introduced, and other key, variables. Thus, we exclude the post-colonial Christianity and colonial status variables because they may be multicollinear with the colonial Christianity and land tenure variables, respectively. Farming is also excluded as is Islam. We present the results in the appendix Table A3. The general results with respect to our key variable of interest do not change. The land tenure variable does not reduce the educational gap at all levels of schooling while the share of tribes likewise does not have a consistent effect on the outcome variable. Educational expenditures have a significantly negative effect on educational disparities except for the 1981 matriculates, where the effect is not

significant. Colonial Christianity is therefore the only variable that has consistently significant negative effect on gender discrepancies in education. These models demonstrate the robustness of our results with respect to our key variable of interest.

Discussion

Colonial-era Christian missionary activity has had *direct* and *indirect* effects on female education in the colonial and post-colonial periods. In what we consider their *direct* educational effects, Protestant Missionaries pioneered co-educational, and introduced new forms of female, schooling for all religious groups; female Christian converts also experienced additional educational effects in terms of literacy retention at a later age due to Church practice. Over time, in what could be regarded as *indirect* effects, missionary efforts led to the broadening of educational provision by a variety of actors—religious groups, native governments, social movements, and political entrepreneurs, leading to its greater social acceptability. These actors' combined lobbying efforts also forced the institutionalization of integrated education for all social groups as government policy, rather than that limited to a narrow range of education providers. Both the social acceptability of female schooling and its institutionalization led to the durability of gender equality in educational access in the post-colonial period.

Our empirical study, while drawing on the religious competition framework, also has implications for theory development as it helps specify the mechanisms of strategic adaptation of religious groups to the particular context of a colonial female education marketplace. Religious competition drove educational expansion in Kerala. Protestant entrants into Kerala's religious marketplace faced a handful of established religious monopolies, which, together with native governments presided over, and helped perpetuate in their practice, elaborate systems of gender and caste hierarchies. As religious competition theory would predict, such established monopolies have little incentive to change the status quo absent serious challengers: the social welfare of religious adherents usually falls victim to such monopolistic situations.¹³⁴

New entrants to the marketplace are much more sensitive to consumer preferences as they have to work extra hard to capture a share of an already established market. Herein is the fallacy of traditional accounts of missionary involvement in colonies, namely the notion that missionaries imposed alien mores on passive and pliant

local populations.¹³⁵ Admittedly, doctrinal matters drove the general outlines of Evangelical policy in India: the social hierarchies and accompanying practices perceived as degrading towards women and other disadvantaged groups were at odds with the missionaries' egalitarian notions of social welfare. Consumer demand however drove missionary strategies much as their doctrinal zeal did. These two factors explain their choice of the female education strategy, rather than that solely catering to native male sensibilities with regard to female education and focusing on the male educational market. Having opted for the former strategy, and faced with the option of concentrating on elite female education or casting their net to include disadvantaged groups, missionaries chose to work in both markets, and tailor their approaches to the respective target audiences. Protestant missionaries were not adverse to courting native elite women, secularizing and otherwise adapting their curricula and methods of instruction to this social stratum. Compared to the low castes, this group was easier to work with insofar as it had already comparatively higher education levels prior to missionary involvement, but was a more difficult target insofar as it had been less amenable to conversion. Their simultaneous strategies to win converts from amongst much wider social networks representing disadvantaged groups however helped undermine the very system which sanctioned education for elite Kerala women only. For centuries denied the status trappings of higher caste groups, those relegated to untouchability were not passive recipients of Evangelical doctrine. Instead, they were keen to adopt the substantive, as well as symbolic elements of higher status as soon as those options became available. For shanar females, the cloth covering their upper bodies became as much a symbol of status elevation as the opportunity for education.¹³⁶ Whether they became Christian converts or simply recipients of missionary education, these groups signaled to religious monopolies that they need not take their allegiance for granted. The latter, not hitherto associated with female educational provision, became active contenders for social allegiances in a more vibrant religious marketplace by emulating the policies of new entrants. The social awareness among low caste groups that these various educational initiatives spurred led to the development of native movements from amongst both elite and low status groups. While not specifically concerned with female education, these movements ensured that integrated schooling for all groups in society would become enshrined in government policy, thereby accelerating the "catching up" process of female educational attainment.

Although missionaries spurred competition in education provision for all native groups, conversions had additional effects on active practitioners of Christianity. Regular Bible reading ensured that low status female converts would have comparatively higher literacy retention rates than female adherents of other faiths in the same social group who tended to lose literacy skills after marriage.¹³⁷

Scholars have attributed Kerala's success in female education to its Christianization prior to colonial-era Protestant involvement; progressive native governments; tradition of matriliney (we note, limited to the higher castes); communist government; or a vicious caste system, which was ostensibly more conducive to social mobilization for educational change.¹³⁸ Our statistical analysis has demonstrated that missionary involvement has had consistently strong effects on reducing gender educational disparities throughout India even when we exclude Kerala districts from our regressions. While we do not dismiss the importance of Kerala-specific factors contributing to its educational success, both our case study and statistical analysis show that missionary involvement may be a more powerful explanatory factor than those focusing on the peculiarities of that particular state.

We also infer from our results that while post-colonial missionary involvement is important for female education colonial-era missionary activity appears to be a stronger predictor of gender education outcomes. The Kerala case study suggests that we could attribute this result to the colonial-era institutionalization of mass schooling, which post-colonial governments have had to reckon with in the context of democratic politics and in ways that would be different from government policy where no such precedent had been established early on.

While contributing to religious competition theory, our study is also relevant for the debates on the legacies of colonialism. Contrary to claims of influential cross-national studies about the long-term positive effects of British education policy, such as those of Lipset et al. and Barro, we find no consistent evidence for that claim with respect to gender education parity, particularly at higher levels of schooling.¹³⁹ Instead, our findings dovetail with recent within-nation scholarship that question the assumption of the beneficial effects of British rule on human capital outcomes in British India.¹⁴⁰ Although we do not replicate the Banerjee and Iyer study, we are also able to test whether colonial land tenure effects on human capital hold when applied to our variables of interest. We find that they are largely insignificant when missionary influences are taken into account, while missionary effects are robust to the inclusion of the land tenure variable at all educational levels.¹⁴¹ We conjecture that previous research may

have found large apparent effects of British colonialism on education as a result of failing to consider the effects of missionary activities.

[Table 4 about here]

Tables

Table 1: Colonial Period

Variables	Model 1: 10-15 age	Model 2: 15-20 age	Model 3: 20 and over age
	GEE AR(1) Estimates	GEE AR(1) Estimates	GEE AR(1) Estimates
Colonial Status	0.126	0.072	0.072
	0.079	0.072	0.065
Urbanization	-0.027	-0.019	-0.035
	0.015*	0.013	0.012**
Muslim	-0.039	-0.04	-0.045
	0.031	0.028	0.026
Christian	-0.112	-0.101	-0.079
	0.012**	0.011**	0.010**
Europeans	0.005	0.007	0.001
	0.011	0.011	0.01
Caste	-0.013	-0.024	0.018
	0.013	0.012**	0.011
Tribe	0.031	0.04	0.03
	0.009**	0.008**	0.007**
Educational Expenditure	-0.057	-0.061	-0.074
	0.013**	0.012**	0.011**
Constant	1.949	2.145	2.74
	0.125**	0.115**	0.105**
N	621	621	621
Groups	207	207	207
Years	1901, 1911, 1921, 1930	1901, 1911, 1921, 1930	1901, 1911, 1921, 1930

Table 2: Post-Colonial Period

Variables	Model 4: Primary schooling			Model 5: Middle schooling			Model 6: Matriculates		
	Cross-Sectional Estimates with Robust Standard Errors			Cross-Sectional Estimates with Robust Standard Errors			Cross-Sectional Estimates with Robust Standard Errors		
Year	1971	1981	1991	1971	1981	1991	1971	1981	1991
Colonial Status	0.011	-0.133	-0.145	0.090	-0.068	-0.124	0.121	-0.032	-0.043
	0.033	0.029**	0.029**	0.040**	0.035*	0.033**	0.051**	0.043	0.037
Muslim	-0.001	0.002	0.002	-0.007	-0.003	-0.003	-0.010	0.002	-0.002
	0.005	0.006	0.004	0.006	0.009	0.007	0.014	0.010	0.009
Christian	-0.035	-0.018	-0.015	-0.038	-0.035	-0.028	-0.039	-0.027	-0.033
	0.005**	0.007**	0.007**	0.006**	0.009**	0.009**	0.009**	0.008**	0.009**
Farming	0.146	0.111	0.080	0.169	0.126	0.099	0.203	0.164	0.120
	0.041**	0.033**	0.025**	0.046**	0.038**	0.030**	0.058**	0.053**	0.036**
Christian 1931	-0.072	-0.071	-0.052	-0.095	-0.080	-0.054	-0.097	-0.088	-0.066
	0.011**	0.009**	0.008**	0.014**	0.011**	0.010**	0.020**	0.015**	0.011**
Educational Expenditure	-0.098	-0.502	-0.508	-0.123	-0.492	-0.503	-0.078	-0.511	-0.432
	0.037**	0.045**	0.048**	0.044**	0.053**	0.053**	0.058	0.069**	0.064**
Caste	0.027	-0.012	-0.014	0.081	-0.007	-0.008	0.068	-0.012	-0.008
	0.022	0.011	0.007*	0.033**	0.017	0.011	0.043	0.013	0.012
Tribe	0.008	0.007	0.000	0.008	0.008	-0.001	0.010	0.010	0.004
	0.002**	0.001**	0.001	0.002**	0.002**	0.001	0.003**	0.002**	0.002**
Constant	0.486	1.565	2.135	0.516	1.621	2.191	0.632	1.682	1.973
	0.156**	0.160**	0.202	0.178**	0.190**	0.228**	0.224**	0.246**	0.272**
N	279	279	279	279	279	279	279	279	279
R-squared	0.634	0.705	0.652	0.633	0.696	0.647	0.514	0.628	0.627

Table 3: Post-Colonial Period, with Electoral Turnout and Land Tenure Variables

Variables	Model 7: Primary Schooling		Model 8: Middle Schooling		Model 9: Matriculates	
	Cross-Sectional Estimates with Robust Standard Errors		Cross-Sectional Estimates with Robust Standard Errors		Cross-Sectional Estimates with Robust Standard Errors	
Year	1981	1991	1981	1991	1981	1991
Colonial Status	-0.181	-0.103	-0.128	-0.067	-0.004	-0.059
	0.072**	0.047**	0.091	0.058	0.182	0.072
Muslim	0.002	0.002	-0.005	-0.006	-0.007	-0.011
	0.011	0.010	0.008	0.008	0.008	0.008
Christian	-0.016	-0.013	-0.033	-0.019	-0.044	-0.030
	0.009*	0.006**	0.011**	0.007**	0.011**	0.008**
Farming	0.516	0.449	0.700	0.542	0.957	0.631
	0.149**	0.110**	0.151**	0.113**	0.150**	0.125**
Christian 1931	-0.064	-0.041	-0.073	-0.052	-0.062	-0.054
	0.029**	0.016**	0.026**	0.016**	0.030**	0.018**
Educational Expenditure	-0.356	-0.392	-0.359	-0.488	-0.250	-0.462
	0.098**	0.126**	0.109**	0.128**	0.111**	0.148**
Caste	0.128	0.045	0.124	0.086	0.063	0.102
	0.080	0.110	0.072*	0.102	0.077	0.089
Tribe	0.003	-0.006	0.003	-0.006	0.006	-0.002
	0.003	0.002**	0.003	0.002**	0.004*	0.003
Electoral Turnout	-0.024	-0.282	-0.208	-0.158	-0.172	-0.115
	0.272	0.215	0.242	0.188	0.265	0.171
Land Tenure	-0.016	-0.021	0.022	-0.016	0.054	0.005
	0.041	0.033	0.026	0.029	0.028*	0.022
Constant	-0.222	1.514	0.169	1.068	-0.793	0.612
	1.188	0.719	1.154	0.661	1.133	0.649
N	65	65	65	65	65	65
R-squared	0.815	0.795	0.869	0.822	0.834	0.810

Table 4: Summary Statistics

Colonial Period					
Variable	Units	Mean	Std. Dev.	Min	Max
Colonial Status	Binary	0.7	0.5	0.0	1.0
Christian	Percent	1.3	3.5	0.0	31.5
Muslim	Percent	11.3	11.9	0.1	97.7
Urbanization	Percent	11.2	12.3	0.0	100.0
Europeans	Percent	0.1	0.3	0.0	3.2
Caste	Percent	0.1	0.1	0.1	35.0
Tribe	Percent	0.1	0.1	0.0	44.9
Per Capita Educational Expenditure	Rupees	0.6	0.6	0.0	2.0
Male-Female Literacy Ratio 10-15	Number	10.1	9.4	1.3	165.0
Male-Female Literacy Ratio 15-20	Number	10.9	6.9	1.3	49.9
Male-Female Literacy Ratio 20-Over	Number	17.2	9.2	2.5	64.7
Post-Colonial Period					
Variable	Units	Mean	Std. Dev.	Min	Max
Post-Colonial Christian	Percent	2.8	8.8	0.0	86.6
Muslim	Percent	10.5	13.8	0.0	98.6
Farming	Percent	24.4	8.4	0.0	56.2
Per Capita Educational Expenditure	Rupees	33.0	41.4	0.5	275.6
Electoral Turnout	Percent	56.8	14.7	3.6	91.5
Caste	Percent	14.1	7.7	0.0	39.1
Tribe	Percent	10.5	18.2	0.0	97.0
Male-Female Primary School Ratio	Number	3.3	2.3	1.1	24.8
Male-Female Middle School Ratio	Number	3.4	1.8	1.1	13.6
Male-Female Matriculates Ratio	Number	5.7	5.0	1.0	41.7
Non-Landlord Tenure	Percent	0.2	0.3	0.0	1.0

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