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The Long Run Development Effects of American Missions in Anatolia

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Once Upon a Time in Anatolia: The Long Run Development Effects of American Missions in Anatolia *

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Abstract

The American Board of Commissioners for Foreign Missions (ABCFM) had a significant foothold in the Anatolian geography for the majority of the early 19^{th} century, through their sizeable human capital intervention. Through an extensive archival work, we study the impact of human capital intervention on development outcomes. Using the spatial variation in the built and functional mission stations, we find areas closer to ABCFM missions have presently higher income by 5%-17%, and higher general development index by 0.07-0.12 standard deviation in 10 km proximity. We identify the mission impact by exploiting a placebo set from the group that was conceived but not carried out, and also an exogenous re-partition of the working region as an instrumental variable strategy. The underlying mechanisms are labor productivity in the agriculture sector, which allows for greater skill differentiation and structural transformation. Gender roles in education are also significantly transformed.

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1 Introduction

"Christianization had to come before civilization, he insisted, no matter the fact that the missionaries on the ground ... knew that it was secular education and foreign languages, that students demanded more than anything else[1]*."*

This article has the objective of uncovering the long-lasting impact of a historical intervention with extensive human capital investment on the long-run economic development in a unique setting. We explore a one and half-century historical adventure of the American Board of Commissioners for Foreign Missions (ABCFM) with modern secular education institutions. The geography this article focuses on is the historical Ottoman Anatolia, currently Turkey. Although the ultimate purpose was mainly related with religion, the ABCFM heavily invested in education, health, and various crafts and skill training activities with a particular emphasis on introducing schools and New England type colleges in the 19^{th} and early 20^{th} century[2].

This specific geography lacks systematical analysis about how history shaped the long-run economic development, so the need for a rigorous investigation of historical institutions is crucial in some respects. The geography is critically affected at that juncture by a host of growth and development processes, it is a unique context with distinct cultural dynamics, in particular with the present religious homogeneity and with the ethnoreligious heterogeneity till the early 20^{th}. Moreover, the opportunity we have to analyze a 19^{th} century society and economy meeting with a modern and sizeable education intervention. Not only the geographic context is unique to study the

[1] ABC30,Rufus Anderson Papers, vol.10, memoranda of discussions in meetings of missionaries during Anderson's visits to the Levant,1843-44 cited in Makdisi (2011)

[2] Curtis (1911), Crawford *et al.* (1899),Barton (1908), Kocabaşoğlu (2000), Yücel (2005)

effects of missions on the present development outcomes, but also the historical period we focus on in terms of the education demand of the different subgroups in a non-colonial context. Even though the geography this article concentrates on is not a colonial setting, there are certain notable similarities because a foreign developed country -the USA- in relative terms exported its education institutions, which makes our study more intriguing compared to the colonial settings such as India and the African region.

Our findings imply that the ABCFM historical intervention has a substantial impact on the long-run economic development outcomes. The locations close to ABCFM missions presently have higher income per capita and development index scores than locations far away from them. We use the spatial variation in mission locations to disentangle the long-lasting development effect of ABCFM missions. Moreover, we identify the mission effect, first employing a placebo treatment analysis comparing the locations where the ABCFM were recommended to establish a mission facility by overseas missionaries but never endowed. Second, we benefit from the exogenous variation in the spatial distribution of ABCFM missions brought by the repartition of ABCFM working field in the Ottoman lands. Lastly, we further investigate the underlying channels driving the mission effects and examine the medium-run effects of the ABCFM missions in 1927.

We joined various data sets into one by gathering information on the spatial distribution of the ABCFM missions and further details through extensive archival work using primary historical sources either online or on-site whenever online investigation was not possible[3]. After detecting the locations of ABCFM missions, we used ArcGIS software to quantify spatial features. For the present outcomes, we mainly use two unique data sets, which are 1996 District GDP Data provided by the Turkish Statistical Institute (henceforth, TURKSTAT) and 2004 District Development Ranking Data provided by the State Planning Organization (henceforth, SPO). Finally, we exploit various historical censuses of both the Ottoman Empire and Turkey.

[3]We did the on-site archival inspection in Houghton Library at Harvard University to identify the locations of main stations and principal out stations. Our archival work covers chiefly the annual reports of the ABCFM in 1810-1920.

We measure the long-term impact of ABCFM missions, following Caicedo (2019) by using the distance to the nearest ABCFM mission in km. Nonetheless, as Jedwab *et al.* (2018) points out, the non-random location choice of the ABCFM and the non-classical measurement arising from under-reporting of missions that took place in remote and isolated areas in historical sources are threats to the validity. We address those challenges in two ways and subsequently establish the causal link.

It is less likely to argue that non-classical measurement error exists in our setting because we exploit the annual almanacs and reports of ABCFM over the period of 1810-1920. Despite a rich set of controls of historical and geographical features in the regressions and detailed archival work, we first provide a placebo treatment analysis comparing the sites planned or suggested to have a mission facility but never equipped with the others. Placebo treatment analysis show no economically and statistically significant effect on present development outcomes, showing that the mission activities are the determinant of the estimated impacts rather than location characteristics.

Secondly, in 1870 the ABCFM relinquished all its missions in the Syrian-Nestorian region to the Presbyterian Missionaries(ABCFM (1870)) and then moved their activities extensively into the geography of present Turkey and so spatially relocated within the Ottoman Geography, which led to an exogenous variation in the distance to nearest ABCFM mission. This allows us to instrument the distance to the nearest ABCFM mission with the distance to the nearest Syrian-Nestorian mission station. Estimates indicate economically and statistically significant impact of ABCFM missions on present development outcomes.

We provide several robustness checks. A critical robustness check to touch upon is the spatial autocorrelation in residuals. Kelly (2019) argues that spatial correlation might result in misleading statistical inferences with inflated t-statistics in regressions, particularly in settings where the unit of observation is a geographical unit. We handle this issue with various approaches. We first correct the standard errors implementing the procedure suggested by Conley (1999) for a range of different spatial correlation cutoffs. We later show that the inclusion of province-fixed effects removes the spatial autocor-

relation in residuals. We further generate a new control variable to account for the income disparities in the east-west axis and later add this variable into regressions, indicating that estimates are robust to its addition. Last but not least, we run 1000 simulations by replacing the outcome and explanatory variable with the spatially correlated noise. Simulations indicate that the noise never outperforms the explanatory variable.

Our results show that moving closer to an ABCFM mission by 10 km leads to a 5-17 percent increase in the income per capita. Using the development index provided by the SPO for each district, we figure out that a 10 km increase in the distance to ABCFM missions depresses the economic development by 0.07-0.12 standard deviation. We find empirical support for the underlying channels, chiefly the mechanisms of structural transformation, agricultural productivity, and human capital. In line with the established association between human capital and long-run growth[4], results show that locations close to ABCFM missions turn out to have higher literacy and female schooling in the long run.

There is a growing body of literature emphasizing the role of structural transformation and agricultural productivity in the long-run economic development.[5] Our results are in line with those studies by pointing out that the historical human capital intervention led by ABCFM ends up with the reallocation of economic activity from agriculture to industry and the increase in agricultural productivity by fostering skill generation and knowledge diffusion. We also examine and rule out various alternative channels.

This article contributes to the literature in several ways. A growing body of literature has sought to relate initial endowments to institutions to present economic outcomes,[6] highlighting the geographical, cultural, and historical determinants have long-lasting effects. Prior research has mainly focused on colonial regions with a particular emphasis on Africa, South America and

[4]Hanushek and Woessmann (2008, 2011, 2012)

[5]Caselli (2005), Bosworth and Collins (2008), Self and Grabowski (2007), Mellor (1999), Johnson (1997), Johnston and Mellor (1961), Hornbeck and Keskin (2015), Kögel and Prskawetz (2001), Gollin *et al.* (2002), Herrendorf *et al.* (2014), Restuccia *et al.* (2008)

[6]Sokoloff and Engerman (2000), Easterly and Levine (2003), Gallup *et al.* (1999), Acemoglu *et al.* (2001), Acemoglu *et al.* (2002), Guiso *et al.* (2006), Alesina and Giuliano (2015), Glaeser and Shleifer (2002), Spolaore and Wacziarg (2013) Porta *et al.* (1998)

India.[7] Moreover, following the persistence literature, Kuran (2003, 2004, 2012) demonstrates that the institutions rooted in Islamic Law are the causes of the contemporary underdevelopment of the Middle East. Our article with a credible identification strategy and extensive archival work complements the current literature by examining the development impact of a historical intervention with massive human capital investment in a non-colonial setting meaning, which has up to now, been under-researched. We further extend the findings of this burgeoning literature showing that specific mechanisms of human capital, structural transformation, agricultural productivity play a major role in the long-run development.

Recent studies establish that cultural values (Kuran (2018), Guiso *et al.* (2006)), cultural festivals (Montero and Yang (2021)) and cultural transmission mechanisms (Becker and Woessmann (2011)) might be important drivers for the differential development for specific sub-populations. This is also true for the historical development experience of specific countries (Akçomak *et al.* (2016)), which have gone through a significant independent cultural shock. Mission studies specifically capture these transmission mechanisms of a business-friendly ethic, and an education and skill accumulation center. The mission studies, in different parts of the globe have been able to show that even quite historically remote missionary activities, still weigh in on current and important human capital and development outcomes (Caicedo (2019), Waldinger (2017), Woodberry and Shah (2004), Calvi *et al.* (2019), Calvi and Mantovanelli (2018), Bai and Kung (2015), and Cagé and Rueda (2016)). This is true not only at the level of the aggregate level, but in terms of ameliorating specific inequalities in the societies under question, as especially certain types of mission targeted increasing the knowledge and position of the disadvantaged populations (Nunn *et al.* (2014), Okoye and Pongou (2014), Calvi *et al.* (2019), and Caicedo (2019)). Our research follows this general literature as methodology, with different identification strategies that we use in combination to identify specific mechanisms effecting long run development.

In terms of identifying a time period and a historical context where our

[7]Nunn (2008), Nunn and Wantchekon (2011), Dell (2010), Nunn (2010)

contribution lies, it is in our differentiated context where the demand for new education was more autogenous, and the education intervention was more modern, secular and craft-based, and we believe distinguishes our research, and its chance of clean human capital effect identification. Similar points can be made about the fact that Ottoman society, with its Muslim dominant polity, and its well established, well divided multi-denominational society[8] made conversion channel non-functional. This contributes to the unique value of our research, as the intervention is differentiated by increasing the skill and general knowledge of the population, rather than by transmitting religious values.

Turkey has fundamental development problems in the challenges of schooling, skill acquisition, and different dimensions of inequality. The Turkish society is still defined with a lower level than the OECD average in terms of schooling (Aksit (2007)), human capital accumulation issues around gender differences (Tansel and Güngör (2016)), gender issues around labor participation (Dayıoğlu and Kırdar (2010)). Turkey also has significant regional inequalities that have stayed constant, or actually deteriorated and in fact has diverged in terms of the east-west divide, as established by Asik *et al.* (2020). The intervention we are focusing on is valuable for the Turkish development literature as it targets specifically these development issues. Thus, we can look at how much opportunity there is in the easing of these development issues as a result of the mission intervention. Identifying how even discontinued interventions, in the recent past, have had significant ability to ameliorate these issues, can give us an idea about the type and the scale of intervention that is necessary to surmount these development issues.

The rest of the article is organized as follows. In the next section, we briefly describe the historical intervention and setting. Section 3 introduces the data employed and renders the details of the research design with a particular emphasis on how we isolate the ABCFM mission impact. Section 4, 5, and 6 report the findings for the primary development outcomes, underlying mechanisms, and intermediate outcomes, respectively. In section 7, we provide several robustness checks. Section 8 concludes the article.

[8]Makdisi (2011)

2 Historical Setting

"In the Ottoman Empire territories, a significant missionary education chain is known to have existed, from the primary to higher education. In the year 1900, in Anatolia specifically, there were 400 different missionary schools in the different education stages. A considerable number of students, as high as 17500, attended these schools. For comparison, Yusuf Akcuraoglu estimates that these numbers represented 1/3 of the entire student body. In the same time period the domestically financed elite education institutions consisted of 69 schools distributed around Anatolia, with a total attendance of 6900 students."[9]

Ottoman Society and Polity at the start of 19^{th} century were in the midst of profound change and systemic challenges. The demands in the society was beyond the capability and the plans of the government. The Tanzimat Process, although a positive development in terms of societal reform, also made this demand-supply gap even larger, as the state defined all its subjects as having equal rights in its access to social and economic rights. The ethnic and religious competition between groups, and within groups created a positive impetus for increased education, and skills, in order to gain more advantageous positions in the Ottoman society, post-Tanzimat.

The arrival of the first Protestant missionary to the Ottoman Geography occurred in 1815, and was the British vicar. In 1820, two members of the ABCFM boarded in Izmir Harbor, with the goal of finding a place for the burgeoning overseas education activities, and more general activities associated with Christian conversion[10],and social transformation. The first stage the missionaries had set for themselves was a kind of social mining, finding the open areas-populations that will be conducive the missionary activity. Although they did not know about the Anatolian geography at all, or the characteristic of the constituent populations, they would learn fast through the first excursions into the Anatolian territory, and the first efforts to es-

[9]Kocabaşoğlu (2000)

[10]'Turn the heathens to the true religion' was their starting point, though their means to reach this goal was quite multidimensional

tablish themselves in different localities.

After a certain time, the missionaries in Anatolia as a start of their excursions reported two regularities, the proselytizing of the Jewish, and Muslim populations to the Protestant cause is facing serious opposition, but there is some traction with the Armenian populations, with increased engagement with the Protestant missionaries if not conversion. This finding resulted the missionaries in changing the target areas of educational investment according to the preponderance of these populations. Secondly, education(higher than the primary level) instruction in the foreign language and skill,craft and printing activity is allowing the missionaries to gain a significant foothold. The innovations that were introduced by the missionary activity to this geography, include both rudimentary industrial technologies, and many ways of increasing productivity in the agricultural areas. They were also instrumental in galvanizing, the up-to-now dormant printing industry, which started to print Bibles, but spread out for different kind of publications.

Within less than a century, the ABCFM carried the know-how of the textile industry [11] that took its source from New England, and the modern agriculture techniques of 19^{th} century US, which contributed to the generation of various skills and crafts for the different parts of Ottoman society. As Finnie (2013) points out, the American missionaries boast for the first time to introduce the sewing machine, potato agriculture, oil lamp and photo camera to Ottoman society.

The target group of enrollees was also significantly diverse, with many different denomination groups being enrolled in the ABCFM mission schools, including Muslim students. In line with the Protestant teachings, the female literacy was given the same importance as males, which was also a very novel approach for the Anatolian geography.

In terms of the curricula that these educational institutions prepared and introduced to the Anatolian population, Mathematics, Algebra, Trigonometry,Natural Sciences, History, French, English, Turkish, Geography were

[11]For instance, the industrial work in the Aintab mission in 1897 was narrated as *"the industrial department has afforded relief to great numbers, employing sixty-five girls in stocking making, thirty in felt embroidery, 300 in spinning and weaving, 200 in silk embroidery"* (ABCFM (1897), p.53).

introduced into the curricula at all level missionary schools, subjects which were taught by the first time to these mass populations.This new curriculum can be argued to be more in line with the demands of the 19^{th} century[12].

We single out the intervention in the 19^{th} century as significant in terms of education, skills, printing and health intervention, which was hugely important for the host country in the 19^{th} century, in terms of its scale[13] and in terms of its nature as a multi-dimensional intervention[14].

3 Data and Research Design

3.1 Data

We benefit from a variety of data sources. First, we use archival data to get the spatial distribution of ABCFM missions. Second, we employ TURKSTAT data on income and education levels, and the comprehensive data set assembled by SPO[15] on present day development outcomes. Third, the early republican and the Ottoman population censuses allow us to measure the medium-run development impacts, and also to gather information on historical population counts, respectively. ArcGIS software to quantify the distance to the relevant mission facilities is also utilized.

The analysis is conducted at the district (sub-province) level, the second administrative unit following the province in modern Turkey. For the development outcomes at the relevant unit, 2004 SPO[16] District Development Ranking Data [17], is our first data set that has comprehensive information

[12]Somel (2001)

[13]417 schools were opened in many different geographies, with a great variety of schools from theological seminary schools,girls boarding schools, high schools and primary schools, headed by 8 New England type colleges which targeted giving the highest level English language education.

[14]The secular curricula of these schools, both prioritized education in many different areas, but also prioritized agricultural and industrial work being undertaken by students

[15]Dincer and Özaslan (2004)

[16]The SPO had a long tradition of portraying the Turkish economic development from the 1960s till its repeal in 2011.

[17]Although the data set was published in 2004, it was, in general, put together through the Population Census of 2000 of the TURKSTAT.

about a variety of standard development indicators such as urbanization, literacy, and occupational structure at the district level.

For each district, SPO notably constructs a standardized development index[18] that is one of the primary outcome variables.[19] It is estimated through the principal component analysis method among 32 socio-economic variables.[20] The development index is advantageous in two respects. First, it is free from external control or influence because already constructed in the SPO data set long before this article, helping to avoid the concerns related to specification search, data mining, and p-value hacking. Second, it thwarts our results from suffering from the multiple hypothesis testing since we assess the impact of the ABCFM missions on a large set of outcomes. SPO data set dismisses around 30 outlier districts in terms of economic development. Thus, it allows us to address the concern that outliers drive the results. We also do not include the districts in Istanbul in the sample because Istanbul has a distinct long-run development trajectory. Similarly, the SPO excludes almost all of the districts in Istanbul except five.

Second data set we utilize is 1996 District GDP Data assembled by the TURKSTAT on income levels, which provides a unique opportunity of having GDP per capita at the district (sub-province) level. This data set has more observations than the SPO data set, as it puts no restriction on highly-developed locations. Despite a smaller sample size of the SPO data with 867 units, the 1996 District GDP Data has all districts with 891 observations. We test whether the results are robust to the corresponding discrepancy regarding the sample size. Results in the appendix Table A.1 reveal no inconsistency.

Third, for schooling outcomes we employ TURKSTAT 2000 Population Census. The information on land ownership distribution to calculate the GINI index is retrieved from the TURKSTAT 1997 Village Inventory Cen-

[18] with the mean of zero and standard deviation of one

[19] For detailed information, please refer to the link `https://sbb.gov.tr/wp-content/uploads/2018/11/Ilcelerin_sosyo-ekonomik_gelismislik_si%C4%B1ralamasi_Arastarimasi-2004%E2%80%8B.pdf`

[20] Briefly, they happen conventional development indicators lying on demography, agriculture and industry, urbanization, banking, health, transportation, human capital, infrastructure characteristics.

sus. We utilize the TURKSTAT 1927 Census of Population and 1927 Census of Agriculture to have the information on population features, the occupational distribution of the working population, and the amount of cultivated area, the quantity of labor and total production in agriculture, and the prices of agricultural products in a specific district in 1927. The 1881 and 1914 Ottoman Population Censuses[21] allow us to collect information on the features of historically settled communities in 19^{th} and early 20^{th} century.

To determine the spatial distribution of mission activity, we investigate the annual reports and the almanacs of the ABCFM starting in the 1820s and ending in the 1920s during our archival work.[22] Those annual reports and almanacs that are the primary historical sources publish the location of main stations and principal out-stations. Even though there were also outstations other than main stations and principal out-stations that we measured the nearest distance from, most of the outstations were abandoned and also mainly directed from the main stations and principal out-stations. As historical sources indicate that out-stations were not stable over time in terms of activity and in general were not equipped with modern education facilities.[23]

Not only do the annual reports provide information on established missions but also information on either the planned or the recommended locations but not equipped with any mission facility. In words, those places never got the mission treatment. We refer to those as placebo missions and in the identification section we discuss the possible reasons of why they are taken as placebo. We also detect the missions in Syrian/Nestorian region that were

[21]Karpat (1985)

[22]With a highly hierarchically bureaucratic perspective, the ABCFM center in New England in the US obliged all missions abroad to report the outlook in their locations. The local reports sent by overseas mission stations were put together in the annual reports and later published by the ABCFM center in the US in their annual congresses. They extensively contain the annual activities of the ABCFM stations all over the world with information on the financial situation including accounting records, the number of staff in gender categories, the number and type of schools and health facilities, the number of students in those schools, the amount of donation, the newly established mission stations and its locations with geographic coordinates, and various details.

[23]Kocabaşoğlu (2000) points out that out-stations were the units that took place in villages and were under the governance of local community. The out-stations were far from having any influence on the decision process of ABCFM. Therefore, they existed for religious reasons rather than being allocated with education facilities.

transferred to the Presbyterian Missionaries in 1870.[24] The geographical distribution of the areas having a mission facility and placebo missions, and also the missions left in 1870 in Syrian/Nestorian region is depicted in Figure 1.

Last but not least, benefiting from the ArcGIS software to calculate the distance in kilometers to the nearest actual, placebo, and transferred missions, we calculate the distance from the centroid of a district to such points, respectively. Besides, we complement our data with some geographical variables such as ruggedness, elevation, the distance to the nearest custom gate, and the proximity to the coast and Istanbul. For some of variables, we benefit from various sources, and further details for a specific variable are reported in the Online Appendix. Table 9 displays the descriptive statistics of key variables, separating sample districts into two groups for those closer than 50 km and those farther than 50 km.

3.2 Empirical Analysis

3.2.1 Econometric Model

To assess the impact of the ABCFM missions on present economic development, our econometric specification is as follows:

$$Y_{ij} = \alpha + \beta Dist_{ij} + \theta X_{ij} + \mu_j + \epsilon_{ij} \tag{1}$$

where Y_{ij} corresponds to the outcome of interest in district i in province j. Y_{ij} denotes the main outcome variables: the logarithm of income (GDP) per capita in USD terms in 1996 and the standardized development index in 2004 at the district level. The explanatory variable, the distance to nearest ABCFM mission in kilometers, is denoted by $Dist_{ij}$. The main parameter of interest is β.

X_{ij} stands for the geographical and historical controls. The geographical controls include ruggedness, longitude, latitude, annual mean temperature, and precipitation, elevation, suitability indexes for wheat, barley, oat, cotton,

[24]For some specific archival documents not available online, we do on-site archival work in the Houghton Library at Harvard University.

olive, the distance to Istanbul in travel days, the distance to shore in travel days, the length of primary and secondary rivers per surface area in 2010 in kilometer square, and the distance to the nearest custom gate. The historical controls contain an indicator variable whether the location is within the Seljuk Sultanate, likewise an indicator variable for whether the district is within one and a half-day travel distance to 19^{th} century major ports.[25] The variable μ_j captures the province fixed effects accounting for the characteristics at the province level. ϵ_{ij} accounts for the idiosyncratic error term.

We re-estimate the equation 1 while shedding light on the underlying mechanisms and medium-run effects in 1927. In all specifications, standard errors are clustered at the province level.

3.2.2 Identification

The non-random settlement of the ABCFM missions raises the concern of endogeneity. As Jedwab *et al.* (2018) highlights several historical mission studies likely suffer from two sources of endogeneity driven by omitted variables and non-classical measurement error. Consequently, a statistical association might be far from being causal as the likelihood of establishing the missions in safer, healthier, geographically more accessible, and economically more developed areas and the under-reporting of the missions in remote and isolated areas might lead to bias in estimates. We argue that a possible sample selection and reporting bias is unlikely in the ABCFM historical intervention.

The mission atlases, the chief historical source for several mission studies, are prone to non-classical measurement error emerging from significant under-reporting of the missions, predominantly in less developed locations (Jedwab *et al.* (2018)). Unlike the prior studies using the atlas published in 1912 as a single source of information, we benefit from each ABCFM annual report and almanac of the period of 1810-the 1920s which the local stations provided a detailed outlook of overseas missions in an organized manner.

[25]It is included in the set of controls for whether the specific district is in the hinterland of a port city and port. The size of a port's hinterland varies substantially and depends on topography around it.

Overall, it is hard to argue that the non-classical measurement, reporting bias, is likely in our setting as our strategy to identify mission locations fundamentally differs from the prior studies.

The historical sources reveal that the ABCFM missionary activity mainly existed in remote, isolated, and underdeveloped areas in terms of 19^{th} century standards (Kocabaşoğlu (2000), Yücel (2005, 2011)). The sites where ABCFM planned or recommended to equip with a mission facility were usually chosen in advance before the physical presence of missionaries, resulting in ad-hoc and accidental choices.[26] Moreover, regressions include a battery of controls to account for geographical and historical characteristics plus province fixed effects that lead to the comparison of districts within the same province. Controlling for province fixed effects also helps the covariates to be balanced across control and treatment districts as shown in Table 2.[27] Even if the rich set of controls mitigates the concerns of endogeneity, estimates still might be invalid. To address this challenge, we further adopt two distinct strategies.

The first strategy is to conduct a placebo treatment analysis. The rationale behind the placebo treatment analysis is that the mission impact is not driven by the location choices but the true effect of mission activities. Hence, we design the placebo missions by exploiting the areas that were planned or suggested to have a mission facility by local staff but did not have. The corresponding locations and their circumstances were not evaluated through the physical presence of ABCFM missionaries as revealed by archival work.[28] Moreover, historians state that ABCFM missionaries tried

[26]For instance, the Aintab mission that became one of the most important main mission stations, after a while, was decided to be founded coincidentally. While going to Baghdad, an ABCFM missionary took a break in Aintab and suggested it be equipped with a mission facility even if he was not aware of Aintab before coming across it during his journey.

[27]We generate a binary variable accounting for the mission presence in a district.

[28]For instance Malghara, Malkara in modern Turkey, was mentioned in the 1852 Annual Report as follows:
"Malghara has three hundred Armenian houses. Some of the people are hopeful inquirers after gospel truth."(ABCFM (1852), p.66)
However, Malghara had never been endowed with a mission facility according to the archival documents. Yagh-bassan, Yagbasan in modern Turkey, is another placebo location in our research design and it was adverted in the 1882 Annual Report as follows:
"Yagh-bassan is a Greek village, on spur of the same mountains, where is a good baud of

to spread mission activity to whole Ottoman lands on paper. However, the confusion at the early period and the circumstances that did not fit the plans in the field made the location choices to a large extent chaotic and coincidental.[29] Thus, we compare the treatment and placebo localities in terms of covariates in Table 3, indicating that the covariates are balanced among the treatment and placebo points. Then, replacing the primary explanatory variable, the distance to the nearest mission, by the distance to the nearest placebo (non-established) mission instead, we re-estimate the equation 1 for outcomes.

Second, we adopt an instrumental variable approach, exploiting the exogenous variation in the spatial distribution of ABCFM missions brought about by the relinquishment of the ABCFM working field in the Syrian-Nestorian region. In 1870 the ABCFM transferred all its missions in the Syrian-Nestorian region to the Presbyterian Missionaries(ABCFM (1870)). They carried their operations into the area occupied by contemporary Turkey. We argue that while making this spatial re-division within the Ottoman Geography, they considered the resettlement cost and sought to minimize it. Conditional on covariates, we hypothesize that the proximity to the Syrian-Nestorian missions predicts the likelihood of ending up with a mission facility for sites in contemporary Turkey. Thus, it is possible to argue that the locations close to Syrian-Nestorian missions are likely close to an ABCFM mission. Consequently, this plausibly historical exogenous event allows us to instrument the main explanatory variable by the distance to the nearest Syrian-Nestorian mission.

The identifying assumption is that the distance to nearest Syrian-Nestorian

brethren, and a promising opening for labor, but a pastor has not been found." (ABCFM (1882), p.32).

Moreover, Bazarjik, Pazarcik in modern Turkey, was mentioned in 1913 Annual Report in the following passage:

"Bazaarjik, surrounded by 200 Moslem villages. .... The situation calls for the location and support of workers who are filled with desire and ability to reach the Moslems with the Gospel in each one of these centers and other centers not here named where the opportunity would be without limit. These are but illustrations of the opportunities opening, not only in the Marash field, but in other parts of the Central Turkey Mission as well as in similar regions in the missions to the north and west." (ABCFM (1913), p.78).

[29] Kocabaşoğlu (2000), Yücel (2005)

mission impacts the outcomes only through the explanatory variable conditional on the variables included in controls. A potential caveat is that distance to the present national border might have independent effects since the areas close to Syrian-Nestorian missions also tend to be close to the national borders, thus, violating the exclusion criteria of the instrument variable. To deal with this issue, we control for the distance to the closest custom gate in regressions. The distance to nearest relinquished mission has significant prediction power on the distance to the nearest ABCFM mission, leading to the first stage F-stat of 16. It also satisfies the conventional levels suggested by the literature against the problem of weak instrument (Wang and Zivot (1998), Bound *et al.* (1995)).

In short, the placebo treatment analysis, the instrumental variable approach, and extensive set of controls plausibly establish the causal link for the impact of the ABCFM missions on the contemporary development outcomes in Turkey. We follow the same 2SLS and placebo treatment analysis strategies to examine the mechanisms and intermediate effects.

4 Main Results

4.1 Income per Capita

Employing TURKSTAT 1996 District GDP data, we begin our analysis by presenting visual evidence. Figure A.1 plots the logarithm of income per capita against the distance to the nearest ABCFM mission, displaying the fact that districts close to ABCFM missions had a higher level of income per capita in 1996. In line with unconditional evidence plotted in figure A.1, binned scatter graph reveals a similar pattern. Even though we find support for the mission effect graphically, there is room for a more refined analysis through the regression estimation.

To examine the mission effect quantitatively on the income per capita in 1996, we report regression estimates. Note that we use GDP per capita and income per capita interchangeably. Column 1 of Table 4 documents the baseline regression results with only province fixed effects, while column 2

presents estimates conditional on geographical and historical controls. The results are statistically significant and substantially stable, showing that the mission effect is not sensitive to including historical and geographical controls. In terms of magnitude, OLS estimates demonstrate that a 10 km increase in the distance to the nearest mission depresses the GDP per capita by five percentage points.

To establish causality, we first regress the distance to the nearest placebo missions on the logarithm of income per capita. Whereas being farther away from an ABCFM mission is associated with lower income per capita, distance to the nearest placebo mission has neither statistically nor economically significant impact since the coefficient is small in magnitude and indistinguishable from zero. Columns 3 and 4 in Table 4 indicate the point estimate regarding the distance to the placebo missions is -0.001 and indistinguishable from zero, which is five-fold less than the gradient of distance to the nearest ABCFM mission in column 2.

We lastly report IV estimates, exploiting the historical re-division of mission regions after the ABCFM transferred all missions in the Syrian-Nestorian area to the Presbyterian Missionaries. We argue that being closer to the mission stations in the Syrian-Nestorian region increases the likelihood of a district being closer to an ABCFM mission in Ottoman Anatolia because they had the advantage of lower resettlement and transportation cost relative to the districts farther away from the Syrian-Nestorian missions. We also evoke that the districts close to the ABCFM missions in general are presently the underdeveloped part of modern Turkey due to some other factors leading to a downward bias in the OLS estimates. Thus, we hypothesize that IV estimates are greater than the OLS counterparts.

Consistent with the above hypothesis, 2SLS estimates show that the coefficient of interest is three times greater than OLS estimates. In words, the IV coefficient is 0.017 in column 5 of Table 4 , indicating that a 10 km increase in the distance to the nearest ABCFM mission lowers per capita income by 17 percent in contrast to 5 percent OLS beta coefficient[30]. Overall, results

[30]Comparing our estimates with the rate of return of an extra year of schooling, which is 8% and 3% for women and men respectively, in Turkey, the point estimates of the distance

suggest that the proximity to an ABCFM mission is associated with higher income per capita in the long run.

4.2 Development Index

We now assess the impact of proximity to the ABCFM mission on the standardized development index. Having produced by the SPO, it is a standardized variable with a mean of 0 and a standard deviation of 1. We use the 2004 SPO District Development Data in this part. Note that the related index is crucial as its construction is neutral from our research design, implying neither manipulation nor modification is possible. We also argue that the relevant index helps us avoid any specification search and p-hacking concerns. Before regression estimates, we start our analysis with a figure plotting the development index against the distance to the nearest mission. Figure 4 shows that districts near ABCFM missions tend to be more developed presently. In line with Figure 4 , binned scatter graph in Figure 5 uncovers a similar pattern.

Table 5 documents the regression estimates for the development index. While the first column displays the estimates of the baseline specification with only province fixed effects, the second column report estimates conditional on additional geographical and historical controls. Point estimates are firmly stable and robust to the addition of controls. None of the controls alter the coefficient of estimates. Column 2 in Table 5 reveals that lowering the proximity to the nearest ABCFM mission by 10 km shifts the development index by 0.07 standard deviation.

To address the endogeneity concerns arising from the non-random location choices of the ABCFM mission, we continue to employ the strategy based on placebo mission locations. This strategy reveals no statistically and economically significant impact in columns 3 and 4 in Table 5 as the gradient of the distance to the nearest placebo mission is small in magnitude and indistinguishable from zero. Moreover, the corresponding 2SLS coefficient is larger than the OLS counterpart, similar to the results on the income per

to the nearest ABCFM mission are great in magnitude (Aydemir and Kirdar (2017)).

capita. Indeed, the IV results show that a 10 km increase in the proximity to the nearest mission lowers the development by 0.12 standard deviations in effect size.

In short, it turns out that the historical intervention of ABCFM has a sizeable long-lasting contribution to the economic development. Our point estimates are consistent with the existing literature yet contrast quite a bit in terms of magnitude. For instance, Caicedo (2019) finds evidence that a 10 km increase in the distance to a Jesuits mission in Paraguay leads to a 1.6 percent decline in income per capita. This contrast presumably arises from the fact that the intervention of ABCFM is heavy, multidimensional, and relatively new. In the next section, we investigate the mechanisms driving our results.

5 Mechanisms

The findings so far indicate that proximity to the ABCFM missions fosters long-run economic development. We explore the underlying mechanisms on how ABCFM contributed to the long-term economic growth in modern Turkey. It would be hard to disentangle all possible channels. The ABCFM historical intervention was sizeable and multi-dimensional, which carried know-how and provided substantial educational and health infrastructure, several training courses in various crafts and skills. Hence, occupational specialization, agricultural productivity, human and health capital tend to be the main drivers of long-run economic development led by the ABCFM missions. One possible caveat is that some other channels are also likely to drive our estimates. To cope with such concern, we also review some additional mechanisms and rule them out.

5.1 Mission and Structural Transformation

In this section, we focus on underlying mechanisms of structural transformation, in particular, the composition of the economic activity across the following sectors: i) agriculture, ii) manufacturing and iii) service sector.

In Table 6 we report the regression estimates for the share of the population employed in the industry. Results show that being farther away from missions hinders the allocation of the labor force in the industry. The main coefficient of interest is quite insensitive to adding controls and stable. On top of that, IV estimates, in column 5, are consistent with the OLS estimates while placebo treatment analysis reveals a null effect. The 2SLS result demonstrates getting closer to an ABCFM mission by 10 km leads to an over 5 percent increase in the share of the population in the industry. Similarly, the mission effect on the share of the population employed in the service sector is apparent in table 7. Even though IV estimates are imprecise in column 5, the sign and magnitude of the point estimates are akin to the OLS counterparts.

We, in addition, find evidence that the locations close to the ABCFM missions have a lower share of the population working in the agricultural sector. The point estimates in Table 8 indicate a clear pattern of lower agricultural population share. In words, a 10 km increase in the nearest distance to the mission leads to a 1.15 percent increase in the population working in agriculture, which is more than a 1.5 percent increase relative to the sample mean. Estimations with the nearest distance to placebo mission locations in columns 3 and 4 present null estimates which are also much small relatively. IV estimate is consistent, and similar to the OLS coefficient even though it is imprecise. This result also implies that proximity to ABCFM missions brings about a structural transformation.

A major structural problem underdeveloped economies are experiencing is the low labor productivity in agriculture (Gollin *et al.* (2002)). Accordingly, a set of studies reports that productivity gaps in the agricultural sector are an important source of cross-country income variation (Caselli (2005), Bosworth and Collins (2008)), a key driver to reduce poverty (Self and Grabowski (2007), Mellor (1999)), a necessary condition for an economy to initiate the development process (Johnson (1997), Johnston and Mellor (1961), Hornbeck and Keskin (2015), Kögel and Prskawetz (2001)).

In Table 9, we explore the mission impact on the present agricultural

production share [31]. The findings are striking, combined with the coefficient estimates on the population share in agriculture, and reveal a salient fact that the proximity to mission determines agricultural productivity. That is to say, districts close to ABCFM missions tend to have a larger agricultural production share. Furthermore, the point estimates are stable and statistically significant in table 9. Similarly, the regressions with the distance to the nearest placebo mission locations produce a null effect. The estimated coefficient through IV strategy is consistent with the OLS one. However, it has a greater magnitude as IV strategy allows us to isolate the mission effect from confounding factors.

We argue that the proximity to ABCFM missions persistently has an important role in agricultural productivity, simultaneously lowering the population share in agriculture and promoting the proportion in the national agricultural output. As the ABCFM intervened in Ottoman Anatolia through schools, health amenities, know-how and technology transfer, and vocational training in various skills and crafts, our findings are in line with the studies that emphasize the role of agricultural productivity in the long-run economic development (Caselli (2005)).

Overall, results suggest a reallocation of economic activity from the agricultural sector to the industry and service sector. Also, note that the agricultural production share in total national agricultural production is higher in the areas close to missions, suggesting that moving closer to ABCFM missions leads to higher agricultural productivity in the long run. Our results are in line with the literature that emphasizes progress in agricultural productivity and shift of labor force from agriculture towards industry and service sectors is a main driver of long-run economic development (Caselli (2005), Herrendorf *et al.* (2014), and Restuccia *et al.* (2008)).

[31]The share of agricultural production refers to the proportion among the national agriculture output.

5.2 Mission and Human Capital

Human capital accumulation is a crucial determinant of human developmentHanushek and Woessmann (2008). The dimension of human capital accumulation that has seen increased government involvement and promotion in the developing country setting is the literacy and schooling dimension[32]. When we analyze the literacy/schooling rates and its relationship with the historical location of missions a few regularities need to be noted.

The actual mission vs placebo mission empirical strategy helps document a robust long-term link between historical exposure to ABCFM missions and one's likelihood of being literate, as can be seen from Table 10. This link is particularly strong for females as we will discuss, in more detail in the next paragraph. The effects are observed for the mission activity, not observed for the placebo missions(as expected), but the instrumented set of missions do not pick up significant effects. The reason we lose the significance with the 2SLS is because the region we give an importance to with the instrumentation strategy was the geography that suffered the most significant adverse shocks to the education system in the last +90 years, after the missions have closed. It must also be said that in the case of Turkey, the fundamental focus has switched from literacy promotion, to prioritizing high school and higher education participation. We also widen our statistics to capture effects in these dimensions also. The primary school dimension, which the recent reform rounds have made compulsory, show little to no effect for both the male and female group, and this is expected[33]. Any cultural factors will have its greatest effect in the part of the education system that has elective choices rather than compulsory decisions.

At the sub-province level that we are conducting the analysis, the controls we employ is consistently showing that the heavily female biased results, well established in the international context, also hold for the Anatolian context. Stark differences on the impacts across gender groups(9 times the total effect for males is observed for the female subgroup, in the elective part of the

[32]Hanushek and Woessmann (2011) and Hanushek and Woessmann (2012)

[33]See table 14 and table 12

education attainment, as can be seen in table 13 and table 11 for females).

Positive long term impact is observed strongly and significantly for the female groups, with no significant long term effect for the male group over any education category. This is consistent with the international literature, and suggests that our specific context, with our specific restrictions did not effect the mission impacts generally established direction, giving a new access, and a new role in the education universe to the minorities[34] and females[35].

5.3 Mission and Health

As a general health effects analysis, we first look at the infant mortality figures, which is not strongly correlated with the location of the mission. As the infant mortality in Turkey is very highly correlated with medical infrastructure, access to medical technology, and size of the health workforce in 2013, the question becomes to what extent the part of the Turkish health geography that the missions planned to supplement, are also supplemented in the start of the 21st century. However, it can easily be seen, that as the medical missionaries have discontinued service, and the fact that the localities that these medical missionaries were located are not in the most highly equipped part of the healthcare system today(1 in 15 of the original geographies stand in the highest serviced quadrant today), the evidence for medical infrastructure persistence is non-existent. The health effect should really be further investigated in the part of the health processes, and health variables which will not be closely linked to questions of medical infrastructure and its persistence, but still be fundamental to the health capital of the populations under question, where this health capital will be a crucial building block of higher long term development [36], through higher human capital[37].

In order to measure and finely differentiate population health conditions one of the recent approaches is using anthropometric indicators to instru-

[34]Okoye and Pongou (2014)
[35]Nunn *et al.* (2014), Amasyalı (2022)
[36]Floud *et al.* (2011)
[37]Bleakley (2010)

ment for physical development[38]. In line with past research on health and missions[39] we use the height-for-age and body mass index(BMI) as our fundamental measures of individual health. The distance to missions, and the distance to medical missions is used separately and together, to look at the effect of being closer to different type of 19^{th} century missions, for 21^{st} century health development. Significant results in the expected direction is corroborated for distance from general missions(in the case of height-for-age), and for the medical missions(height-for-age and BMI(body mass index)), with larger effects created in the medical mission context, providing specific interventions in the health dimension. The limitations exist, as the analysis is done on just the female and children subset, that is included in the DHS-2013 mothers data-set. However our results use the most extensive data-set, divided by provinces, surveying the health conditions of the Turkish population.

5.4 Alternative Mechanisms

In the last part of the mechanisms section, we investigate alternative channels of the ABCFM missions on the long-run economic development. Our ultimate purpose in this part is to provide complementary evidence that channels hitherto discussed are the main ones behind the development effect of ABCFM missions.

We firstly consider the mechanism of expropriation, which is remarkable to single out this channel since ABCFM left modern Turkey and its properties. As the investment by ABCFM was sizeable in terms 19^{th} century circumstances, it is likely that the properties, in particular land and buildings, were captured by local elites. The ideal way of testing this hypothesis would be to compare the concentration of private assets of districts before and after the ABCFM left Ottoman Anatolia to capture how asset concentration was affected by the abandonment of ABCFM missions. However, no historical data set exists to conduct this analysis. Thus, we use a proxy variable for the land ownership concentration.

[38]Deaton (2008),Steckel (1995),Steckel (2009)
[39]Calvi and Mantovanelli (2018)

Exploiting the 1997 Village Inventory Data, we construct a Gini index for land ownership distribution at the district level to see whether the proximity to ABCFM missions impacted it in 1997. We report regression estimates in table 17 to account for the channel of expropriation, showing that the mechanism of expropriation is unlikely to drive the mission effect on long-run economic development. While OLS estimates are very close to zero, the IV estimate in column 5 uncovers to some extent an impact. Yet, the point estimate in terms of magnitude is small, reflecting that a 10 km decline in proximity to the nearest ABCFM mission leads to an increase of 2 percentage points in the concentration of land ownership relative to the sample mean. While interpreting such impact as either large or small is difficult, since our measure of asset concentration is far from being perfect, we think that the channel of expropriation is not the primary one driving our results.

An alternative channel might arise from the fact that people migrate to the districts close to ABCFM missions. Employing the TURKSTAT 2000 Population Census, we generate a proxy measure accounting for migration in locations. We subtract the total population number from the number of total residents in a district then divide this value by the number of total residents. Note that positive values of the corresponding ratio implies out-migration. We report the regression estimates for this outcome in table 18. Conditional on either province fixed effects or additional controls, the gradient is above zero. This finding is also confirmed by IV estimates despite its imprecision.

The positive beta coefficient of the main explanatory variable is in line with the hypothesis that the mission locations chosen were historically remote and underdeveloped parts of Ottoman Anatolia. In addition, we check whether agglomeration that is proxied by urbanization rate is an underlying mechanism. Comparing the OLS and IV estimates, table 19 provides mixed results. But, IV estimate to some extent upholds the fact that mission locations of ABCFM were remote and isolated in the 19^{th} century. Overall, we find supporting evidence that neither migration nor agglomeration is the underlying mechanism driving the results.

Lastly, we investigate the channel of Protestantism. Various studies figure out a relationship between Protestantism and long-run economic devel-

opment [40]. In our setting, the conversion channel is not only closed today, and quite firmly has been closed since 1924, but the initial conversion was always quite negligible, meaning non-religious channels of effect need to be considered and prioritized in our empirical case. Unfortunately, no data set with information on the current denominations at the district level exists, and survey statistics indicate that 99% of Turkish society is Muslim [41]. Hence, it is hard to say ABCFM missions had great success at inducing the conversion in the long term. To reinforce this hypothesis, we use the last census of the Ottomans in 1914 with information on denominations. We evaluate the impact of the ABCFM missions on the share of the Protestant population to show the short-run effects. Regression outputs in table 20 point out that the ABCFM missions were not a significant factor on the share of Protestant population. Our findings are also comparable with the literature finding null effects of the mechanism of Protestantism [42].

6 Intermediate Outcomes

In the early nineteenth century Ottoman economic geography, an embryonic structural transformation occurred, with a switch of economic activity from agriculture to trade/ commerce (and to a lesser extent industry) defining the direction of transformation. The economic theory for this transformation tells us that, under certain conditions[43], this transformation is underpinned by an increase in productivity in the dominant sector[44] at the time(agricultural economy in the case of the Ottoman economy), with a separate emphasis given on labor productivity and land productivity increases.

In the intermediate outcomes section we are capturing to what extent the similar dynamics where available that we have identified with the current values, is also observable in the 1927 values. Table 21 first corroborates the expected movement in the labor share in agriculture decreasing, which is the

[40](Weber and Kalberg (2013), Becker and Woessmann (2009), Iyer (2016))
[41]For more details, see https://konda.com.tr/tr/konda-barometresi/
[42]Calvi and Mantovanelli (2018), Nunn *et al.* (2014)
[43]Baumol (1967), Murphy *et al.* (1989) and Gollin *et al.* (2002)
[44]Nurkse *et al.* (1966),Schuttz (1964) and Rostow and Rostow (1990)

underlying fact that ties in with the structural transformation.

Table 22 which is our next table, confirms the structural transformation in the labor input, seems indeed to be critically driven by the increase in agricultural productivity. Agricultural productivity is driven by land productivity and labor productivity(Gollin *et al.* (2014)), and our research has a differentiating hypothesis about which productivity would be especially effected by the missionary activity.

Land productivity is the agricultural output divided by the total arable land amount, and agricultural labor productivity is calculated as the agricultural output divided by the total number of agricultural workers. Table 23 and Table 24 confirm productivity increase not coming through land but through labor, as we would have predicted in the case of our mission intervention, investing in agricultural areas cultivation, skills, and added education.

Looking at Table 25, we look at the effect on wheat productivity of being located close to a missionary activity. Since wheat is actually the national and most commercial agricultural product, the productivity differences in this dimension are crucial, and gives a good opportunity to undertake a national comparison(Bustos *et al.* (2016)). Wheat is one of the fundamental staples of food and calorie intake for the average population both in the nineteenth century and now. As the productivity of this crop is also easy to measure, it will make the erroneous estimation of productivity much less likely. The results corroborate the significance, in producing this most commercial of crops, being in close proximity to a missionary school.

7 Robustness

We now perform some robustness checks in this section. First, Kelly (2019) suggests that spatial correlation across geographical units might result in misleading inference in studies where the unit of observation is a geographical unit, and it is highly likely inflated t-statistics in regression analysis is a consequence of spatial noise rather than an accurate statistical relationship. We demonstrate the spatial noise does not induce our results. Second, we address sample discrepancy among the SPO District Develop-

ment and TURKSTAT 1996 District GDP data. Lastly, we cope with the possible confounding impact of World War I on the estimates, presenting some supporting regression evidence.

7.1 Spatial Correlation

Adjacent units, districts in our study setting, might result in spatial autocorrelation in residuals, leading to the fact that the long-term effect of ABCFM missions on Turkish economic development is the product of fitting spatial trends and downward biased standard errors failing to account for spatial autocorrelation in residuals. Similarly, Kelly (2019) points out that high statistically significant results are the artifact of uncorrected or arbitrary clustered standard errors for spatial autocorrelation in various studies. Whereas we adjust the standard errors by clustering at the province in all regressions, it is obviously arbitrary. To avoid the misleading inferences emerging from arbitrary clustering and spatial autocorrelation in residuals, we propose various approaches.

A commonly proposed solution to account for spatial autocorrelation in residuals is to correct standard errors by implementing the procedure suggested by Conley (1999). We plot the Conley adjusted t-values of the main explanatory variable in the regressions for the primary outcomes. Figure 6 by increasing the range of spatial autocorrelation with an increment of 5 km shows that t-statistics are below the value of 2 no matter the correlation range. Overall, the t-values of the explanatory variable are not sensitive to spatial autocorrelation.

A substantial regional income disparity is present in Turkey, in particular in the east-west geographical axis[45]. Accordingly, figure 7 shows a strong eastward fall in the income per capita in 1996. Despite the latitude and longitude in the control variables of each regression, either being in the eastern part of modern Turkey or the ABCFM mission presence might easily predict the long-term economic development. Consequently, we generate two variables equal to 1 if the neighborhood of a given district is in the further

[45]Asik *et al.* (2020)

east than the 35-degree and 40-degree longitude, respectively. The inclusion of such control variables in regressions does not alter the estimates. Table C.2 and C.3 report the regression estimates for the logarithm of income per capita and the development index controlling being in the eastern part, respectively. It turns out that the historical presence of ABCFM missions is still the predictor of long-term economic development even after controlling for being in the further east.

To investigate rigorously whether the spatial correlation exists among the regression residuals, we conduct a Moran test. As Table 26 presents the statistics of the Moran test, conditional on province fixed effects, we can fail to reject the hypothesis that no spatial correlation among the residuals. Note that regressions without province fixed-effects lead to a significant spatial autocorrelation among residuals. All regressions already include province-fixed effects, allowing us to rule out the spatial autocorrelation in residuals.

Following Kelly (2019) we perform simulations by generating[46] a spatially correlated artificial noise variable with the same spatial trend and correlation structure as the original dependent variable across specific correlation ranges. We later compare the performance of our explanatory variable and noise variable. Spatial noise as an explanatory variable never outperforms the distance to the nearest ABCFM mission in explaining the variation in income per capita in various correlation ranges. Table F.9 reveals that the share of regressions where the noise variable outperforms the main explanatory variable is almost zero in any given correlation ranges. Besides, we replace the outcome variable with spatial noise. Accordingly, it is hard to say that the distance to the nearest ABCFM mission explains the spatial noise as it should not explain. In a nutshell, simulations indicate spatial noise does not distort results.

[46]We use a Matern function to estimate the spatial weight matrix with an exponential shape parameter for two different sites. The primary choice of parameter is the correlation range across sites. We include a set of correlation range from 25 km to 500 km, assuming the spatial correlation decays with the relevant distance.

7.2 Expanding Sample to Include All Districts

The SPO data set, as discussed, has a lower number of districts than the TURKSTAT data. The underlying reason why it has a smaller number of observations is that the SPO excludes around 30 districts that are well-developed to avoid the outliers driving estimation. Nonetheless, the TURKSTAT data on the district's GDP covers all units in 1996. We report the estimates extending the study sample to all locations in Table B.1 for the primary outcome variable: the logarithm of income per capita. The point estimates are fully similar, showing that our findings are robust to the inclusion of the relevant districts.

7.3 Accounting for Minority Presence

Existing studies report mixed results on how legacy of minorities impact the long-run economic development of Turkey [47]. We acknowledge that ABCFM was inclined to settle among minorities with a particular emphasis on the Armenian community after 1840. Then, do places with greater share of Armenian population have other characteristics that would interact with the distance to nearest ABCFM mission in impacting the long run economic development? If the answer is yes, then the estimates are biased. Even though the proposed strategies -placebo treatment analysis and 2SLS approach- to isolate the mission effect address this concern, we additionally provide some extra robustness checks.

The proper way is to control for the share of minority population in the pre-ABCFM period in regressions, but the first population census of the Ottoman Empire was in 1881, approximately 50 years after ABCFM's first visit. On the one hand, it is the only available data set to study to what extent ABCFM mission effect is responsive to share of minority population. On the other hand, the share of the minority population seems to be an outcome or a mediating factor in the short run.

Table D.4 and D.5 report the findings for main measures of interest, respectively, which unfolds point estimates after controlling for the share of

[47] Arbatli and Gokmen (2016), Asik *et al.* (2020), Sakalli (2017), Akarçay *et al.* (2021)

the Armenian and Greek population are increasingly stable and consistent. Note that the sample has fewer observations because three provinces were part of the Russian Empire in 1881. Estimated coefficients are quite similar to the point estimates in Table 4 and Table 5 in our primary specification that does not include the share of the minority populations as a control variable. All in all, our results are robust to the addition of minority-related controls.

We include the interaction of the distance to the nearest ABCFM mission and the share of the Armenian population in 1881 and 1914 in Table E.6 and E.7, respectively, allowing for heterogeneous effects on the long-run development outcomes. By doing so, we additionally address the concern that the displacement of minorities after World War I is a threat to the validity of estimates. Despite heterogeneous effects, they are relatively small and do not change the point estimates considerably. Studies also figure out that the displacement of minorities in particular Armenian minority depressed the economic development in the short run[48]. To further show the short-run impact of the displacement of the Armenian minority, we use the population density in 1927 as a proxy for economic development. Overall, results in table E.8 indicate that the expulsion of Armenians is not a valid concern effecting the unbiased nature of the estimates.

8 Conclusion

This article shows the long-lasting impact of a historical intervention focusing extensively human capital investment on the long-run economic development in a setting with certain features. We explore a one and half-century historical episode of the American Board of Commissioners for Foreign Missions (ABCFM) with modern secular education institutions. Results show compelling evidence that proximity to ABCFM missions led to positive long-term impact on income per capita and economic development, attributing this contribution to some important mechanisms. The ABCFM missions bring about a reallocation of the economic activity from agriculture to in-

[48]Sakalli (2017), Akarçay *et al.* (2021), Asik *et al.* (2020)

dustry. Moreover, we find support for the mechanisms of human capital in particular in the domain of literacy and female schooling. Last but not least, agricultural productivity and health channels also drive the persistent ABCFM mission effect.

We assemble a data set by combining the archival work and present day unique data sets. We isolate the mission effect by adopting two novel identification strategies. Comparing the sites planned or suggested to have a mission facility but never equipped, with the others, we rely on a placebo treatment analysis indicating no statistically and economically impact of placebo missions on the long-run development outcomes. In addition, we employ a 2SLS strategy utilizing a historical episode resulting in the spatial re-partition of the working field of ABCFM in Ottoman geography. Leaving all its missions in the Syrian-Nestorian region to the Presbyterian Missionaries and fully putting weight on the geography of present Turkey provides us an opportunity to have an instrumental variable for the distance to the nearest ABCFM mission, which is the primary measure of interest. IV results are consistent with the OLS estimates.

The geography this article focuses on is the historical Ottoman Anatolia, currently Turkey. Turkish geography today is analyzed as a geography of education challenges, and significant geographic heterogeneity. We provide evidence that more than 180 years ago, the missions that were established were able to increase income per capita potential and development values for the intermediary time period, and for the long term. This long term effect, even in the presence of the stark discontinuity of the mission‘s operations, and the removal of the fundamental population that was interacting with them suggests that the initial effect must have been large and persistent.

There is a significant recent literature on missions activity, and their long term development effect, in detail and in specific researching the economic persistence of institutions[49].There are certain characteristics about the Turkish case, and the mission-population interaction in the Anatolian geography which make us more confident that our estimates turn out to be the true effect of missionary activity, rather than any other channels confounding ef-

[49]Cagé and Rueda (2016),Nunn (2008) and Waldinger (2017)

fect. I- The conversion channel is significantly closed or non-existent for the entire duration of the missionary existence, and for the whole period after the disappearance of the mission. II- The nineteenth century is crucial period in Ottoman history and economy, making the strength of connections, and the presence of complementarities' play a much more significant role than other mission geographies. III- The missions effect is multidimensional, and significant effects are documented on the education dimension, the changing gender roles, the agricultural productivity, and the micro health outcomes. IV- The potential confounding variables of micro-development, mobility patterns, and historical emigration is controlled for, and either make our results a lower bound estimate of the true estimate, or are not significantly effected by these additional variables/processes. Broadly, our study provides compelling evidence to further support the external validity of empirical studies in the persistence and for the overall mission literature. Furthermore, we hope that our study is a good starting point to think about the alternative channels and to build on and rethink the already proposed reasons behind the underdevelopment of the Middle East.

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9 Tables and Figures

Tables

Table 1: Descriptive Statistics

	More than 50 km					Less than 50 km				
	N	Mean	SD	Min	Max	N	Mean	SD	Min	Max
Log of GDP per capita (in Dollars)	303	7.40	0.69	5.82	9.42	564	7.34	0.75	5.52	10.4
Development Index of the District	303	0.041	0.85	-1.63	3.99	564	-0.037	1.06	-2.01	7.95
Mission Distance	303	83.5	26.7	50.2	182.0	564	21.5	14.7	0.000030	49.8
Placebo Mission Distance	303	222.1	159.9	0.0028	893.1	564	190.7	140.0	0.0024	658.2
Distance to Syrian/Nestorian Missions	303	601.6	248.8	0	1134.2	564	469.5	282.1	0	1156.2
Average Ruggedness in the District	303	14.4	7.57	0.85	35.2	564	12.3	6.22	0.88	31.5
Longitude	303	33.3	4.88	25.8	44.5	564	35.3	4.76	26.4	43.6
Latitude	303	39.5	1.64	36.2	42.0	564	39.1	1.38	36.0	42.0
Ann. Mean Temperature (.1 C degree)	303	108.4	27.1	42.9	179.8	564	112.6	31.5	42.9	189.4
Ann. Precipitation (mm)	303	654.1	149.5	369.4	1195.3	564	606.0	127.0	322.7	949.7
Elevation (m)	303	1013.6	497.8	64.3	2507.6	564	1034.2	532.9	49.2	2444.1
Forst-free period	303	199.5	33.9	127.2	337.7	564	203.9	35.9	127.2	333.8
Suitability index for wheat	303	32.9	15.0	2.88	69.5	564	35.6	13.8	5.83	84.5
Suitability index for barley	303	33.0	15.2	2.62	69.3	564	35.7	13.9	5.62	84.5
Suitability index for oat	303	32.5	15.0	2.81	69.1	564	35.4	13.8	4.97	84.5
Suitability index for cotton	303	3.92	6.19	0	29.5	564	6.74	8.44	0	41.0
Suitability index for olive	303	11.1	12.2	0	55.1	564	10.6	11.9	0	46.6
Dist. to Constantinople (travel days)	303	8.19	4.86	1.44	26.3	564	10.8	5.78	0.69	23.8
Dist. to Shore (travel days)	303	3.87	3.61	0.080	19.2	564	5.13	3.81	0.13	16.2
Length of primary rivers (km) per surface area (km2) in 2010	303	0.0064	0.018	0	0.14	564	0.010	0.020	0	0.13
Length of secondary rivers (km) per surface area (km2) in 2010	303	0.013	0.024	0	0.16	564	0.011	0.019	0	0.093
Distance to Nearest Custom Gate in km	303	321.2	159.0	4.82	619.1	564	255.0	143.1	4.59	582.2
Within Seljuk Sultanate	303	0.56	0.50	0	1	564	0.57	0.49	0	1
Within one and a half travel distance to 19th century ports	303	0	0	0	0	564	0.046	0.21	0	1

Notes: Table displays summary statistics of main outcome variable and explanatory variable also control variables used in the regressions. For specific information of each variable about the source, definition and construction, please refer to the Data Appendix.

Table 2: Means, Standard Deviations, and Test of Treatment-Control Covariate Balance

Variable	(1) Control Mean/SE	(2) Treatment Mean/SE	T-test Difference (1)-(2)
Average Ruggedness in the District	13.137	11.562	1.575
	(0.675)	(0.756)	
Longitude	34.428	36.858	-2.431
	(0.585)	(0.641)	
Latitude	39.300	38.722	0.578
	(0.178)	(0.197)	
Ann. Mean Temperature (.1 C degree)	110.658	116.768	-6.110
	(3.213)	(5.726)	
Ann. Precipitation (mm)	624.923	598.167	26.756
	(15.413)	(18.228)	
Elevation (m)	1020.802	1099.514	-78.712
	(56.231)	(83.605)	
Forst-free period	201.958	207.024	-5.066
	(3.795)	(5.994)	
Suitability index for wheat	34.727	34.142	0.585
	(1.518)	(1.818)	
Suitability index for barley	34.803	34.060	0.743
	(1.516)	(1.770)	
Suitability index for oat	34.400	34.121	0.279
	(1.484)	(1.945)	
Suitability index for cotton	5.510	8.644	-3.134
	(0.811)	(1.407)	
Suitability index for olive	10.841	10.054	0.787
	(1.330)	(1.910)	
Dist. to Constantinople (travel days)	9.636	13.221	-3.586
	(0.607)	(0.806)	
Dist. to Shore (travel days)	4.548	6.310	-1.762
	(0.398)	(0.621)	
Length of primary rivers (km) per surface area (km2) in 2010	0.009	0.013	-0.005
	(0.001)	(0.002)	
Length of secondary rivers (km) per surface area (km2) in 2010	0.011	0.011	0.000
	(0.001)	(0.002)	
Distance to Nearest Custom Gate in km	283.495	215.281	68.214
	(17.892)	(20.133)	
Within Seljuk Sultanate	0.571	0.574	-0.003
	(0.056)	(0.083)	
Within one and a half travel distance to 19th century ports	0.025	0.088	-0.063*
	(0.011)	(0.041)	
N	799	68	
Clusters	80	45	

Notes: The value displayed for t-tests are the differences in the means across the groups. Standard errors are clustered at the province level. Fixed effects using provinces are included in all estimation regressions. ***, **, and * indicate significance at the 1, 5, and 10 percent critical level.

Table 3: Means, Standard Deviations, and Test of Treatment-Placebo Covariate Balance

Variable	(1) Treatment Mean/SE	(2) Placebo Mean/SE	T-test Difference (1)-(2)
Average Ruggedness in the District	11.525	12.220	-0.695
	(0.779)	(1.471)	
Longitude	36.973	33.928	3.044
	(0.650)	(1.405)	
Latitude	38.658	39.548	-0.890
	(0.197)	(0.432)	
Ann. Mean Temperature (.1 C degree)	116.629	117.019	-0.390
	(5.900)	(9.235)	
Ann. Precipitation (mm)	597.765	594.232	3.533
	(18.784)	(27.128)	
Elevation (m)	1117.686	859.418	258.267
	(84.813)	(151.349)	
Forst-free period	206.697	207.840	-1.144
	(6.172)	(9.997)	
Suitability index for wheat	34.126	35.269	-1.143
	(1.870)	(3.688)	
Suitability index for barley	34.033	35.771	-1.738
	(1.821)	(3.917)	
Suitability index for oat	34.091	35.425	-1.334
	(2.001)	(3.855)	
Suitability index for cotton	8.811	7.746	1.065
	(1.444)	(2.802)	
Suitability index for olive	9.696	14.544	-4.848
	(1.935)	(4.298)	
Dist. to Constantinople (travel days)	13.510	7.809	5.701
	(0.797)	(1.201)	
Dist. to Shore (travel days)	6.470	2.668	3.802
	(0.626)	(0.440)	
Length of primary rivers (km) per surface area (km2) in 2010	0.014	0.007	0.007
	(0.003)	(0.003)	
Length of secondary rivers (km) per surface area (km2) in 2010	0.012	0.009	0.002
	(0.002)	(0.004)	
Distance to Nearest Custom Gate in km	211.273	275.875	-64.602
	(20.317)	(43.343)	
Within Seljuk Sultanate	0.576	0.600	-0.024
	(0.084)	(0.149)	
Within one and a half travel distance to 19th century ports	0.076	0.067	0.009
	(0.039)	(0.063)	
N	66	15	
Clusters	43	13	

Notes: The value displayed for t-tests are the differences in the means across the groups. Standard errors are clustered at the province level. Fixed effects using provinces are included in all estimation regressions. ***, **, and * indicate significance at the 1, 5, and 10 percent critical level.

Table 4: Mission Impact on GDP per Capita

VARIABLES	(1) OLS-Actual	(2) OLS-Actual	(3) OLS-Placebo	(4) OLS-Placebo	(5) 2SLS-Actual
Distance	-0.005***	-0.005***	-0.001	-0.001	-0.017***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.005)
Province FE	YES	YES	YES	YES	YES
Geo and Hist Controls	NO	YES	NO	YES	YES
Obs	867	867	867	867	867
R-Squared	0.487	0.520	0.468	0.507	0.418
Number of Clusters	80	80	80	80	80
Mean of Outcome	7.362	7.362	7.362	7.362	7.362
First Stage F-stat					16.33

Notes: All columns use data from TURKSTAT 1996 District GDP Survey. The explanatory variable is the distance to the nearest ABCFM mission in km in columns 1,2 and 5. The remaining columns have the explanatory variable of the distance to the nearest placebo mission location. The outcome of interest is the log of GDP per capita in all columns. Columns 1-4 report the OLS estimates whereas column 5 presents the 2SLS estimates. All regressions include geographic and historical controls. Geographic controls are ruggedness,longitude, latitude, annual mean temperature, annual mean precipitation, elevation, frost-free period, suitability indexes for wheat, barley, oat, cotton, and olive, distance to Constantinople, distance to shore, length of primary and secondary rivers per surface area (km2) in 2010, distance to the nearest custom gate. Historical controls are whether the district is within the Seljuk Sultanate and whether it is within one and half travel distance to 19^{th} century major ports. Province FE includes province dummies. Mean of outcome presents the sample mean of the outcome variable. First stage of F-stat reports the Kleibergen-Paap rk Wald F statistic of the 2SLS estimation for the first stage. Standard errors are clustered at the province level. Number of clusters indicate the total number of provinces in the standard error adjustments. ***p<0.01, **p<0.05, *p<0.1

Table 5: Mission Impact on Development Index

VARIABLES	(1) OLS-Actual	(2) OLS-Actual	(3) OLS-Placebo	(4) OLS-Placebo	(5) 2SLS-Actual
Distance	-0.007***	-0.007***	0.000	-0.000	-0.012**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.005)
Province FE	YES	YES	YES	YES	YES
Geo and Hist Controls	NO	YES	NO	YES	YES
Obs	867	867	867	867	867
R-Squared	0.362	0.451	0.339	0.433	0.443
Number of Clusters	80	80	80	80	80
First Stage F-stat					16.33

Notes: All columns use data from 2004 SPO District Development Data. The explanatory variable is the distance to the nearest ABCFM mission in km in columns 1,2 and 5. The remaining columns have the explanatory variable of the distance to the nearest placebo mission location. The outcome of interest is the standardized development index produced by SPO in all columns. Columns 1-4 report the OLS estimates whereas column 5 presents the 2SLS estimates. All regressions include geographic and historical controls. Geographic controls are ruggedness,longitude, latitude, annual mean temperature, annual mean precipitation, elevation, frost-free period, suitability indexes for wheat, barley, oat, cotton, and olive, distance to Constantinople, distance to shore, length of primary and secondary rivers per surface area (km2) in 2010, distance to the nearest custom gate. Historical controls are whether the district is within the Seljuk Sultanate and whether it is within one and half travel distance to 19^{th} century major ports. Province FE includes province dummies. First stage of F-stat reports the Kleibergen-Paap rk Wald F statistic of the 2SLS estimation for the first stage. Standard errors are clustered at the province level. Number of clusters indicate the total number of provinces in the standard error adjustments. ***p<0.01, **p<0.05, *p<0.1

Table 6: Mission Impact on Industrial Population Share

VARIABLES	(1) OLS-Actual	(2) OLS-Actual	(3) OLS-Placebo	(4) OLS-Placebo	(5) 2SLS-Actual
Distance	-0.052***	-0.053***	-0.004	-0.003	-0.057*
	(0.009)	(0.010)	(0.004)	(0.005)	(0.030)
Province FE	YES	YES	YES	YES	YES
Geo and Hist Controls	NO	YES	NO	YES	YES
Obs	867	867	867	867	867
R-Squared	0.378	0.413	0.352	0.389	0.412
Number of Clusters	80	80	80	80	80
Mean of Outcome	6.119	6.119	6.119	6.119	6.119
First Stage F-stat					16.33

Notes: All columns use data from 2004 SPO District Development Data. The explanatory variable is the distance to the nearest ABCFM mission in km in columns 1,2 and 5. The remaining columns have the explanatory variable of the distance to the nearest placebo mission location. The outcome of interest is the percentage of population employed in the industry sector in all columns. Columns 1-4 report the OLS estimates whereas column 5 presents the 2SLS estimates. All regressions include geographic and historical controls. Geographic controls are ruggedness,longitude, latitude, annual mean temperature, annual mean precipitation, elevation, frost-free period, suitability indexes for wheat, barley, oat, cotton, and olive, distance to Constantinople, distance to shore, length of primary and secondary rivers per surface area (km2) in 2010, distance to the nearest custom gate. Historical controls are whether the district is within the Seljuk Sultanate and whether it is within one and half travel distance to 19^{th} century major ports. Province FE includes province dummies. Mean of outcome presents the ample mean of the outcome variable in percentage terms. First stage of F-stat reports the Kleibergen-Paap rk Wald F statistic of the 2SLS estimation for the first stage. Standard errors are clustered at the province level. Number of clusters indicate the total number of provinces in the standard error adjustments. ***p<0.01, **p<0.05, *p<0.1

Table 7: Mission Impact on Service Sector Population Share

VARIABLES	(1) OLS-Actual	(2) OLS-Actual	(3) OLS-Placebo	(4) OLS-Placebo	(5) 2SLS-Actual
Distance	-0.068**	-0.081***	0.002	-0.007	-0.063
	(0.027)	(0.020)	(0.011)	(0.009)	(0.083)
Province FE	YES	YES	YES	YES	YES
Geo and Hist Controls	NO	YES	NO	YES	YES
Obs	867	867	867	867	867
R-Squared	0.283	0.368	0.272	0.356	0.367
Number of Clusters	80	80	80	80	80
Mean of Outcome	24.34	24.34	24.34	24.34	24.34
First Stage F-stat					16.33

Notes: All columns use data from 2004 SPO District Development Data. The explanatory variable is the distance to the nearest ABCFM mission in km in columns 1,2 and 5. The remaining columns have the explanatory variable of the distance to the nearest placebo mission location. The outcome of interest is the percentage of population employed in the service sector in all columns. Columns 1-4 report the OLS estimates whereas column 5 presents the 2SLS estimates. All regressions include geographic and historical controls. Geographic controls are ruggedness,longitude, latitude, annual mean temperature, annual mean precipitation, elevation, frost-free period, suitability indexes for wheat, barley, oat, cotton, and olive, distance to Constantinople, distance to shore, length of primary and secondary rivers per surface area (km2) in 2010, distance to the nearest custom gate. Historical controls are whether the district is within the Seljuk Sultanate and whether it is within one and half travel distance to 19^{th} century major ports. Province FE includes province dummies. Mean of outcome presents the sample mean of the outcome variable in percentage terms. First stage of F-stat reports the Kleibergen-Paap rk Wald F statistic of the 2SLS estimation for the first stage. Standard errors are clustered at the province level. Number of clusters indicate the total number of provinces in the standard error adjustments. ***p<0.01, **p<0.05, *p<0.1

Table 8: Mission Impact on Agricultural Population Share

VARIABLES	(1) OLS-Actual	(2) OLS-Actual	(3) OLS-Placebo	(4) OLS-Placebo	(5) 2SLS-Actual
Distance	0.115***	0.129***	0.001	0.009	0.132
	(0.031)	(0.027)	(0.013)	(0.011)	(0.099)
Province FE	YES	YES	YES	YES	YES
Geo and Hist Controls	NO	YES	NO	YES	YES
Obs	867	867	867	867	867
R-Squared	0.278	0.351	0.259	0.331	0.351
Number of Clusters	80	80	80	80	80
Mean of Outcome	69.46	69.46	69.46	69.46	69.46
First Stage F-stat					16.33

Notes: All columns use data from 2003 SPO District Development Data. The explanatory variable is the distance to the nearest ABCFM mission in km in columns 1,2 and 5. The remaining columns have the explanatory variable of the distance to the nearest placebo mission location. The outcome of interest is the percentage of population employed in the agriculture sector in all columns. Columns 1-4 report the OLS estimates whereas column 5 presents the 2SLS estimates. All regressions include geographic and historical controls. Geographic controls are ruggedness,longitude, latitude, annual mean temperature, annual mean precipitation, elevation, frost-free period, suitability indexes for wheat, barley, oat, cotton, and olive, distance to Constantinople, distance to shore, length of primary and secondary rivers per surface area (km2) in 2010, distance to the nearest custom gate. Historical controls are whether the district is within the Seljuk Sultanate and whether it is within one and half travel distance to 19^{th} century major ports. Province FE includes province dummies. Mean of outcome presents the sample mean of the outcome variable in percentage terms. First stage of F-stat reports the Kleibergen-Paap rk Wald F statistic of the 2SLS estimation for the first stage. Standard errors are clustered at the province level. Number of clusters indicate the total number of provinces in the standard error adjustments. ***p<0.01, **p<0.05, *p<0.1

Table 9: Mission Impact on Agricultural Production Share

VARIABLES	(1) OLS-Actual	(2) OLS-Actual	(3) OLS-Placebo	(4) OLS-Placebo	(5) 2SLS-Actual
Distance	-0.002***	-0.001***	-0.000	-0.000*	-0.007***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.002)
Province FE	YES	YES	YES	YES	YES
Geo and Hist Controls	NO	YES	NO	YES	YES
Obs	867	867	867	867	867
R-Squared	0.319	0.394	0.286	0.382	-0.103
Number of Clusters	80	80	80	80	80
Mean of Outcome	0.115	0.115	0.115	0.115	0.115
First Stage F-stat					16.33

Notes: All columns use data from 2004 SPO District Development Data. The explanatory variable is the distance to the nearest ABCFM mission in km in columns 1,2 and 5. The remaining columns have the explanatory variable of the distance to the nearest placebo mission location. The outcome of interest is the share of agricultural production of a district in Turkish total agricultural production in percentage terms in all columns. Columns 1-4 report the OLS estimates whereas column 5 presents the 2SLS estimates. All regressions include geographic and historical controls. Geographic controls are ruggedness,longitude, latitude, annual mean temperature, annual mean precipitation, elevation, frost-free period, suitability indexes for wheat, barley, oat, cotton, and olive, distance to Constantinople, distance to shore, length of primary and secondary rivers per surface area (km2) in 2010, distance to the nearest custom gate. Historical controls are whether the district is within the Seljuk Sultanate and whether it is within one and half travel distance to 19^{th} century major ports. Province FE includes province dummies. Mean of outcome presents the sample mean of the outcome variable in percentage terms. First stage of F-stat reports the Kleibergen-Paap rk Wald F statistic of the 2SLS estimation for the first stage. Standard errors are clustered at the province level. Number of clusters indicate the total number of provinces in the standard error adjustments. ***p<0.01, **p<0.05, *p<0.1

Table 10: Mission Impact on Literacy

VARIABLES	(1) OLS-Actual	(2) OLS-Actual	(3) OLS-Placebo	(4) OLS-Placebo	(5) 2SLS-Actual
Distance	-0.026**	-0.026**	-0.004	0.001	-0.025
	(0.011)	(0.011)	(0.005)	(0.004)	(0.037)
Province FE	YES	YES	YES	YES	YES
Geo and Hist Controls	NO	YES	NO	YES	YES
Obs	867	867	867	867	867
R-Squared	0.720	0.769	0.716	0.765	0.769
Number of Clusters	80	80	80	80	80
Mean of Outcome	83.41	83.41	83.41	83.41	83.41
First Stage F-stat					16.33

Notes: All columns use data from the TURKSTAT 2000 Population Census. The explanatory variable is the distance to the nearest ABCFM mission in km in columns 1,2 and 5. The remaining columns have the explanatory variable of the distance to the nearest placebo mission location. The outcome of interest is the literacy rate in percentage terms in all columns. Columns 1-4 report the OLS estimates whereas column 5 presents the 2SLS estimates. All regressions include geographic and historical controls. Geographic controls are ruggedness,longitude, latitude, annual mean temperature, annual mean precipitation, elevation, frost-free period, suitability indexes for wheat, barley, oat, cotton, and olive, distance to Constantinople, distance to shore, length of primary and secondary rivers per surface area (km2) in 2010, distance to the nearest custom gate. Historical controls are whether the district is within the Seljuk Sultanate and whether it is within one and half travel distance to 19^{th} century major ports. Province FE includes province dummies. Mean of outcome presents the sample mean of the outcome variable in percentage terms. First stage of F-stat reports the Kleibergen-Paap rk Wald F statistic of the 2SLS estimation for the first stage. Standard errors are clustered at the province level. Number of clusters indicate the total number of provinces in the standard error adjustments. ***p<0.01, **p<0.05, *p<0.1

Table 11: Mission Impact on Female High School Education

VARIABLES	(1) OLS-Actual	(2) OLS-Actual	(3) OLS-Placebo	(4) OLS-Placebo	(5) 2SLS-Actual
Distance	-0.036***	-0.040***	0.003	0.000	-0.084**
	(0.012)	(0.011)	(0.005)	(0.005)	(0.042)
Province FE	YES	YES	YES	YES	YES
Geo and Hist Controls	NO	YES	NO	YES	YES
Obs	867	867	867	867	867
R-Squared	0.250	0.313	0.236	0.298	0.294
Number of Clusters	80	80	80	80	80
Mean of Outcome	9.284	9.284	9.284	9.284	9.284
First Stage F-stat					16.33

Notes:All columns use data from the TURKSTAT 2000 Population Census. The explanatory variable is the distance to the nearest ABCFM mission in km in columns 1,2 and 5. The remaining columns have the explanatory variable of the distance to the nearest placebo mission location. The outcome of interest is the ratio of female high school graduates in percentage terms in all columns. Columns 1-4 report the OLS estimates whereas column 5 presents the 2SLS estimates. All regressions include geographic and historical controls. Geographic controls are ruggedness,longitude, latitude, annual mean temperature, annual mean precipitation, elevation, frost-free period, suitability indexes for wheat, barley, oat, cotton, and olive, distance to Constantinople, distance to shore, length of primary and secondary rivers per surface area (km2) in 2010, distance to the nearest custom gate. Historical controls are whether the district is within the Seljuk Sultanate and whether it is within one and half travel distance to 19^{th} century major ports. Province FE includes province dummies. Mean of outcome presents the sample mean of the outcome variable in percentage terms. First stage of F-stat reports the Kleibergen-Paap rk Wald F statistic of the 2SLS estimation for the first stage. Standard errors are clustered at the province level. Number of clusters indicate the total number of provinces in the standard error adjustments. ***p<0.01, **p<0.05, *p<0.1

Table 12: Mission Impact on Female Primary School Education

VARIABLES	(1) OLS-Actual	(2) OLS-Actual	(3) OLS-Placebo	(4) OLS-Placebo	(5) 2SLS-Actual
Distance	0.011	0.011	0.001	-0.001	-0.064
	(0.019)	(0.020)	(0.009)	(0.007)	(0.077)
Province FE	YES	YES	YES	YES	YES
Geo and Hist Controls	NO	YES	NO	YES	YES
Obs	867	867	867	867	867
R-Squared	0.338	0.351	0.338	0.351	0.342
Number of Clusters	80	80	80	80	80
Mean of Outcome	65.95	65.95	65.95	65.95	65.95
First Stage F-stat					16.33

Notes:All columns use data from the TURKSTAT 2000 Population Census. The explanatory variable is the distance to the nearest ABCFM mission in km in columns 1,2 and 5. The remaining columns have the explanatory variable of the distance to the nearest placebo mission location. The outcome of interest is the ratio of female primary school graduates in percentage terms in all columns. Columns 1-4 report the OLS estimates whereas column 5 presents the 2SLS estimates. All regressions include geographic and historical controls. Geographic controls are ruggedness,longitude, latitude, annual mean temperature, annual mean precipitation, elevation, frost-free period, suitability indexes for wheat, barley, oat, cotton, and olive, distance to Constantinople, distance to shore, length of primary and secondary rivers per surface area (km2) in 2010, distance to the nearest custom gate. Historical controls are whether the district is within the Seljuk Sultanate and whether it is within one and half travel distance to 19^{th} century major ports. Province FE includes province dummies. Mean of outcome presents the sample mean of the outcome variable in percentage terms. First stage of F-stat reports the Kleibergen-Paap rk Wald F statistic of the 2SLS estimation for the first stage. Standard errors are clustered at the province level. Number of clusters indicate the total number of provinces in the standard error adjustments. ***p<0.01, **p<0.05, *p<0.1

Table 13: Mission Impact on Male High School Education

VARIABLES	(1) OLS-Actual	(2) OLS-Actual	(3) OLS-Placebo	(4) OLS-Placebo	(5) 2SLS-Actual
Distance	-0.004	-0.011	0.002	-0.003	-0.018
	(0.011)	(0.012)	(0.005)	(0.004)	(0.048)
Province FE	YES	YES	YES	YES	YES
Geo and Hist Controls	NO	YES	NO	YES	YES
Obs	867	867	867	867	867
R-Squared	0.227	0.281	0.227	0.280	0.280
Number of Clusters	80	80	80	80	80
Mean of Outcome	15.23	15.23	15.23	15.23	15.23
First Stage F-stat					16.33

Notes: All columns use data from the TURKSTAT 2000 Population Census. The explanatory variable is the distance to the nearest ABCFM mission in km in columns 1,2 and 5. The remaining columns have the explanatory variable of the distance to the nearest placebo mission location. The outcome of interest is the ratio of male high school graduates in percentage terms in all columns. Columns 1-4 report the OLS estimates whereas column 5 presents the 2SLS estimates. All regressions include geographic and historical controls. Geographic controls are ruggedness,longitude, latitude, annual mean temperature, annual mean precipitation, elevation, frost-free period, suitability indexes for wheat, barley, oat, cotton, and olive, distance to Constantinople, distance to shore, length of primary and secondary rivers per surface area (km2) in 2010, distance to the nearest custom gate. Historical controls are whether the district is within the Seljuk Sultanate and whether it is within one and half travel distance to 19^{th} century major ports. Province FE includes province dummies. Mean of outcome presents the sample mean of the outcome variable in percentage terms. First stage of F-stat reports the Kleibergen-Paap rk Wald F statistic of of the 2SLS estimation for the first stage. Standard errors are clustered at the province level. Number of clusters indicate the total number of provinces in the standard error adjustments. ***p<0.01, **p<0.05, *p<0.1

Table 14: Mission Impact on Male Primary School Education

VARIABLES	(1) OLS-Actual	(2) OLS-Actual	(3) OLS-Placebo	(4) OLS-Placebo	(5) 2SLS-Actual
Distance	-0.014	-0.023	0.001	0.003	-0.016
	(0.018)	(0.017)	(0.006)	(0.007)	(0.071)
Province FE	YES	YES	YES	YES	YES
Geo and Hist Controls	NO	YES	NO	YES	YES
Obs	867	867	867	867	867
R-Squared	0.277	0.304	0.276	0.303	0.304
Number of Clusters	80	80	80	80	80
Mean of Outcome	69.70	69.70	69.70	69.70	69.70
First Stage F-stat					16.33

Notes:All columns use data from the TURKSTAT 2000 Population Census. The explanatory variable is the distance to the nearest ABCFM mission in km in columns 1,2 and 5. The remaining columns have the explanatory variable of the distance to the nearest placebo mission location. The outcome of interest is the ratio of male primary school graduates in percentage terms in all columns. Columns 1-4 report the OLS estimates whereas column 5 presents the 2SLS estimates. All regressions include geographic and historical controls. Geographic controls are ruggedness,longitude, latitude, annual mean temperature, annual mean precipitation, elevation, frost-free period, suitability indexes for wheat, barley, oat, cotton, and olive, distance to Constantinople, distance to shore, length of primary and secondary rivers per surface area (km2) in 2010, distance to the nearest custom gate. Historical controls are whether the district is within the Seljuk Sultanate and whether it is within one and half travel distance to 19^{th} century major ports. Province FE includes province dummies. Mean of outcome presents the sample mean of the outcome variable in percentage terms. First stage of F-stat reports the Kleibergen-Paap rk Wald F statistic of the 2SLS estimation for the first stage. Standard errors are clustered at the province level. Number of clusters indicate the total number of provinces in the standard error adjustments. ***p<0.01, **p<0.05, *p<0.1

Table 15: Mission Impact on Infant Mortality

VARIABLES	(1) OLS-Actual	(2) OLS-Actual	(3) OLS-Placebo	(4) OLS-Placebo	(5) 2SLS-Actual
Distance	0.016	0.027	-0.001	-0.004	-0.024
	(0.028)	(0.027)	(0.011)	(0.012)	(0.099)
Province FE	YES	YES	YES	YES	YES
Geo and Hist Controls	NO	YES	NO	YES	YES
Obs	867	867	867	867	867
R-Squared	0.398	0.416	0.398	0.415	0.412
Number of Clusters	80	80	80	80	80
Mean of Outcome	41.25	41.25	41.25	41.25	41.25
First Stage F-stat					16.33

Notes: All columns use data from 2003 SPO District Development Data. The explanatory variable is the distance to the nearest ABCFM mission in km in columns 1,2 and 5. The remaining columns have the explanatory variable of the distance to the nearest placebo mission location. The outcome of interest is the infant mortality rate in per thousand in all columns. Columns 1-4 report the OLS estimates whereas column 5 presents the 2SLS estimates. All regressions include geographic and historical controls. Geographic controls are ruggedness,longitude, latitude, annual mean temperature, annual mean precipitation, elevation, frost-free period, suitability indexes for wheat, barley, oat, cotton, and olive, distance to Constantinople, distance to shore, length of primary and secondary rivers per surface area (km2) in 2010, distance to the nearest custom gate. Historical controls are whether the district is within the Seljuk Sultanate and whether it is within one and half travel distance to 19^{th} century major ports. Province FE includes province dummies. Mean of outcome presents the sample mean of the outcome variable in per thousand. First stage of F-stat reports the Kleibergen-Paap rk Wald F statistic of the 2SLS estimation for the first stage. Standard errors are clustered at the province level. Number of clusters indicate the total number of provinces in the standard error adjustments. ***p<0.01, **p<0.05, *p<0.1

Table 16: Mission Impact on Anthropometric Measures

VARIABLES	(1) Height	(2) BMI
Distance to Nearest Mission in km	-74.474***	12.070
	(23.755)	(11.716)
Distance to Nearest Health Mission in km	-133.159**	-34.957**
	(54.006)	(16.599)
Province FE	YES	YES
Obs	6162	6163
R-Squared	0.0483	0.204
Number of Clusters	73	73
Mean of Outcome	1881	2820

Notes: All columns use data from 2013 DHS Turkey. The explanatory variable is the distance to the nearest ABCFM mission and the distance to the nearest ABCFM mission with a health facility, respectively. The outcomes of interest are height for age and body mass index in column 1 and 2, respectively. Province FE includes province dummies. Mean of outcome presents the sample mean of the corresponding outcome variable. Standard errors are clustered at the province level. Number of clusters indicate the total number of provinces in the standard error adjustments. ***p<0.01, **p<0.05, *p<0.1

Table 17: Mission Impact on Land Distribution Gini

VARIABLES	(1) OLS-Actual	(2) OLS-Actual	(3) OLS-Placebo	(4) OLS-Placebo	(5) 2SLS-Actual
Distance	-0.000**	-0.000*	-0.000	-0.000	-0.002**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)
Province FE	YES	YES	YES	YES	YES
Geo and Hist Controls	NO	YES	NO	YES	YES
Obs	866	866	866	866	866
R-Squared	0.292	0.345	0.285	0.342	0.258
Number of Clusters	80	80	80	80	80
Mean of Outcome	0.692	0.692	0.692	0.692	0.692
First Stage F-stat					15.89

Notes: All columns use data from 1997 Village Inventory Data. The explanatory variable is the distance to the nearest ABCFM mission in km in columns 1,2 and 5. The remaining columns have the explanatory variable of the distance to the nearest placebo mission location. The outcome of interest is the gini index of land distribution in all columns. Columns 1-4 report the OLS estimates whereas column 5 presents the 2SLS estimates. All regressions include geographic and historical controls. Geographic controls are ruggedness,longitude, latitude, annual mean temperature, annual mean precipitation, elevation, frost-free period, suitability indexes for wheat, barley, oat, cotton, and olive, distance to Constantinople, distance to shore, length of primary and secondary rivers per surface area (km2) in 2010, distance to the nearest custom gate. Historical controls are whether the district is within the Seljuk Sultanate and whether it is within one and half travel distance to 19^{th} century major ports. Province FE includes province dummies. Mean of outcome presents the sample mean of the outcome variable. First stage of F-stat reports the Kleibergen-Paap rk Wald F statistic of the 2SLS estimation for the first stage. Standard errors are clustered at the province level. Number of clusters indicate the total number of provinces in the standard error adjustments. ***p<0.01, **p<0.05, *p<0.1

Table 18: Mission Impact on Migration

VARIABLES	(1) OLS-Actual	(2) OLS-Actual	(3) OLS-Placebo	(4) OLS-Placebo	(5) 2SLS-Actual
Distance	0.081**	0.100**	-0.005	0.001	0.018
	(0.038)	(0.041)	(0.015)	(0.020)	(0.084)
Province FE	YES	YES	YES	YES	YES
Geo and Hist Controls	NO	YES	NO	YES	YES
Obs	867	867	867	867	867
R-Squared	0.0938	0.115	0.0899	0.110	0.112
Number of Clusters	80	80	80	80	80
Mean of Outcome	0.154	0.154	0.154	0.154	0.154
First Stage F-stat					16.33

Notes:All columns use data from the TURKSTAT 2000 Population Census. The explanatory variable is the distance to the nearest ABCFM mission in km in columns 1,2 and 5. The remaining columns have the explanatory variable of the distance to the nearest placebo mission location. The outcome of interest is the share of non-resident population in percentage terms in all columns. Columns 1-4 report the OLS estimates whereas column 5 presents the 2SLS estimates. All regressions include geographic and historical controls. Geographic controls are ruggedness,longitude, latitude, annual mean temperature, annual mean precipitation, elevation, frost-free period, suitability indexes for wheat, barley, oat, cotton, and olive, distance to Constantinople, distance to shore, length of primary and secondary rivers per surface area (km2) in 2010, distance to the nearest custom gate. Historical controls are whether the district is within the Seljuk Sultanate and whether it is within one and half travel distance to 19^{th} century major ports. Province FE includes province dummies. Mean of outcome presents the sample mean of the outcome variable in percentage terms. First stage of F-stat reports the Kleibergen-Paap rk Wald F statistic of the 2SLS estimation for the first stage. Standard errors are clustered at the province level. Number of clusters indicate the total number of provinces in the standard error adjustments. ***p<0.01, **p<0.05, *p<0.1

Table 19: Mission Impact on Urbanization

VARIABLES	(1) OLS-Actual	(2) OLS-Actual	(3) OLS-Placebo	(4) OLS-Placebo	(5) 2SLS-Actual
Distance	-0.072*	-0.072**	-0.009	-0.015	0.001
	(0.038)	(0.034)	(0.014)	(0.014)	(0.132)
Province FE	YES	YES	YES	YES	YES
Geo and Hist Controls	NO	YES	NO	YES	YES
Obs	867	867	867	867	867
R-Squared	0.115	0.187	0.110	0.183	0.181
Number of Clusters	80	80	80	80	80
Mean of Outcome	44.05	44.05	44.05	44.05	44.05
First Stage F-stat					16.33

Notes: All columns use data from 2003 SPO District Development Data. The explanatory variable is the distance to the nearest ABCFM mission in km in columns 1,2 and 5. The remaining columns have the explanatory variable of the distance to the nearest placebo mission location. The outcome of interest is the share of urban population in percentage terms in all columns. Columns 1-4 report the OLS estimates whereas column 5 presents the 2SLS estimates. All regressions include geographic and historical controls. Geographic controls are ruggedness,longitude, latitude, annual mean temperature, annual mean precipitation, elevation, frost-free period, suitability indexes for wheat, barley, oat, cotton, and olive, distance to Constantinople, distance to shore, length of primary and secondary rivers per surface area (km2) in 2010, distance to the nearest custom gate. Historical controls are whether the district is within the Seljuk Sultanate and whether it is within one and half travel distance to 19^{th} century major ports. Province FE includes province dummies. Mean of outcome presents the sample mean of the outcome variable in percentage terms. First stage of F-stat reports the Kleibergen-Paap rk Wald F statistic of the 2SLS estimation for the first stage. Standard errors are clustered at the province level. Number of clusters indicate the total number of provinces in the standard error adjustments. ***p<0.01, **p<0.05, *p<0.1

Table 20: Mission Impact on Protestant Population Share

VARIABLES	(1) OLS-Actual	(2) OLS-Actual	(3) OLS-Placebo	(4) OLS-Placebo	(5) 2SLS-Actual
Distance	-0.003***	-0.002**	-0.000	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.011)
Province FE	YES	YES	YES	YES	YES
Geo and Hist Controls	NO	YES	NO	YES	YES
Obs	829	829	829	829	829
R-Squared	0.475	0.499	0.470	0.496	0.496
Number of Clusters	77	77	77	77	77
Mean of Outcome	0.321	0.321	0.321	0.321	0.321
First Stage F-stat					13.09

Notes: All columns use data from 1914 Ottoman Population Census. The explanatory variable is the distance to the nearest ABCFM mission in km in all columns. The outcome of interest is the share of population in the Protestant Sect in all columns. Columns 1-4 report the OLS estimates. All regressions include geographic and historical controls. Geographic controls are ruggedness,longitude, latitude, annual mean temperature, annual mean precipitation, elevation, frost-free period, suitability indexes for wheat, barley, oat, cotton, and olive, distance to Constantinople, distance to shore, length of primary and secondary rivers per surface area (km2) in 2010, distance to the nearest custom gate. Historical controls are whether the district is within the Seljuk Sultanate and whether it is within one and half travel distance to 19^{th} century major ports. Province FE includes province dummies. Mean of outcome presents the sample mean of the outcome variable in percentage terms. Standard errors are clustered at the province level. Number of clusters indicate the total number of provinces in the standard error adjustments. ***p<0.01, **p<0.05, *p<0.1

Table 21: Mission Impact on Agricultural Population Share in 1927

VARIABLES	(1) OLS-Actual	(2) OLS-Actual	(3) OLS-Placebo	(4) OLS-Placebo	(5) 2SLS-Actual
Distance	0.069**	0.043	-0.013	-0.011	0.007
	(0.030)	(0.030)	(0.009)	(0.010)	(0.094)
Province FE	YES	YES	YES	YES	YES
Geo and Hist Controls	NO	YES	NO	YES	YES
Obs	857	857	857	857	857
R-Squared	0.376	0.444	0.366	0.442	0.441
Number of Clusters	80	80	80	80	80
Mean of Outcome	85.03	85.03	85.03	85.03	85.03
First Stage F-stat					15.63

Notes: All columns use data from TURKSTAT 1927 Census of Population. The explanatory variable is the distance to the nearest ABCFM mission in km in columns 1,2 and 5. The remaining columns have the explanatory variable of the distance to the nearest placebo mission location. The outcome of interest is the percentage of population employed in the agriculture sector in all columns. Columns 1-4 report the OLS estimates whereas column 5 presents the 2SLS estimates. All regressions include geographic and historical controls. Geographic controls are ruggedness,longitude, latitude, annual mean temperature, annual mean precipitation, elevation, frost-free period, suitability indexes for wheat, barley, oat, cotton, and olive, distance to Constantinople, distance to shore, length of primary and secondary rivers per surface area (km2) in 2010, distance to the nearest custom gate. Historical controls are whether the district is within the Seljuk Sultanate and whether it is within one and half travel distance to 19^{th} century major ports. Province FE includes province dummies. Mean of outcome presents the sample mean of the outcome variable in percentage terms. First stage of F-stat reports the Kleibergen-Paap rk Wald F statistic of the 2SLS estimation for the first stage. Standard errors are clustered at the province level. Number of clusters indicate the total number of provinces in the standard error adjustments. ***p<0.01, **p<0.05, *p<0.1

Table 22: Mission Impact on Commercial and Industrial Population Share in 1927

VARIABLES	(1) OLS-Actual	(2) OLS-Actual	(3) OLS-Placebo	(4) OLS-Placebo	(5) 2SLS-Actual
Distance	-0.047***	-0.042***	0.004	0.004	-0.031
	(0.015)	(0.013)	(0.006)	(0.006)	(0.046)
Province FE	YES	YES	YES	YES	YES
Geo and Hist Controls	NO	YES	NO	YES	YES
Obs	857	857	857	857	857
R-Squared	0.377	0.449	0.354	0.433	0.448
Number of Clusters	80	80	80	80	80
Mean of Outcome	7.899	7.899	7.899	7.899	7.899
First Stage F-stat					15.63

Notes: All columns use data from TURKSTAT 1927 Census of Population. The explanatory variable is the distance to the nearest ABCFM mission in km in columns 1,2 and 5. The remaining columns have the explanatory variable of the distance to the nearest placebo mission location. The outcome of interest is the percentage of population employed in the commerce and industry sector in all columns. Columns 1-4 report the OLS estimates whereas column 5 presents the 2SLS estimates. All regressions include geographic and historical controls. Geographic controls are ruggedness,longitude, latitude, annual mean temperature, annual mean precipitation, elevation, frost-free period, suitability indexes for wheat, barley, oat, cotton, and olive, distance to Constantinople, distance to shore, length of primary and secondary rivers per surface area (km2) in 2010, distance to the nearest custom gate. Historical controls are whether the district is within the Seljuk Sultanate and whether it is within one and half travel distance to 19^{th} century major ports. Province FE includes province dummies. Mean of outcome presents the sample mean of the outcome variable in percentage terms. First stage of F-stat reports the Kleibergen-Paap rk Wald F statistic of the 2SLS estimation for the first stage. Standard errors are clustered at the province level. Number of clusters indicate the total number of provinces in the standard error adjustments. ***p<0.01, **p<0.05, *p<0.1

Table 23: Mission Impact on Land Productivity in 1927

VARIABLES	(1) OLS-Actual	(2) OLS-Actual	(3) OLS-Placebo	(4) OLS-Placebo	(5) 2SLS-Actual
Distance	-0.964	-0.715	-0.162	-0.290	0.405
	(1.038)	(1.067)	(0.402)	(0.436)	(3.482)
Province FE	YES	YES	YES	YES	YES
Geo and Hist Controls	NO	YES	NO	YES	YES
Obs	843	843	843	843	843
R-Squared	0.465	0.492	0.463	0.492	0.490
Number of Clusters	79	79	79	79	79
Mean of Outcome	791.9	791.9	791.9	791.9	791.9
First Stage F-stat					17.69

Notes: All columns use data from TURKSTAT 1927 Census of Agriculture. The explanatory variable is the distance to the nearest ABCFM mission in km in columns 1,2 and 5. The remaining columns have the explanatory variable of the distance to the nearest placebo mission location. The outcome of interest is the land productivity in agriculture, i.e. agricultural output land ratio in all columns. Columns 1-4 report the OLS estimates whereas column 5 presents the 2SLS estimates. All regressions include geographic and historical controls. Geographic controls are ruggedness,longitude, latitude, annual mean temperature, annual mean precipitation, elevation, frost-free period, suitability indexes for wheat, barley, oat, cotton, and olive, distance to Constantinople, distance to shore, length of primary and secondary rivers per surface area (km2) in 2010, distance to the nearest custom gate. Historical controls are whether the district is within the Seljuk Sultanate and whether it is within one and half travel distance to 19^{th} century major ports. Province FE includes province dummies. Mean of outcome presents the sample mean of the outcome variable. First stage of F-stat reports the Kleibergen-Paap rk Wald F statistic of the 2SLS estimation for the first stage. Standard errors are clustered at the province level. Number of clusters indicate the total number of provinces in the standard error adjustments. ***p<0.01, **p<0.05, *p<0.1

Table 24: Mission Impact on Agricultural Labor Productivity in 1927

VARIABLES	(1) OLS-Actual	(2) OLS-Actual	(3) OLS-Placebo	(4) OLS-Placebo	(5) 2SLS-Actual
Distance	-41.306**	-31.608**	6.291	1.904	-118.901**
	(17.466)	(13.288)	(6.329)	(5.132)	(58.617)
Province FE	YES	YES	YES	YES	YES
Geo and Hist Controls	NO	YES	NO	YES	YES
Obs	843	843	843	843	843
R-Squared	0.499	0.608	0.484	0.600	0.544
Number of Clusters	79	79	79	79	79
Mean of Outcome	7500	7500	7500	7500	7500
First Stage F-stat					17.69

Notes: All columns use data from TURKSTAT 1927 Census of Agriculture. The explanatory variable is the distance to the nearest ABCFM mission in km in columns 1,2 and 5. The remaining columns have the explanatory variable of the distance to the nearest placebo mission location. The outcome of interest is the labor productivity in agriculture, i.e. agricultural output labor ratio in all columns. Columns 1-4 report the OLS estimates whereas column 5 presents the 2SLS estimates. All regressions include geographic and historical controls. Geographic controls are ruggedness,longitude, latitude, annual mean temperature, annual mean precipitation, elevation, frost-free period, suitability indexes for wheat, barley, oat, cotton, and olive, distance to Constantinople, distance to shore, length of primary and secondary rivers per surface area (km2) in 2010, distance to the nearest custom gate. Historical controls are whether the district is within the Seljuk Sultanate and whether it is within one and half travel distance to 19^{th} century major ports. Province FE includes province dummies. Mean of outcome presents the sample mean of the outcome variable. First stage of F-stat reports the Kleibergen-Paap rk Wald F statistic of the 2SLS estimation for the first stage. Standard errors are clustered at the province level. Number of clusters indicate the total number of provinces in the standard error adjustments. ***p<0.01, **p<0.05, *p<0.1

Table 25: Mission Impact on Wheat Production Amount in 1927

VARIABLES	(1) OLS-Actual	(2) OLS-Actual	(3) OLS-Placebo	(4) OLS-Placebo	(5) 2SLS-Actual
Distance	-1.589**	-0.776	0.285	0.108	-3.684*
	(0.635)	(0.483)	(0.297)	(0.300)	(1.985)
Province FE	YES	YES	YES	YES	YES
Geo and Hist Controls	NO	YES	NO	YES	YES
Obs	839	839	839	839	839
R-Squared	0.430	0.535	0.421	0.533	0.506
Number of Clusters	79	79	79	79	79
Mean of Outcome	342.5	342.5	342.5	342.5	342.5
First Stage F-stat					17.46

Notes: All columns use data from TURKSTAT 1927 Census of Agriculture. The explanatory variable is the distance to the nearest ABCFM mission in km in columns 1,2 and 5. The remaining columns have the explanatory variable of the distance to the nearest placebo mission location. The outcome of interest is the total wheat production in kilos in all columns. Columns 1-4 report the OLS estimates whereas column 5 presents the 2SLS estimates. All regressions include geographic and historical controls. Geographic controls are ruggedness,longitude, latitude, annual mean temperature, annual mean precipitation, elevation, frost-free period, suitability indexes for wheat, barley, oat, cotton, and olive, distance to Constantinople, distance to shore, length of primary and secondary rivers per surface area (km2) in 2010, distance to the nearest custom gate. Historical controls are whether the district is within the Seljuk Sultanate and whether it is within one and half travel distance to 19^{th} century major ports. Province FE includes province dummies. Mean of outcome presents the sample mean of the outcome variable. First stage of F-stat reports the Kleibergen-Paap rk Wald F statistic of the 2SLS estimation for the first stage. Standard errors are clustered at the province level. Number of clusters indicate the total number of provinces in the standard error adjustments. ***p<0.01, **p<0.05, *p<0.1

Table 26: Moran's z Values

	Log of GDP per Capita			Development Index		
	Moran's I	Moran's z	p-value	Moran's I	Moran's z	p-value
No Province FE	0.44	21.5	0.00	0.36	17.5	0.00
Province FE	0.0094	0.52	0.61	0.017	0.87	0.39

Notes: Table reports the Moran's I, Moran's z and p-value of two main outcome variables: log of GDP per capita and standardized development index produced by SPO. Following(Kelly 2019), we assume that the weighting matrix gives equal weights to the five nearest neighbours of each district. The null hypothesis is no spatial correlation in the residuals of regressions either without or with province dummies.

Figures

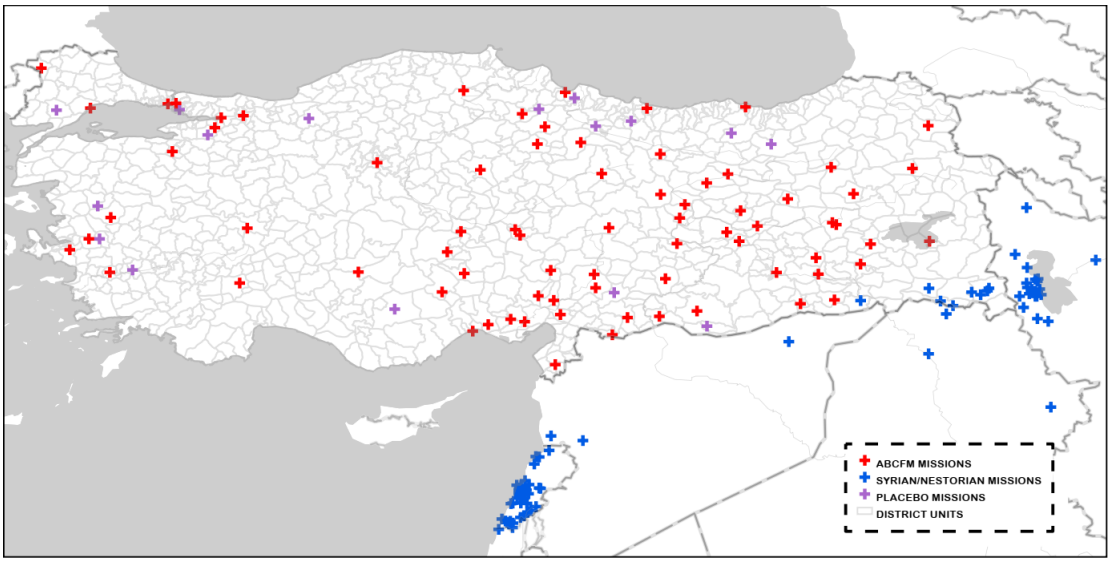

Figure 1: Spatial Distribution of Missions

Notes: The identification of any specific locations in terms of the mission facility it has is done through archival work. Archival work covers the annual reports, and almanacs of ABCFM in the period of 1810-1920.

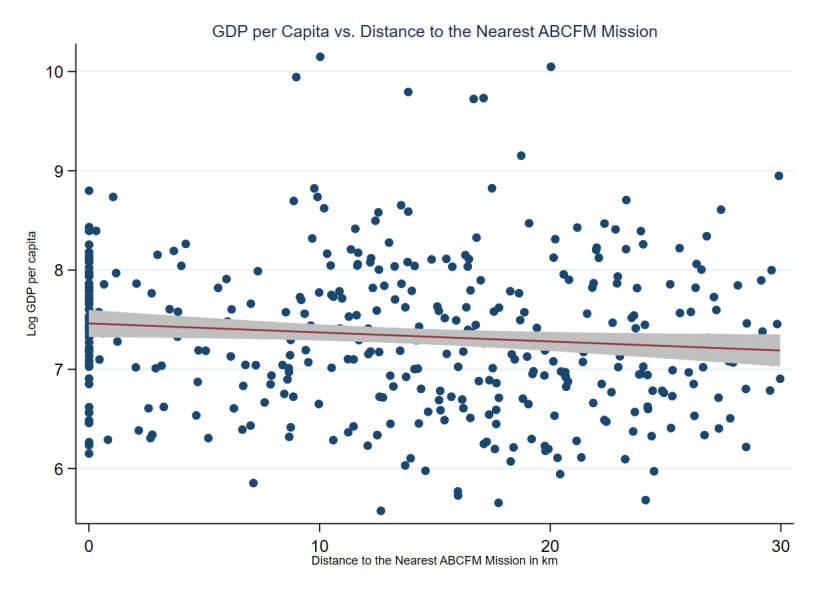

Figure 2: Income per capita versus Mission Distance

Notes: Unconditional graph of logarithm of income per capita in 1996 against the distance to the nearest ABCFM mission. The fitting curve is a linear line with %95 confidence interval. The data producing the graph comes from the TURKSTAT 1996 District GDP Data. The sample is restricted to the districts closer than 30 km to the nearest mission.

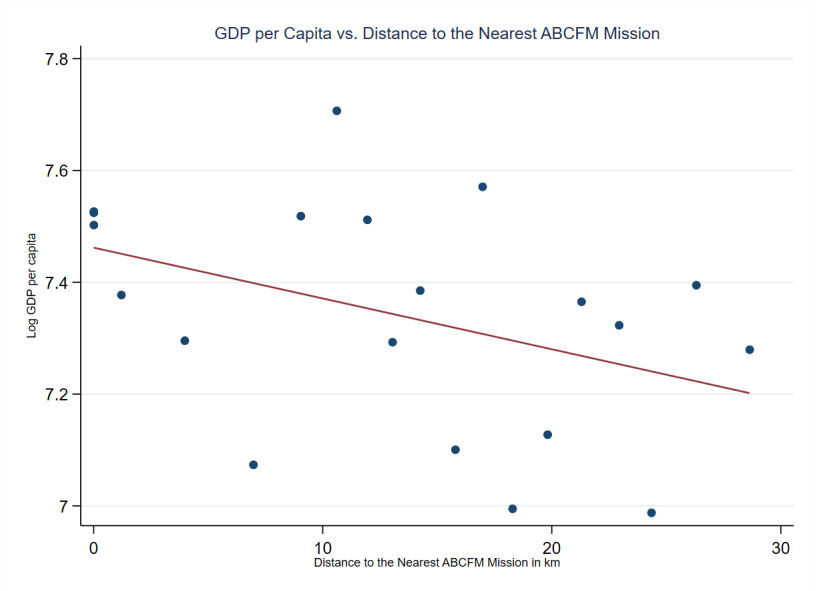

Figure 3: Binscatter of Income per capita versus Mission Distance

Notes: The unconditional binned scatter graph of logarithm of income per capita in 1996 against the distance to the nearest ABCFM mission. The data producing the graph comes from the TURKSTAT 1996 District GDP Data. The sample is restricted to the districts closer than 30 km to the nearest mission.

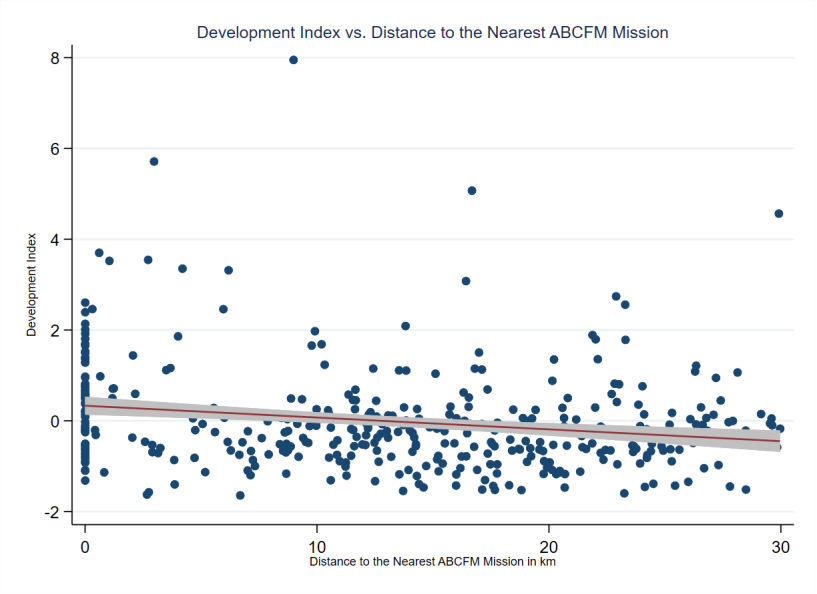

Figure 4: Development Index versus Mission Distance

Notes: The unconditional graph of development index in 2004 against the distance to the nearest ABCFM mission. The fitting curve is a linear line with %95 confidence interval. The data producing the graph comes from the 2004 SPO District Development Data. The sample is restricted to the districts closer than 30 km to the nearest mission.

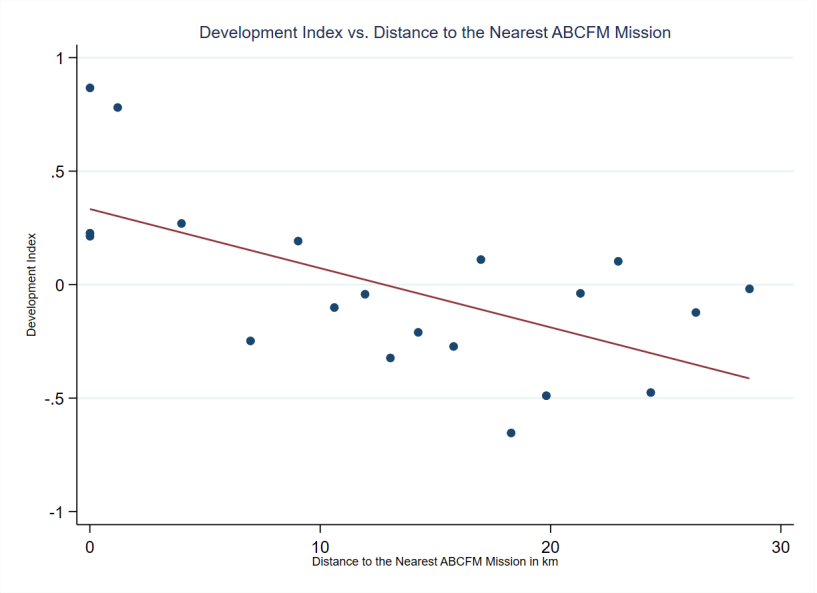

Figure 5: Binscatter of Development Index versus Mission Distance

Notes: The unconditional binned scatter graph of development index in 2004 against the distance to the nearest ABCFM mission. The data producing the graph comes from the 2004 SPO District Development Data. The sample is restricted to the districts closer than 30 km to the nearest mission.

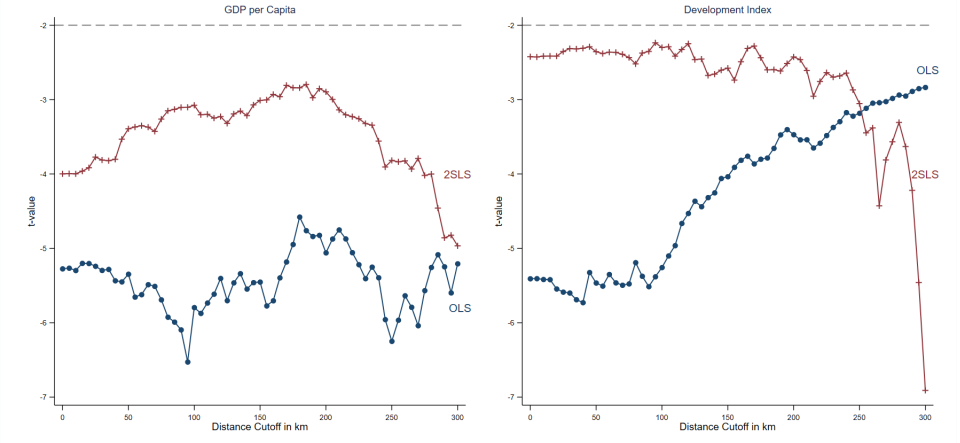

Figure 6: Conley (1999) Adjusted t-values

Notes: The data producing the graph in the left panel comes from the TURKSTAT 1996 District GDP Data. For the left panel, it comes from 2004 SPO District Development Data.

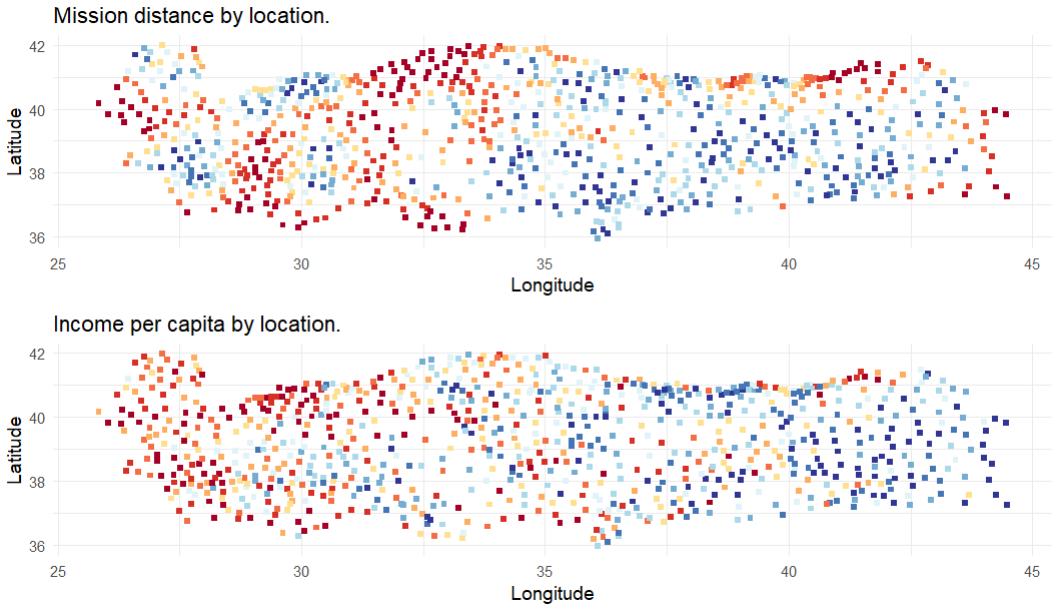

Figure 7: Mission Distance and Income per Capita in Turkey in 1996

Notes: The data producing the graphs comes from the TURKSTAT 1996 District GDP Data.

Appendix

A Maps

Figure A.1: Spatial Distribution of ABCFM Missions

Source: American Board of Commissioners for Foreign Missions Archives, 1810-1961 (ABC 1-91) Houghton Library, Harvard University.

B Estimates with Extended Sample

Table B.1: Mission Impact on GDP per Capita

VARIABLES	(1) OLS-Actual	(2) OLS-Actual	(3) OLS-Placebo	(4) OLS-Placebo	(5) 2SLS-Actual
Distance	-0.005***	-0.005***	-0.001	-0.001	-0.017***
	(0.001)	(0.001)	(0.001)	(0.000)	(0.005)
Province FE	YES	YES	YES	YES	YES
Geo and Hist Controls	NO	YES	NO	YES	YES
Obs	891	891	891	891	891
R-Squared	0.496	0.528	0.476	0.515	0.422
Number of Clusters	80	80	80	80	80
Mean of Outcome	7.384	7.384	7.384	7.384	7.384
First Stage F-stat					15.71

Notes: All columns use data from TURKSTAT 1996 District GDP Survey. The explanatory variable is the distance to the nearest ABCFM mission in km in columns 1,2 and 5. The remaining columns have the explanatory variable of the distance to the nearest placebo mission location. The outcome of interest is the log of GDP per capita in all columns. Columns 1-4 report the OLS estimates whereas column 5 presents the 2SLS estimates. All regressions include geographic and historical controls. Geographic controls are ruggedness,longitude, latitude, annual mean temperature, annual mean precipitation, elevation, frost-free period, suitability indexes for wheat, barley, oat, cotton, and olive, distance to Constantinople, distance to shore, length of primary and secondary rivers per surface area (km2) in 2010, distance to the nearest custom gate. Historical controls are whether the district is within the Seljuk Sultanate and whether it is within one and half travel distance to 19^{th} century major ports. Province FE includes province dummies. Mean of outcome presents the sample mean of the outcome variable. First stage of F-stat reports the Kleibergen-Paap rk Wald F statistic of the 2SLS estimation for the first stage. Standard errors are clustered at the province level. Number of clusters indicate the total number of provinces in the standard error adjustments. ***p<0.01, **p<0.05, *p<0.1

C Estimates with Eastern Part Controls

Table C.2: Mission Impact on GDP per Capita

VARIABLES	(1) OLS-Actual	(2) OLS-Actual	(3) OLS-Actual	(4) OLS-Actual	(5) OLS-Placebo	(6) OLS-Placebo	(7) OLS-Placebo	(8) OLS-Placebo	(9) 2SLS-Actual	(10) 2SLS-Actual	(11) 2SLS-Actual
Distance	-0.005***	-0.005***	-0.004***	-0.004***	-0.001	-0.001	-0.001	-0.001	-0.017***	-0.017***	-0.016***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.005)	(0.006)	(0.005)
Province FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Geo and Hist Controls	NO	YES	YES	YES	NO	YES	YES	YES	YES	YES	YES
Further East Long 35	NO	NO	YES	NO	NO	NO	YES	NO	NO	YES	NO
Further East Long 40	NO	NO	NO	YES	NO	NO	NO	YES	NO	NO	YES
Obs	867	867	867	867	867	867	867	867	867	867	867
R-Squared	0.487	0.520	0.520	0.525	0.468	0.507	0.507	0.514	0.418	0.411	0.438
Number of Clusters	80	80	80	80	80	80	80	80	80	80	80
Mean of Outcome	7.362	7.362	7.362	7.362	7.362	7.362	7.362	7.362	7.362	7.362	7.362
First Stage F-stat									16.33	15.14	15.81

Notes: All columns use data from TURKSTAT 1996 District GDP Survey. The explanatory variable is the distance to the nearest ABCFM mission in km in columns 1,2,3,7 and 8. The remaining columns have the explanatory variable of the distance to the nearest placebo mission location. The outcome of interest is the log of GDP per capita in all columns. Columns 1-6 report the OLS estimates whereas column 7 and 8 presents the 2SLS estimates. All regressions include geographic and historical controls. Geographic controls are ruggedness,longitude, latitude, annual mean temperature, annual mean precipitation, elevation, frost-free period, suitability indexes for wheat, barley, oat, cotton, and olive, distance to Constantinople, distance to shore, length of primary and secondary rivers per surface area (km2) in 2010, distance to the nearest custom gate. Historical controls are whether the district is within the Seljuk Sultanate and whether it is within one and half travel distance to 19^{th} century major ports. Province FE includes province dummies. Eastern Part FE is a dummy variable if district is in the east of 35 degree latitude. Mean of outcome presents the sample mean of the outcome variable. First stage of F-stat reports the Kleibergen-Paap rk Wald F statistic of the 2SLS estimation for the first stage. Standard errors are clustered at the province level. Number of clusters indicate the total number of provinces in the standard error adjustments. ***p<0.01, **p<0.05, *p<0.1

Table C.3: Mission Impact on Development Index

VARIABLES	(1) OLS-Actual	(2) OLS-Actual	(3) OLS-Actual	(4) OLS-Actual	(5) OLS-Placebo	(6) OLS-Placebo	(7) OLS-Placebo	(8) OLS-Placebo	(9) 2SLS-Actual	(10) 2SLS-Actual	(11) 2SLS-Actual
Distance	-0.007***	-0.007***	-0.007***	-0.007***	0.000	-0.000	-0.000	-0.000	-0.012**	-0.011**	-0.012**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.005)	(0.006)	(0.006)
Province FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Geo and Hist Controls	NO	YES	YES	YES	NO	YES	YES	YES	YES	YES	YES
Further East Long 35	NO	NO	YES	NO	NO	NO	YES	NO	NO	YES	NO
Further East Long 40	NO	NO	NO	YES	NO	NO	NO	YES	NO	NO	YES
Obs	867	867	867	867	867	867	867	867	867	867	867
R-Squared	0.362	0.451	0.452	0.451	0.339	0.433	0.434	0.433	0.443	0.444	0.442
Number of Clusters	80	80	80	80	80	80	80	80	80	80	80
First Stage F-stat									16.33	15.14	15.81

Notes: All columns use data from 2003 SPO District Development Data. The explanatory variable is the distance to the nearest ABCFM mission in km in columns 1,2,3,7 and 8. The remaining columns have the explanatory variable of the distance to the nearest placebo mission location. The outcome of interest is the standardized development index produced by SPO in all columns. Columns 1-6 report the OLS estimates whereas column 7 and 8 presents the 2SLS estimates. All regressions include geographic and historical controls. Geographic controls are ruggedness,longitude, latitude, annual mean temperature, annual mean precipitation, elevation, frost-free period, suitability indexes for wheat, barley, oat, cotton, and olive, distance to Constantinople, distance to shore, length of primary and secondary rivers per surface area (km2) in 2010, distance to the nearest custom gate. Historical controls are whether the district is within the Seljuk Sultanate and whether it is within one and half travel distance to 19^{th} century major ports. Province FE includes province dummies. Eastern Part FE is a dummy variable if district is in the east of 35 degree latitude. First stage of F-stat reports the Kleibergen-Paap rk Wald F statistic of the 2SLS estimation for the first stage. Standard errors are clustered at the province level. Number of clusters indicate the total number of provinces in the standard error adjustments. ***p<0.01, **p<0.05, *p<0.1

D Estimates with Minority Population Controls

Table D.4: Mission Impact on GDP per Capita

VARIABLES	(1) OLS-Actual	(2) OLS-Actual	(3) OLS-Actual	(4) OLS-Placebo	(5) OLS-Placebo	(6) OLS-Placebo	(7) 2SLS-Actual	(8) 2SLS-Actual
Distance	-0.006***	-0.005***	-0.005***	-0.001	-0.001	-0.001	-0.018***	-0.018***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.006)	(0.006)
Province FE	YES	YES	YES	YES	YES	YES	YES	YES
Geo and Hist Controls	NO	YES	YES	NO	YES	YES	YES	YES
1881 Controls	NO	NO	YES	NO	NO	YES	NO	YES
Obs	829	829	829	829	829	829	829	829
R-Squared	0.486	0.517	0.521	0.464	0.503	0.508	0.396	0.418
Number of Clusters	77	77	77	77	77	77	77	77
Mean of Outcome	7.372	7.372	7.372	7.372	7.372	7.372	7.372	7.372
First Stage F-stat							13.09	16.60

Notes:All columns use data from TURKSTAT 1996 District GDP Survey. The explanatory variable is the distance to the nearest ABCFM mission in km in columns 1,2,3,7 and 8. The remaining columns have the explanatory variable of the distance to the nearest placebo mission location. The outcome of interest is the log of GDP per capita in all columns. Columns 1-6 report the OLS estimates whereas column 7 and 8 presents the 2SLS estimates. All regressions include geographic and historical controls. Geographic controls are ruggedness,longitude, latitude, annual mean temperature, annual mean precipitation, elevation, frost-free period, suitability indexes for wheat, barley, oat, cotton, and olive, distance to Constantinople, distance to shore, length of primary and secondary rivers per surface area (km2) in 2010, distance to the nearest custom gate. Historical controls are whether the district is within the Seljuk Sultanate and whether it is within one and half travel distance to 19^{th} century major ports. 1881 controls include log of population, population density, the share of Armenian population and the share of Greek population in 1881. Province FE includes province dummies. Mean of outcome presents the sample mean of the outcome variable. First stage of F-stat reports the Kleibergen-Paap rk Wald F statistic of the 2SLS estimation for the first stage. Standard errors are clustered at the province level. Number of clusters indicate the total number of provinces in the standard error adjustments. ***p<0.01, **p<0.05, *p<0.1

Table D.5: Mission Impact on Development Index

VARIABLES	(1) OLS-Actual	(2) OLS-Actual	(3) OLS-Actual	(4) OLS-Placebo	(5) OLS-Placebo	(6) OLS-Placebo	(7) 2SLS-Actual	(8) 2SLS-Actual
Distance	-0.008***	-0.008***	-0.007***	0.000	0.000	-0.000	-0.011**	-0.012**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.006)	(0.006)
Province FE	YES	YES	YES	YES	YES	YES	YES	YES
Geo and Hist Controls	NO	YES	YES	NO	YES	YES	YES	YES
1881 Controls	NO	NO	YES	NO	NO	YES	NO	YES
Obs	829	829	829	829	829	829	829	829
R-Squared	0.364	0.463	0.471	0.335	0.441	0.453	0.458	0.462
Number of Clusters	77	77	77	77	77	77	77	77
First Stage F-stat							13.09	16.60

Notes:All columns use data from 2003 SPO District Development Data. The explanatory variable is the distance to the nearest ABCFM mission in km in columns 1,2,3,7 and 8. The remaining columns have the explanatory variable of the distance to the nearest placebo mission location. The outcome of interest is the standardized development index produced by SPO in all columns. Columns 1-6 report the OLS estimates whereas column 7 and 8 presents the 2SLS estimates. All regressions include geographic and historical controls. Geographic controls are ruggedness,longitude, latitude, annual mean temperature, annual mean precipitation, elevation, frost-free period, suitability indexes for wheat, barley, oat, cotton, and olive, distance to Constantinople, distance to shore, length of primary and secondary rivers per surface area (km2) in 2010, distance to the nearest custom gate. Historical controls are whether the district is within the Seljuk Sultanate and whether it is within one and half travel distance to 19^{th} century major ports. 1881 controls include log of population, population density, the share of Armenian population and the share of Greek population in 1881. Province FE includes province dummies. First stage of F-stat reports the Kleibergen-Paap rk Wald F statistic of the 2SLS estimation for the first stage. Standard errors are clustered at the province level. Number of clusters indicate the total number of provinces in the standard error adjustments. $^{***}p<0.01$, $^{**}p<0.05$, $^{*}p<0.1$

E Estimates with Displacement of Minorities Controls

Table E.6: Mission Impact on GDP per Capita

VARIABLES	(1) OLS-Actual	(2) OLS-Actual	(3) OLS-Actual	(4) OLS-Actual
Distance	-0.00565***	-0.00489***	-0.00424***	-0.00422***
	(0.00097)	(0.00101)	(0.00105)	(0.00111)
Sh. of Armenian pop. in 1881			-0.00024	
			(0.00340)	
Interaction Term of Share Armenian in 1881 and Distance to Mission			-0.00012**	
			(0.00005)	
Sh. of Armenian pop. in 1914				0.00173
				(0.00409)
Interaction Term of Share Armenian in 1914 and Distance to Mission				-0.00016**
				(0.00008)
Province FE	YES	YES	YES	YES
Geo and Hist Controls	NO	YES	YES	YES
Obs	829	829	829	829
R-Squared	0.486	0.517	0.520	0.519
Number of Clusters	77	77	77	77
Mean of Outcome	7.372	7.372	7.372	7.372

Notes:All columns use data from TURKSTAT 1996 District GDP Survey. The explanatory variable is the distance to the nearest ABCFM mission in km in all columns. The outcome of interest is the log of GDP per capita in all columns. Columns 1-4 report the OLS estimates. All regressions include geographic and historical controls. Geographic controls are ruggedness,longitude, latitude, annual mean temperature, annual mean precipitation, elevation, frost-free period, suitability indexes for wheat, barley, oat, cotton, and olive, distance to Constantinople, distance to shore, length of primary and secondary rivers per surface area (km2) in 2010, distance to the nearest custom gate. Historical controls are whether the district is within the Seljuk Sultanate and whether it is within one and half travel distance to 19^{th} century major ports. Province FE includes province dummies. Mean of outcome presents the sample mean of the outcome variable. Standard errors are clustered at the province level. Number of clusters indicate the total number of provinces in the standard error adjustments. ***p<0.01, **p<0.05, *p<0.1

Table E.7: Mission Impact on Development Index

VARIABLES	(1) OLS-Actual	(2) OLS-Actual	(3) OLS-Actual	(4) OLS-Actual
Distance	-0.00817***	-0.00772***	-0.00598***	-0.00504***
	(0.00128)	(0.00141)	(0.00148)	(0.00148)
Sh. of Armenian pop. in 1881			0.00936**	
			(0.00434)	
Interaction Term of Share Armenian in 1881 and Distance to Mission			-0.00026***	
			(0.00007)	
Sh. of Armenian pop. in 1914				0.01925***
				(0.00445)
Interaction Term of Share Armenian in 1914 and Distance to Mission				-0.00048***
				(0.00014)
Province FE	YES	YES	YES	YES
Geo and Hist Controls	NO	YES	YES	YES
Obs	829	829	829	829
R-Squared	0.364	0.463	0.467	0.473
Number of Clusters	77	77	77	77

Notes: All columns use data from 2003 SPO District Development Data. The explanatory variable is the distance to the nearest ABCFM mission in km in all columns. The outcome of interest is the standardized development index produced by SPO in all columns. Columns 1-4 report the OLS estimates. All regressions include geographic and historical controls. Geographic controls are ruggedness,longitude, latitude, annual mean temperature, annual mean precipitation, elevation, frost-free period, suitability indexes for wheat, barley, oat, cotton, and olive, distance to Constantinople, distance to shore, length of primary and secondary rivers per surface area (km2) in 2010, distance to the nearest custom gate. Historical controls are whether the district is within the Seljuk Sultanate and whether it is within one and half travel distance to 19^{th} century major ports. Province FE includes province dummies. Standard errors are clustered at the province level. Number of clusters indicate the total number of provinces in the standard error adjustments. ***p<0.01, **p<0.05, *p<0.1

Table E.8: Mission Impact on Population Density in 1927

VARIABLES	(1) OLS-Actual	(2) OLS-Actual	(3) OLS-Actual	(4) OLS-Actual
Distance	-0.09060**	-0.06621**	-0.07611**	-0.06233*
	(0.03508)	(0.02989)	(0.03489)	(0.03581)
Sh. of Armenian pop. in 1881			0.01282	
			(0.07680)	
Interaction Term of Share Armenian in 1881 and Distance to Mission			0.00192	
			(0.00127)	
Sh. of Armenian pop. in 1914				0.18461
				(0.11395)
Interaction Term of Share Armenian in 1914 and Distance to Mission				0.00123
				(0.00213)
Province FE	YES	YES	YES	YES
Geo and Hist Controls	NO	YES	YES	YES
Obs	829	829	829	829
R-Squared	0.622	0.708	0.709	0.713
Number of Clusters	77	77	77	77
Mean of Outcome	22.81	22.81	22.81	22.81

Notes: All columns use data from TURKSTAT 1927 Census of Agriculture. The explanatory variable is the distance to the nearest ABCFM mission in km in all columns. The outcome of interest is the the population density in 1927 in all columns. Columns 1-4 report the OLS estimates. All regressions include geographic and historical controls. Geographic controls are ruggedness,longitude, latitude, annual mean temperature, annual mean precipitation, elevation, frost-free period, suitability indexes for wheat, barley, oat, cotton, and olive, distance to Constantinople, distance to shore, length of primary and secondary rivers per surface area (km2) in 2010, distance to the nearest custom gate. Historical controls are whether the district is within the Seljuk Sultanate and whether it is within one and half travel distance to 19^{th} century major ports. Province FE includes province dummies. Mean of outcome presents the sample mean of the outcome variable. Standard errors are clustered at the province level. Number of clusters indicate the total number of provinces in the standard error adjustments. ***p<0.01, **p<0.05, *p<0.1

F Spatial Correlation Simulations

Table F.9: Simulation Results

		Explanatory Noise					Dependent Noise			
Correlation Range (km)	Mean z-value of Moran's I	Outperforming Share	p=0.05	p=0.01	p=0.001	p=0.0001	p=0.05	p=0.01	p=0.001	p=0.0001
25	15.14	0.00	0.04	0.01	0.00	0.00	0.08	0.02	0.00	0.00
50	26.25	0.00	0.05	0.01	0.00	0.00	0.08	0.03	0.01	0.00
75	31.56	0.00	0.07	0.01	0.00	0.00	0.14	0.05	0.01	0.00
100	34.79	0.00	0.07	0.02	0.00	0.00	0.12	0.05	0.02	0.00
125	36.78	0.00	0.06	0.02	0.00	0.00	0.14	0.05	0.01	0.00
150	38.10	0.00	0.06	0.01	0.00	0.00	0.13	0.04	0.01	0.01
175	39.23	0.00	0.06	0.02	0.00	0.00	0.13	0.05	0.01	0.01
200	39.89	0.00	0.08	0.02	0.01	0.01	0.15	0.06	0.02	0.01
225	40.54	0.00	0.06	0.02	0.00	0.00	0.13	0.04	0.02	0.00
250	40.84	0.00	0.07	0.03	0.00	0.00	0.11	0.05	0.01	0.01
275	41.40	0.00	0.06	0.02	0.00	0.00	0.14	0.05	0.02	0.01
300	41.57	0.00	0.08	0.02	0.00	0.00	0.13	0.06	0.02	0.01
325	41.98	0.00	0.07	0.02	0.01	0.01	0.15	0.05	0.02	0.00
350	42.07	0.00	0.06	0.02	0.00	0.00	0.15	0.07	0.02	0.01
375	42.38	0.00	0.08	0.02	0.01	0.01	0.14	0.05	0.02	0.00
400	42.58	0.00	0.07	0.02	0.00	0.00	0.15	0.06	0.01	0.00
425	42.63	0.00	0.07	0.02	0.00	0.00	0.15	0.06	0.01	0.01
450	42.87	0.00	0.08	0.02	0.00	0.00	0.15	0.06	0.01	0.00
475	42.81	0.00	0.07	0.02	0.00	0.00	0.15	0.07	0.01	0.01
500	42.89	0.00	0.08	0.02	0.00	0.00	0.17	0.06	0.02	0.01

Notes: We generate 1000 times spatial noise for each correlation range in kilometers. We regress log of GDP per capita on spatial noise and report the results under the column of explanatory noise and spatial noise on distance to the nearest ABCFM mission and report the results under the column of dependent noise. Outperforming share presents the share of regressions where the spatial noise used as the explanatory variable outperforms our original explanatory variable, distance to nearest ABCFM mission.