Measuring Soft Power: Missionaries and U.S. Knowledge of the Non-Western World*

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Abstract

Soft power was a central pillar of American hegemony in the twentieth century. This paper quantifies one key input: the production of credible knowledge about foreign societies. Using bibliometric data linked to Wikipedia biographies, I measure U.S. area studies output on non-Western societies on the eve of the American century. The United States overtook the United Kingdom in publications on non-Western societies beginning in the 1920s, with the U.S. lead concentrated in subfields where missionaries had published before 1940. Relative to colonial administrators and other foreign experts, missionaries were more likely to engage sympathetically with local populations and build alliances with non-Western peoples, suggesting that the U.S. knowledge advantage was not only larger in volume but also different in character, producing expertise more suited to postwar coalition-building than that generated under European imperial frameworks. Missionary-linked Americans were disproportionately likely to appear in wartime intelligence, government, policy, and alliance-building roles tied to non-Western regional expertise. Drawing on Student Volunteer Movement archives, I compare missionaries with applicants who sought service abroad but did not ultimately go. The results support a causal interpretation: missionary experience increased publication on foreign subjects and the probability of appearing in regional expert rosters during WWII. Together, the findings show that knowledge about non-Western societies was a strategic asset in the rise of U.S. global leadership, and that Protestant missions were one institution through which the United States built this soft-power capacity.

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1 Introduction

A distinctive feature of American hegemony has been its reliance on what Nye (2004) calls soft power, the ability to influence other countries through attraction rather than coercion. Measures of national power usually focus on hard capabilities: industrial output, military force, patents, and scientific publications (Furman et al., 2002; Gross and Sampat, 2023; Qiu et al., 2025; Shvadron et al., 2025), yet soft power remained an elusive concept for many social scientists. This paper studies one crucial input into soft power: a nation's capacity to understand foreign cultures. A country that seeks to lead abroad needs not just inventors and soldiers but interpreters of distant societies, people who know the languages, histories, and institutions of the regions where influence must be exercised.

This paper documents that Protestant foreign missions were one institution through which the United States accumulated this soft-power input. By the early twentieth century, the missionary movement had shifted away from narrowly evangelical goals and toward education, medicine, public health, and social service (Hollinger, 2018). That shift mattered for knowledge production. Missionaries learned local languages, collected information, wrote for American audiences, built schools and hospitals, and maintained ties to local communities. Many later became scholars, journalists, and public intellectuals; others became trusted sources for government agencies when the United States suddenly needed expertise on non-European regions during World War II and after (Brown, 1907; Gallagher, 1946; Hocking, 1932; Hollinger, 2018; Reed, 1983; Sutton, 2019). Henry Luce, the son of a missionary in China, later founded *Time*, *Life*, and *Fortune*. In his 1941 essay "The American Century," he made the case against isolationism and urged the United States to embrace an active leadership role in world affairs, a vision that has remained a central reference point in debates over American foreign policy (Nye, 2015).

A growing literature shows that the geographic location of researchers shapes not just how much knowledge is produced but what gets studied, with consequences for policy and economic outcomes (Einiö et al., 2019; Fry, 2023; Moscona and Sastry, 2025; Nagaraj and Yao, 2026). I apply that insight to a geopolitical question.

How did missionaries contribute to American soft power and foreign policy in the mid-twentieth century? The comparison with Britain is central to the paper's argument. Britain entered the twentieth century as the premier global empire, with the most extensive network of colonial officers, district administrators, and metropolitan institutions (the India Office, the Colonial Office, the Royal Geographical Society) dedicated to interpreting non-European societies. The United States, by contrast, possessed no colonial bureaucracy of comparable

scope covering Asia, Africa, or the Middle East. If soft power depends partly on the capacity to understand societies outside Europe, then the transition from a British-led to an American-led world order should show up not only in factories, ships, patents, and laboratories, but also in who produced authoritative knowledge about Asia, Africa, the Middle East, Latin America, and the Pacific.

Both countries had vigorous missionary movements, and British missionaries had their own rich intellectual tradition, including a deep connection to the abolitionist cause and to ethnographic scholarship rooted in colonial encounters. Yet the two missionary traditions operated in fundamentally different institutional environments. British missionaries were embedded within an imperial system that already furnished multiple channels for acquiring non-Western expertise: colonial administration, military intelligence, and the dense infrastructure of imperial governance all provided alternative routes into regional knowledge. The missionary pathway was one among several, and its distinctive contribution was correspondingly diluted. In the United States, no such alternative infrastructure existed. American missionaries and their children were often the only Americans with sustained, first-hand experience of non-Western societies, and their knowledge was channeled directly back toward the home-country audience, into universities, government agencies, journalism, and public discourse.

This structural asymmetry had consequences for foreign policy. Because American missionaries tended to form relationships of partnership and advocacy with the communities they served rather than relationships of administrative authority, the knowledge they brought home carried a different orientation than the expertise generated by colonial rule. When the wave of decolonization after World War II forced the United States to build relationships with newly independent nations across Asia, Africa, and the Middle East, missionary-connected interpreters were positioned to broker those relationships in ways that European empires, still operating within colonial frameworks even as those frameworks collapsed, were not. The result was that missionary networks gave the United States not only a larger stock of area-studies knowledge, but a stock whose character was better adapted to the post-colonial international order.

To investigate the missionary roots of American foreign policy elites, this paper has three analyses. First, I provide a direct measure of area studies knowledge as a component of national power. Using OpenAlex publications linked to Wikipedia biographies, I show that the United States overtook Britain in publications on non-Western societies beginning in the 1920s and widened that lead thereafter, well before the post-1945 consolidation of American hegemony. Decomposing this gap by field reveals that the American advantage was concen-

trated in applied, institutionally intensive disciplines tied to the postwar expansion of research universities and federal funding, including, notably, development economics, the field most directly concerned with the economic transformation of the non-Western world. The United Kingdom, by contrast, maintained or expanded its relative position in traditional academic disciplines with deep roots in imperial knowledge networks, such as theology, botany, and classical studies. This pattern suggests that the two countries' knowledge-production advantages reflected fundamentally different institutional foundations.

Second, I show that the divergence was especially pronounced in subfields where American missionaries were active before 1940, consistent with missions helping to seed the U.S. knowledge infrastructure on non-Western regions. Working at the level of 2,236 OpenAlex subfields and exploiting within-subfield variation in a panel framework, I find that the post-1940 American advantage in missionary-linked subfields was roughly sixteen times larger than in non-missionary subfields for publication counts, with comparably large effects on citations and conceptual breadth. Crucially, I distinguish two channels through which American knowledge production could have developed: missionary networks and inherited British imperial scholarship. The missionary coefficient remains large and stable when prior British scholarly presence is controlled for, roughly four to five times the magnitude of the British channel, and the two are at least marginally statistically distinguishable. This suggests that what matters is not just the quantity of knowledge a nation produces, but its geographic direction, who studies whom, and why, and that religiously rooted human capital networks constituted a mechanism distinct from the absorption of prior imperial expertise.

Third, I trace the mechanism at the individual level and their policy impact (Yin et al., 2022). Using approximately 134,000 Wikipedia biographies classified by a large language model, I show that American missionaries and their children were significantly more likely than their British counterparts to occupy home-country-facing positions of influence, wartime intelligence roles, government service tied to non-Western expertise, knowledge-broker roles connecting area knowledge to policymakers and publics. By contrast, I find no consistent American missionary advantage in host-country-embedded roles such as colonial administration. This asymmetry reflects the structural difference outlined above: Britain's imperial system already possessed dense institutional infrastructure for interpreting the non-Western world, making the missionary pathway one among several; the United States had no comparable bureaucracy, so missionary backgrounds often constituted the primary, sometimes the only, credential connecting individuals to deep knowledge of non-Western societies.

To move from association to causation, I turn to the records of the Student Volunteer Movement (SVM), the largest Protestant missionary organization of the era. The SVM

data allow a cleaner identification strategy because the control group comprises individuals who also volunteered for missionary service and completed application materials but did not ultimately go abroad, often due to organizational frictions such as lost contact with applicants, budget constraints, the emergence of alternative career paths, or idiosyncratic factors including parental opposition and health concerns rather than lack of commitment or cosmopolitan interest. Matching these records to census data and applying entropy balancing to address remaining covariate imbalances, I find that missionary experience increased the probability of publishing on foreign subjects by 2.4 to 3 percentage points relative to a control-group baseline of 0.7 percent, a three- to fourfold increase. Missionaries were also more likely to write graduate dissertations about foreign countries, but I find no effect on dissertations about other topics or on the overall probability of becoming an author. This pattern suggests that missions did not simply sort already cosmopolitan people into visible careers, nor did they generally boost human capital; they specifically created regional specialists whose knowledge was directed toward the non-Western world.

Related literature The first contribution extends work on national capabilities and geopolitical leadership, which has largely relied on science and patent indicators to measure national power (Furman et al., 2002; Gross and Sampat, 2023; Qiu et al., 2025; Shvadron et al., 2025). Nye (2004) emphasizes attraction, legitimacy, and cultural influence as components of soft power, but offers no systematic measure of the upstream inputs that generate such influence. I focus on one such input: a nation's capacity to produce knowledge about foreign societies. This is related to, but distinct from, national innovative capacity measured through science and technology. Scientific power helps countries invent. Area studies knowledge helps them navigate, persuade, and lead.

The second contribution speaks to research on the geography of knowledge production. A growing literature examines how the location of researchers shapes the direction, not just the quantity, of what is studied, with implications for policy and economic outcomes (Einiö et al., 2019; Fry, 2023; Moscona and Sastry, 2025; Nagaraj and Yao, 2026). I show that a specific historical institution—Protestant missions—durably shifted the geographic orientation of American scholarship toward regions where missionaries had been present.

The third contribution provides quantitative evidence for a long-standing historical claim that missions helped create outward-looking American elites (Gallagher, 1946; Hollinger, 2018). This also relates to broader work on how knowledge production in the social sciences feeds into policymaking and public discourse (Agarwal and Sen, 2022; Ananthakrishnan et al., 2025; Ash et al., 2026; Hjort et al., 2021).

2 Data

Knowledge stock on non-Western societies The main cross-country outcome is publication about non-Western societies. I use OpenAlex, which provides broad coverage of historical books and journal publications (Priem et al., 2022). I begin with a list of sovereign states and historically common place names around 1900, then identify publications whose titles mention those places. The goal is not to capture every foreign publication, but to measure a comparable stock of work explicitly devoted to non-Western societies. I aggregate these publications into subfield-by-country-by-year cells and examine counts of publications, citations, and OpenAlex concept tags.

To attribute this knowledge stock to Americans and Britons, I link OpenAlex authors to Wikipedia biographies from Laouenan et al. (2022). The biography data let me identify people active in the United States or the United Kingdom, including immigrants and missionary children whose public careers were centered in those countries. Record linkage follows the historical matching logic in Abramitzky et al. (2021), with implausible age matches dropped.

In addition to OpanAlex data, I also use ProQuest dissertations, the Smithsonian Ethnogeographic Board roster, and the Office of Strategic Services roster. The Smithsonian roster is especially useful because it was explicitly assembled to identify people with regional knowledge that could be mobilized during World War II (Bennett, 1947).

Biographical data on expertise and influence I build on Laouenan et al. (2022) and scrape the full text of available Wikipedia biographies. I then use structured large language model coding to create a broad set of measures of public influence, designed to capture how individuals (including both missionaries and non-missionaries) translated foreign experience into broader societal impact. These measures record explicit evidence of wartime intelligence related to a non-Western region, government service tied to regional expertise, policy influence, alliance-building with non-Western populations, language-based mediation, and advocacy of racial equality or anti-colonial positions. Taken together, they capture secular pathways through which biographical experience shaped public knowledge, preferences, and policy toward non-Western societies, rather than religious activity alone. Appendix A.1 describes the coding rules.

Individual missionary records To supplement Wikipedia biographies, I digitize archival records of the Student Volunteer Movement, the largest American missionary mobilization effort of the era. I digitize records housed at the Yale Divinity Library that list volunteers,

missionaries, denominations, addresses, birth years, and destination countries. The final data include 12,265 missionaries and 24,841 volunteers who applied but did not eventually serve abroad. These runner-up applicants provide a much more credible counterfactual than the general population. I match these invidiuals to US individual census in 1900 and 1910 using Abramitzky et al. (2021)'s algorithm. Baek (2025) explains more detail on the data contstruction process.

3 Historical background and mechanism

Why might missionary work have generated an American advantage in knowledge about non-Western societies? The answer is not simply that missionaries traveled abroad. It is that missions created a durable pipeline from overseas immersion to domestic authority.

During the late nineteenth and early twentieth centuries, the typical Protestant missionary became less likely to be a pastor narrowly focused on conversion and more likely to be a teacher, physician, nurse, social worker, or agricultural specialist. That occupational shift reflected experience on the ground. Missionaries found that schools, hospitals, literacy programs, and technical training often opened doors that direct evangelism could not. A joint report by several denominations involved in this movement reveals that many missionaries began shifting their focus from religious conversion to educational and social welfare efforts (Hocking, 1932). The result was an institutional setting that rewarded observation, language acquisition, and practical understanding of local society (Brown, 1907; Ramsey, 1988). Historical records show that exposure to diverse races and religions often led missionaries to gain a deeper understanding and respect for foreign cultures (Brown, 1907; Gallagher, 1946; Hollinger, 2018; **?**).

As these priorities evolved, many missionaries engaged deeply with local development challenges, moving beyond their original religious goals. Some pursued advanced studies in fields related to these issues, further broadening their expertise. For instance, John Lossing Buck, an agricultural missionary in China, wrote a dissertation on the Chinese rural economy and went on to work as an agricultural economist for the UN Food and Agriculture Organization. These missionaries produced scholarly works on a wide range of topics including agricultural development, nursing practices, medicine, psychology, geography, international relations, and the histories of their host countries.

This experience generated knowledge that was portable back to the United States. Missionaries wrote books and articles, gave public lectures, advised universities, and shaped the worldviews of students and churchgoers. The mechanism was the creation of a thick intermediary class: people who could explain non-Western societies to Americans and explain

Americans to non-Western audiences. Several prominent cases illustrate the breadth of this influence.

Perhaps the most striking example is Henry Luce, the son of a Presbyterian missionary in Shandong, China. Born in Tengchow and raised in China until the age of fifteen, Luce grew up fluent in Chinese and immersed in Chinese society. He went on to found *Time*, *Life*, *Fortune*, and *Sports Illustrated*, building the first American multimedia corporation and becoming what biographers have called "the most influential private citizen in the America of his day." Luce's childhood in China did not merely provide biographical color; it supplied the worldview that animated his editorial career. In 1941 he authored an editorial in *Life* titled "The American Century," articulating a vision of United States global leadership that shaped the terms of postwar foreign policy debate. Crucially, Luce leveraged his media empire to steer American foreign policy and popular sentiment in favor of Chiang Kai-shek's Kuomintang government in its war against Japan. As an instrumental figure behind the so-called "China Lobby," Luce placed Chiang and his wife Soong Mei-ling on the cover of *Time* eleven times between 1927 and 1955, making the case for American intervention in Asia to millions of readers who had little other exposure to the region.

Pearl Buck, daughter of Presbyterian missionaries in China, became the first American woman to win the Nobel Prize in Literature, recognized for her vivid portrayals of peasant life in China. Her novels, above all *The Good Earth*, introduced millions of Americans to a sympathetic and detailed picture of Chinese rural society. Buck was also a prominent activist for the rights of women and racial equality, channeling her cross-cultural upbringing into domestic reform advocacy.

Walter Judd served as a medical missionary in China before entering the U.S. Congress. His decade of medical practice in China gave him firsthand knowledge of Japanese militarism. Between 1938 and 1940, he delivered 1,400 speeches across 46 states warning of the growing threat from Japan and the dangers of an isolationist foreign policy. In Congress, Judd supported liberal internationalist programs including the Truman Doctrine, the Marshall Plan, and NATO, and called for the removal of ethnic and racial restrictions in U.S. immigration laws. His legislative career illustrates how missionary experience could translate directly into foreign policy expertise and political authority.

Edwin Reischauer, born in Tokyo to Presbyterian educational missionaries, grew up fluent in Japanese and deeply familiar with Japanese culture. As early as 1940, anticipating war with Japan, Reischauer wrote a memo to the U.S. Navy warning that almost no Americans could read Japanese military documents and proposing a Japanese language training program. The proposal led to the creation of the U.S. Navy Japanese Language School, and

during the war Reischauer ran a classified language course for the Army Signal Corps at Arlington Hall. After the war, he became the foremost American scholar of Japan at Harvard, co-developing the foundational curriculum in East Asian studies. When President Kennedy appointed him U.S. Ambassador to Japan in 1961, at a time when U.S.–Japan relations were at a low point following the massive 1960 security treaty protests, Reischauer made "equal partnership" the watchword of his ambassadorship, pushing for more equal treatment of Japan and working to repair the diplomatic rift (Packard, 2010).

The mechanism became especially important during and after World War II. The United States entered the war with limited state capacity for understanding much of Asia and the Pacific. Before the Japanese attack on Pearl Harbor, the U.S. government had underestimated Japan's military capabilities and the likelihood of war. Stanley Hornbeck, a special adviser to the Secretary of State, believed as late as November 1941 that Japan would back down in response to a U.S. trade embargo (Wohlstetter, 1962, pp. 264–65). General Douglas MacArthur even suggested that the pilots involved in the attack must have been white mercenaries, doubting Japan's ability to execute such an operation (Andrew, 2018, p. 636). In contrast, those with missionary connections recognized the growing threat. Ernest Price, a former missionary in China and political scientist, had warned of conflict after observing Japan's puppet state in China (Price, 1935). Judd was crisscrossing the country sounding the alarm. Reischauer was urging the Navy to invest in Japanese language training.

When the need arose for better understanding of the Asia-Pacific region, it required expertise in areas ranging from the Communist Party of India to guerrilla operations in the Philippines, from trade routes in the Congo basin to rival cliques in the Japanese Army (**?**). Very few Americans possessed such knowledge. When the U.S. government assembled individuals with actual regional expertise, many were missionaries or their children, and they assumed key positions in intelligence agencies and the State Department (Hollinger, 2018; Packard, 2010; **?**).

The wartime intelligence community offers particularly vivid examples. William Eddy, the son of Presbyterian missionaries in Lebanon, grew up speaking Arabic and went on to serve as U.S. Minister to Saudi Arabia and a key figure in the formation of the CIA. Kenneth Landon, a missionary in Thailand for a decade, joined the Office of Strategic Services (OSS) and became the State Department's specialist on Thailand and later served on the National Security Council's Operations Coordinating Board (Hollinger, 2018). Ernest Price, the son of Baptist missionaries in Burma, spent over twenty years in China as a diplomat and became one of America's foremost authorities on Chinese politics, warning early of Japanese military expansion (Price, 1935). Edwin Wright, born in Tabriz to missionary parents and fluent in

Persian, was recruited into U.S. intelligence during the war and served the State Department as a Middle East specialist from 1945 to 1955.

These cases were not isolated. John Fairbank, the most prominent American historian of China, extensively relied on missionary networks during his research in China and later while working for the OSS (Fairbank, 1983). Hollinger (2018, p. 233) notes that academics who had been missionaries or were raised as missionary children were among the leading authorities on non-Western countries until the mid-1960s. Missionaries and their children therefore became valuable not because they were merely religious actors, but because they were among the few Americans with sustained regional knowledge and language skills (Gao and Osburn Jr, 2016; Packard, 2010; Sutton, 2019). Decolonization then expanded the strategic importance of that expertise. In that setting, area studies knowledge functioned as a strategic asset.

4 The U.S.-U.K. knowledge gap

I begin with the aggregate pattern. Figure 1 plots annual publication counts on non-Western societies produced by people linked to the United States and the United Kingdom. The United Kingdom starts from a strong position, but the United States begins to pull ahead around the 1920s, well before the post-1945 consolidation of American leadership. This timing matters. It suggests that the knowledge infrastructure underlying American global influence was developing before the formal arrival of the postwar order.

To understand which domains of knowledge drive the aggregate pattern documented in Figure 1, I disaggregate publications by field and compute the US–UK gap separately for the pre-1940 and post-1940 periods. For each field f, I sum the number of publications linked to US- and UK-born individuals in each period and take the difference. The difference-in-differences,

$$\Delta_f = \underbrace{\left(\text{Gap}_f^{\text{post-1940}}\right)}_{\text{US–UK gap after 1940}} - \underbrace{\left(\text{Gap}_f^{\text{pre-1940}}\right)}_{\text{US–UK gap before 1940}},$$

captures the extent to which the US pulled ahead of—or fell behind—the UK in field f across the two periods.

Table 1 reports the twenty fields with the largest positive Δ_f (Panel A) and the twenty fields with the largest negative Δ_f (Panel B). Several patterns emerge from this decomposition.

First, the fields where the US gained the most ground—library science, folklore, archaeology, economics, ecology, forestry, genetics, neuroscience—are areas closely tied to the postwar expansion of American research universities and federal funding. Many are applied or insti-

tutionally intensive disciplines that benefited from the growth of the land-grant system, the NIH, the NSF, and Cold War–era science policy.

Second, and most striking for the purposes of this paper, development economics appears among the top twenty fields where the US pulled ahead. This is the field most directly concerned with the economic transformation of the non-Western world. Its rise as a distinctly American enterprise after 1940 was inseparable from the broader project of modernization theory and U.S. foreign aid. That development economics ranks among the fields with the largest positive Δ_f suggests that the growth of American knowledge production about the non-Western world was not merely a byproduct of general scientific expansion, but was concentrated in domains with direct relevance to American geopolitical ambitions.

Third, the fields where the UK maintained or expanded its relative position tell an equally revealing story. Theology, religion studies, botany, classical studies, and meteorology—traditional academic disciplines with deep roots in the British university system and its imperial knowledge networks—populate Panel B. Theology and religion studies are particularly noteworthy: these are precisely the fields where one might expect the legacy of missionary networks to sustain British scholarly output. The fact that the UK gained relative ground in these areas, even as American scientific and social-scientific dominance surged elsewhere, suggests that the two countries' knowledge-production advantages reflected different institutional foundations—postwar federal science policy in the American case, and older religious and imperial networks in the British case.

Missionary and British channels. The aggregate gap, however, does not tell us *how* American knowledge production about non-Western societies developed. This paper's central argument is that missionary networks served as an important channel—but they were not the only one. British scholarship on the non-Western world, accumulated over more than a century of imperial engagement, constituted a vast stock of knowledge that American researchers could draw upon, learn from, and eventually build on. Disentangling these two channels—the missionary channel and the British-knowledge channel—is essential for identifying the distinctive contribution of religious networks to American soft power.

Table 2 provides a first look at this distinction. Panel A ranks fields by the total number of publications linked to missionaries (self or parent); Panel B ranks fields by the number of publications linked to UK-born individuals. The overlap between the two panels is substantial but far from complete. Ancient history, archaeology, library science, and law rank highly on both lists, reflecting the fact that these fields attracted both missionary-connected Americans and British imperial scholars. Theology, religious studies, and linguistics, by contrast,

rank much higher on the missionary list than on the British list—these are domains where missionary networks provided a distinctive American advantage rather than one inherited from British precedent.

Equally revealing is the composition of Panel B. Development economics ranks 13th among the most British-heavy fields, with 128 of 319 total publications linked to UK-born individuals. This is notable given that development economics also appears in Panel A of Table 1 as a field where the US pulled ahead after 1940. The juxtaposition suggests that American ascendancy in development economics was not built from scratch; rather, the US overtook a field in which the British had a substantial early presence. Understanding whether this overtaking was facilitated by missionary networks, by the absorption of British knowledge, or by the independent growth of American institutions is precisely the identification challenge that motivates the regression analysis below.

More broadly, the fields that are heavily British but *not* heavily missionary—ecology, zoology, botany, anthropology, ethnology—represent domains of imperial science where knowledge production was driven by colonial administration and natural history rather than by religious networks. These fields serve as a useful contrast group: if missionary exposure has an independent effect on American knowledge production beyond what can be explained by the availability of prior British scholarship, the effect should be concentrated in missionary-heavy fields rather than in these imperially oriented disciplines.

This descriptive decomposition motivates the empirical strategy that follows. In the regression analysis, I exploit cross-field variation in pre-1940 missionary presence while controlling for the stock of prior British scholarship to isolate the distinctive contribution of missionary networks to the growth of American knowledge production about non-Western societies.

Investigating the US–UK gap. The descriptive tables above operate at the level of broad fields—"theology," "economics," "ecology"—of which there are 226 in the data. I now move to a finer level of resolution. OpenAlex organizes scholarly knowledge into a hierarchy of concepts, fields, and subfields, assigned algorithmically to each publication using natural language processing.[1] Working at the subfield level—2,236 distinct subfields in my sample—allows me to exploit much finer variation in where missionaries and British scholars were active, while the fixed-effect structure absorbs the broader field-level patterns already documented. To take one example, the field "economics" appeared as a single row in Table 1; at the subfield level it decomposes into dozens of distinct research areas—development

[1] OpenAlex uses a machine-learning classifier trained on publication text to assign works to a multi-level taxonomy of roughly 65,000 concepts, 4,500 subfields, and 250 fields. See https://docs.openalex.org/api-entities/topics for details on the classification algorithm.

economics, agricultural economics, public finance, and so on—each with potentially different missionary and British footprints.

Table 3 formalizes these patterns using subfield-by-country-by-year panel regressions. I estimate

$$\begin{aligned} Y_{fct} = {} & \gamma_M \big(US_c \times Post_t \times Mission_f\big) \\ & + \gamma_B \big(US_c \times Post_t \times British_f\big) \\ & + \beta \big(US_c \times Post_t\big) + d_{fc} + d_{ft} + \varepsilon_{fct} \end{aligned} \tag{1}$$

where f indexes subfields, $c \in \{US, UK\}$, and t indexes publication years. $Mission_f$ equals one for subfields in which missionaries were publishing before 1940; $British_f$ equals one for subfields with early British scholarly activity. Subfield-by-country fixed effects d_{fc} absorb time-invariant level differences between the two countries within each subfield, and subfield-by-year fixed effects d_{ft} absorb global trends common to both countries in each period. Standard errors are clustered by subfield (2,236 clusters).

The key coefficient is β, the baseline $US \times Post$ interaction, which captures the average post-1940 American advantage relative to Britain within narrowly defined subfields—net of any permanent country-subfield differences and any global time trends. The odd-numbered columns of Table 3 report specifications that include only the missionary triple interaction; the even-numbered columns add the British triple interaction to separate the two channels.

Consider first the publication count results in columns (1)–(2). The baseline estimate of $\beta = 0.04$ in column (1) implies that, in a typical subfield, American-linked publication counts exceeded British counts by 0.04 more per year after 1940 than before—a modest but precisely estimated shift. The triple interaction $\gamma_M = 0.64$, however, dwarfs this baseline: in subfields where missionaries had been active before 1940, the post-1940 American advantage was roughly sixteen times larger than in non-missionary subfields. When British early presence is added in column (2), the missionary coefficient remains large at 0.58, while the British interaction enters at 0.13. Missionary-linked subfields thus experienced a post-1940 American surge roughly four to five times as large as subfields that were merely British-heavy.

The citation results in columns (3)–(4) tell a consistent story. The baseline American advantage in citations is 0.59 additional citations per subfield-year after 1940. The missionary interaction adds another 5.23 citations, suggesting that missionary-connected subfields saw not only more American publications but also more impactful ones. When the British channel is included in column (4), the missionary coefficient barely moves (from 5.23 to 5.00), while the British interaction is small (0.46) and statistically insignificant. This is an important finding: the citation premium in missionary-linked subfields cannot be attributed

to Americans simply building on fields that the British had already developed into high-impact areas.

The concept count results in columns (5)–(6) reinforce this conclusion. Concept counts proxy for the breadth of intellectual engagement: a publication that spans more OpenAlex concepts is engaging with a wider range of ideas. The missionary interaction is large and significant in both specifications (5.31 and 4.81), indicating that the post-1940 American expansion in missionary-linked subfields was not only larger in volume and impact but also broader in intellectual scope. The British interaction, while significant in column (6) at 1.01, is again substantially smaller.

Two features of these results deserve emphasis. First, the missionary coefficients are remarkably stable across specifications. Adding the British channel in the even-numbered columns reduces γ_M only modestly—from 0.64 to 0.58 for publications, from 5.23 to 5.00 for citations, from 5.31 to 4.81 for concepts. This stability suggests that missionary exposure is not simply proxying for prior British scholarly infrastructure. The two channels appear to capture genuinely distinct mechanisms: inherited imperial knowledge on the one hand, and religiously rooted human capital networks on the other.

Second, the equality tests reported at the bottom of Table 3 provide formal evidence that the missionary and British channels differ in magnitude. The p-values for the test $\gamma_M = \gamma_B$ are 0.055 for publications, 0.124 for citations, and 0.087 for concepts. While not uniformly below conventional thresholds, these tests consistently point in the same direction: the missionary channel is economically larger and, for publications and concepts, at least marginally statistically distinguishable from the British channel.

Taken together, these results indicate that the post-1940 divergence in American and British knowledge production about non-Western societies was not uniform across the knowledge landscape. It was concentrated in subfields where American missionaries had established an early presence—and this concentration cannot be fully explained by the prior accumulation of British expertise in the same areas.

5 Missionaries, public authority, and the American state

Aggregate publication counts establish that the United States built a larger stock of knowledge on non-Western societies. The next question is whether missionary backgrounds translated into positions where that knowledge mattered. To investigate this, I turn to individual-level data drawn from Wikipedia biographies of people born between 1881 and 1930 who were active in the United States or the United Kingdom (approximately 134,000 individuals),

of whom roughly 900 are missionaries or their children. I estimate

$$y_i = \beta(US_i \times Mission_i) + X_i'\gamma + \varepsilon_i \tag{2}$$

The outcome y_i is a set of binary indicators extracted from each individual's Wikipedia biography using a large language model with a structured classification prompt (details in Appendix A.1).

Each indicator equals one hundred only when the biography explicitly describes a secular pathway of influence regarding non-Western peoples or societies, and zero otherwise. The variables are organized along two axes. The first axis captures the *directionality* of influence: `home_country_facing` equals one when the individual shaped his or her own country's government, diplomacy, or public opinion regarding a non-Western society; `host_country_embedded` equals one when the individual exercised influence from within the institutions of a non-Western territory, colony, or occupation authority. The second axis captures the *mechanism* of influence, distinguishing administrative or bureaucratic service, discursive opinion-shaping through writing or public speech, institutional entrepreneurship, and cultural mediation with public or policy consequences. Additional channel variables record whether the individual served in wartime intelligence, acted as a knowledge broker between a non-Western society and domestic policy audiences, or engaged in advocacy on behalf of non-Western peoples. The prompt enforced a strict non-inference rule: missionary service, missionary family background, language knowledge, or residence abroad alone were never sufficient for a positive classification.

Table 4 distinguishes two directions of influence: Panel A covers home-country-facing outcomes, where individuals shaped their own government, public opinion, or policy regarding non-Western societies; Panel B covers host-country-embedded outcomes, where individuals exercised influence from within the institutions of a non-Western territory or colonial administration.

Panel A shows that American missionaries and their children were significantly more likely than their British counterparts to appear in wartime intelligence roles, government service tied to non-Western expertise, alliance-building, knowledge-broker roles, and discursive opinion-shaping directed at home-country audiences. The estimated interaction coefficients range from roughly 1.6 to 3.6 percentage points above a baseline mean of well under one percent, implying that missionary Americans were several times more likely than comparable British missionaries to occupy these home-country-facing positions. By contrast, Panel B reveals no consistent advantage for American missionaries in host-country-embedded roles. The main effect for American individuals is negative across nearly all Panel B outcomes,

reflecting the structural fact that Americans had fewer opportunities for embedded colonial administration in non-Western settings. The *Mission* main effect in Panel B is positive and significant for discursive opinion-shaping, institutional entrepreneurship, and advocacy for non-Western peoples, indicating that missionaries on both sides of the Atlantic who remained embedded in the host country shared a similar orientation toward advocacy and institution-building—what differed was the channel through which their influence ultimately flowed.

Case studies. This asymmetry fits the broader historical record available in the sample of Wikipedia biographies. British missionaries operated within an imperial system that already possessed dense institutional infrastructure for interpreting the non-Western world: colonial officers, district administrators, and the India Office all provided alternative channels of expertise.

A missionary family background could produce a career in colonial administration, as in the case of Denis Bray, born to missionary parents and later a senior officer in Hong Kong, or host-country advocacy, as with Robert Philp, who drew on his missionary upbringing in Kenya to serve as interpreter at the trial of Jomo Kenyatta and as mediator between Kikuyu communities and British authorities during the Mau Mau insurgency. William Miller Macmillan, raised in a missionary household in South Africa, became a member of the Colonial Office Advisory Committee on Education and director of Empire Intelligence for the BBC, roles embedded within existing British metropolitan institutions rather than distinctively shaped by the missionary channel itself. Edward John Thompson, the son of a Wesleyan missionary and himself a Methodist minister in Bengal, wrote widely read books advocating Indian dominion status and cultivated close personal friendships with Gandhi and Nehru; yet his secular influence, while real, flowed through independent academic and literary credentials that the missionary background reinforced rather than uniquely enabled.

For these British figures, the missionary pathway was one among several routes into non-Western expertise, and the colonial empire itself furnished the primary infrastructure of knowledge and policy authority.

American missionaries faced a different institutional landscape. The United States had no colonial bureaucracy of comparable scope covering Asia or Africa, no India Office, and no career track for expertise on China or Korea that ran through a standing imperial administration. In this setting, missionary and missionary-family backgrounds often constituted the primary, sometimes the only, institutional credential connecting individuals to deep knowl-

edge of non-Western societies, and the resulting influence was channeled directly back toward the American home-country audience.

Pearl S. Buck, raised in China by missionary parents, returned to the United States to become the most widely read American interpreter of Chinese society, founding the first international interracial adoption agency and shaping public preferences regarding Asia through her novels, advocacy, and institutional entrepreneurship. Her missionary-family credential was, as the biographical classifier confirms, the primary enabling source of her expertise and access. John S. Service, born in Chengdu to missionary parents and raised in China, brought that background into the Foreign Service and wrote the State Department reports on the Chinese Communist movement that became the central documents in the post-war debate over "who lost China."

A. Doak Barnett, son of a YMCA missionary in China, testified before Congress on China policy, lobbied successive administrations against China's isolation, and served as program director for the Ford Foundation in Hong Kong, functioning throughout as the paradigmatic knowledge broker transmitting missionary-country experience to American policymakers and publics. Francis Wilson Price, born in China to missionary parents, was selected by the Nationalist government specifically to travel to the United States and promote American public support for China, a role intelligible only because missionary-family background had made him a trusted and recognized interpreter. Eugene Dooman, born in Osaka to missionary parents, joined the State Department and eventually drafted portions of the Potsdam Proclamation, while Sherwood F. Moran, a missionary himself, authored the 1943 Marine Corps memorandum on Japanese prisoner interrogation that became standard intelligence doctrine.

Across these cases, the pattern is consistent: the absence of alternative institutional channels meant that American missionary backgrounds were more likely to become the primary credential, and the home-country-facing character of the resulting influence reflects the structural demand for interpreters that the American state and public could find nowhere else.

6 Treatment or selection?

The preceding analysis documents a strong association between missionary presence and the growth of American area studies knowledge. But this evidence is correlational. It is possible that missions did not cause internationalism so much as attract Americans who were already unusually cosmopolitan. If globally minded individuals would have become foreign experts through some other channel—the military, commerce, diplomacy—then missions were merely a conduit, not a cause. Establishing causality requires showing that missionary

experience itself transformed people who would otherwise have remained largely ignorant of non-Western societies. The analysis so far also draws on a selected sample: missionaries prominent enough to appear in biographical dictionaries and Wikipedia. To move closer to a universe of missionaries, I turn to the records of the Student Volunteer Movement (SVM), one of the largest Protestant missionary organizations of the era, which accounts for more than 75 percent of American missionaries sent abroad in the early twentieth century. Crucially, the SVM data allow a cleaner test of selection because the control group is composed of people who also volunteered for missionary service and completed application materials, but did not eventually go abroad.

6.1 Research design

A potential concern with the main results of this paper is whether the estimated effect captures the effects of intergroup contact or merely reflects pre-existing, universalistic traits of certain denominations. Even under this reverse-causality story, the paper's central claim—that constituents' preferences, independent of strategic interests, influence foreign-aid policy—would stand, but the interpretation of the results would become more nuanced.

To interrogate this issue further, I turn to individual-level evidence. Table **??** shows that missionaries' publishing activity remains a strong predictor of foreign-aid support even after controlling for overall missionary exposure. Although not fully causal, this pattern suggests that systematic efforts to study and publicize foreign societies are linked to pro-aid attitudes. If reverse causality were dominant, we should observe a similar link among Americans who reached foreign countries through other avenues—social scientists, travelers, journalists. Did missions offer a distinctive channel for learning about the non-West, or were denominations simply swept along by a broader societal turn toward international engagement? The following analysis addresses this distinction.

To estimate the impact of foreign missions on the understanding of foreign culture, I estimate the following equation:

$$pub_i = \theta Mission_i + \mathbf{X_i'}\rho + \varepsilon_i \tag{3}$$

where pub_i is an indicator variable for publication output or foreign intelligence during WWII. X_i is a vector of individual characteristics.

$Mission_i$ is a dummy equal to one for missionaries and zero for individuals who volunteered to be missionaries but did not become one eventually. The estimated coefficient θ captures the effects of being missionaries under the identifying assumption that these volunteers who

did not eventually become missionaries represent a counterfactual outcome, reflecting what would have happened to missionaries had they not embarked on their missions. The process of becoming a missionary began with individuals signing a declaration card, followed by filling out application blanks. The control group in this study comprises those who completed the application, indicating their serious consideration of missionary work. This control group, consisting of individuals who were genuinely interested in missionary work and went so far as to submit applications, represents a highly comparable group and provides a compelling counterfactual outcome. An example in the control group is Kenneth Lee Pike (1912-2000), who initially applied to become a missionary but was rejected, yet later became a renowned linguist and anthropologist studying indigenous languages in Mexico (Pike, 2015).

Several factors contributed to volunteers not ultimately becoming missionaries despite initial applications. First, the Student Volunteer Movement faced significant organizational challenges in reaching out to applicants (Ramsey, 1988, p.67). One notable issue was the frequent loss of contact with applicants, often because students changed their residences after graduation or relocation, making it difficult to maintain communication (Student Volunteer Movement, 1891, p.36). Second, budget constraints played a role. The Movement relied heavily on volunteers and a small donor base, operating with limited financial resources (Parker, 1994, p.111). Despite an abundance of volunteers, some had to wait years for missionary opportunities. Third, as time passed, alternative career paths emerged. Some students who initially considered missionary work pursued other vocations, such as ministries in city churches (Ramsey, 1988, p.57). Fourth, various idiosyncratic factors intervened, including parental opposition, responsibilities towards aging parents, health issues, and college tuition concerns (Parker, 1994, p.180). In some cases, even highly committed individuals who submitted multiple applications did not become missionaries for reasons that remain unclear (Parker, 1994, p.180). Previous research has also considered this group of applicants comparable to those who became missionaries (Ramsey, 1988, p.65).

The impact of foreign missions may be overestimated if mission boards selected applicants who were already knowledgeable about foreign countries before becoming missionaries or who would have become experts on foreign countries regardless of their mission experience. However, religiosity, rather than interest in world affairs or foreign cultures, was considered the most crucial criterion for missionary selection. "The boards do not commission mere physicians or school-teachers, but missionaries...[which should be] above everything else a spiritual guide." (Brown, 1907, p.77) These individuals had limited knowledge about their destinations and were primarily motivated by religious devotion when applying to become missionaries (Ramsey, 1988, p.148). Missionaries were often described as having a "blank slate" mindset due to their general lack of understanding of non-European countries be-

fore beginning their work (Bays and Widmer, 2009, p.17). Those who showed interest in foreign countries without strong religious commitment were screened out by the missions board (Student Volunteer Movement, 1891, p.54). Since religiosity was the main selection criterion, it is plausible to assume that both missionaries and runners-up came from similar backgrounds and likely had a comparable level of interest in foreign countries.

To further address concerns that selection into missionary work may not be as random as assumed, Appendix B.5 leverages political instability in Turkey as an exogenous source of variation, which disrupted exposure to foreign cultures. Specifically, I compare missionaries in Turkey with those in other countries before and after 1915, showing that missionaries in Turkey, who often had to return to the U.S. for exogenous reasons, were less likely to publish works about Turkey or other foreign countries.

6.2 Balance checks

To evaluate the plausibility of the identifying assumption, I compare missionaries with volunteers who did not ultimately become missionaries. I match archival records to 1900 or 1910 individual-level census data using names, birth years, and addresses, employing the iterative census linkage method (Abramitzky et al., 2021). The analysis compares volunteers to the general population, and missionaries to non-missionary volunteers, controlling for birth year, census year (1900 and 1910), gender, and county fixed effects. I restrict the sample to individuals younger than twenty. As shown in Appendix B.1, the probability of being matched in the census is higher for volunteers who did not eventually become missionaries. This is because missionaries who sailed abroad were not enumerated in the census. However, the difference in matching probability disappears when the sample is restricted to individuals born after 1890, as the census enumeration occurred before they became missionaries, during the period when they were still living with their parents.

Panel (a) of Figure 2 shows the differences between missionaries and non-missionaries under various specifications. I take the average of the 1900 and 1910 covariates when an individual is matched to both censuses. Hollow circles represents the raw difference after only controlling for birth year and female fixed effects. The results indicate that missionaries and volunteers differ in terms of whether their parents had religious occupations, foreign-born status, parents' foreign-born status, city population, and farm household status. As has been shown in Table B.3, these differences decrease when county fixed effects are controlled for, but differences still remain for parents having religious occupations, parents being immigrants, and farm household status. In the filled diamonds, I present differences after reweighting the control group so that the mean and variance of parents having religious occupations,

parents' foreign-born status, foreign-born status, city population, and farm household status are made equal, following Hainmueller (2012). The results indicate that the variables not directly targeted by entropy balancing remain well-balanced after reweighting.

6.3 Results

Panel (b) of Figure 2 presents the estimated effect on knowledge output with and without controlling for county or denomination fixed effects, as well as inverse probability-weighted estimates based on entropy balancing. Table 5 presents regression results from Equation 3, with unadjusted estimates (without birth year and gender controls) and those with controls for birth year, gender, county, and denomination fixed effects. The results indicate that the estimated coefficients remain consistent across all specifications.

The probability of writing about foreign subjects in the control group is 0.7 percent, while the estimated effects of missionary experience range from 2.4 to 3 percentage points. This indicates that being a missionary increases the probability of becoming an author who writes about foreign subjects by three to four times. The analysis reveals a 0.6 percentage point increase in the probability of missionaries writing graduate dissertations about foreign countries, with no effect on other topics. This suggests that missionary experience specifically enhanced knowledge production about foreign countries, rather than increasing overall graduate school attendance. These findings suggest that foreign missions contributed to increased knowledge production about foreign countries without significantly influencing the overall likelihood of becoming authors or attending graduate school.

7 Conclusion

This paper measures an often-overlooked input into national power: the ability to produce credible knowledge about foreign societies. On the eve of the American century, the United States developed a larger stock of area studies knowledge on non-Western societies than Britain. That advantage was especially strong in subfields where missionaries had been active, and at the individual level missionary service appears to have transformed volunteers into later producers of regional expertise.

The broader implication is conceptual. Patents and scientific publications measure a nation's capacity to invent. Area studies knowledge measures part of its capacity to understand, persuade, and lead abroad. For a twentieth-century hegemon operating through alliances, development programs, universities, media, and wartime intelligence, that capability was part of the infrastructure of soft power.

Beyond its historical findings, this paper points toward a broader research agenda. If the knowledge infrastructure of a rising power shaped its capacity for global leadership, then tracing the biographies of foreign policy elites, their formative experiences abroad, their intellectual networks, their published expertise, may serve as a leading indicator of how a nation will engage with the world. The backgrounds of the people who populate a country's diplomatic corps, intelligence agencies, development organizations, and area studies departments reveal not just what a state can know about foreign societies, but what it chooses to know, and through whose eyes.

This matters now as much as it did a century ago. In a period of geopolitical realignment, where alliances are being renegotiated, development commitments revisited, and the institutional foundations of the postwar order questioned, there is a growing need to understand the human capital that underpins a nation's capacity to operate effectively abroad. Yet the tools for measuring that capacity have remained blunt. This paper offers one way forward: combining bibliometric data on published area studies output with biographical data on the people who produced it. Together, these sources make it possible to move beyond aggregate counts of soft power resources and instead trace the specific channels, such as missionary networks, universities, and professional associations, through which knowledge about foreign societies was accumulated, transmitted, and ultimately deployed.

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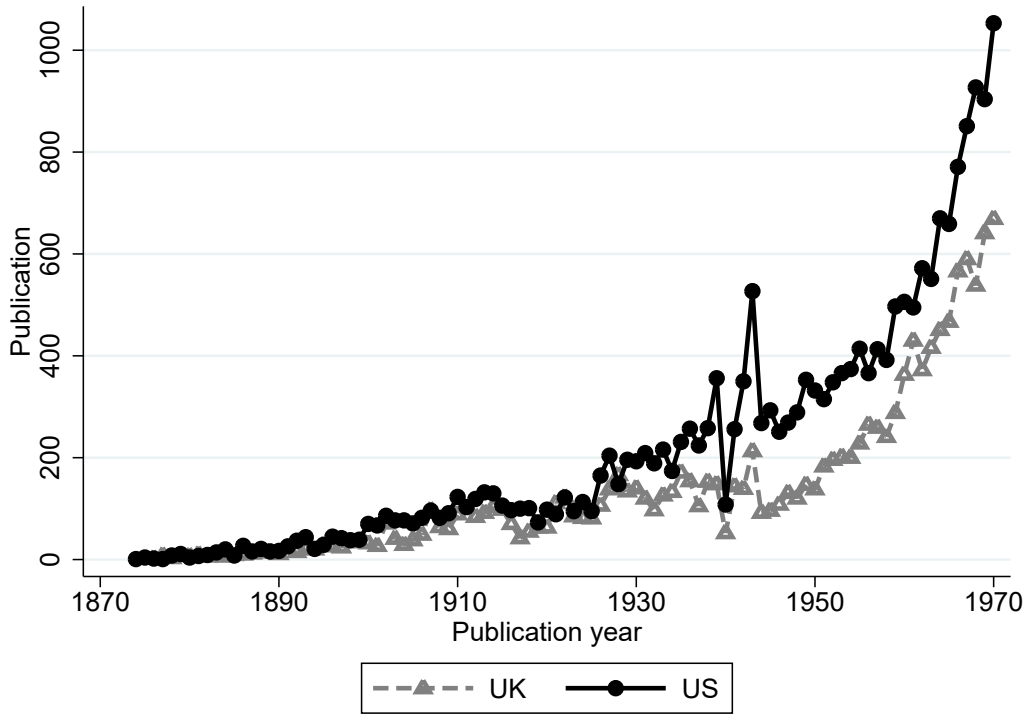
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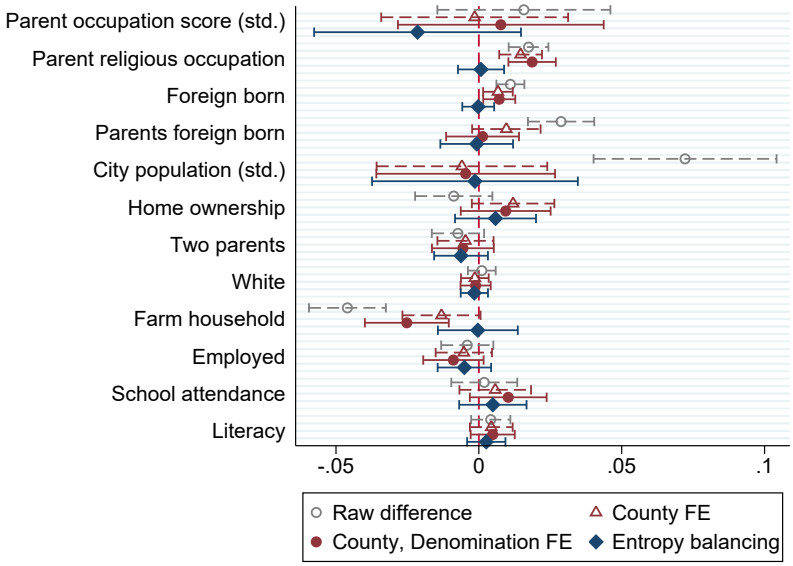
Figure 1: U.S.-U.K. publication gap on non-Western societies



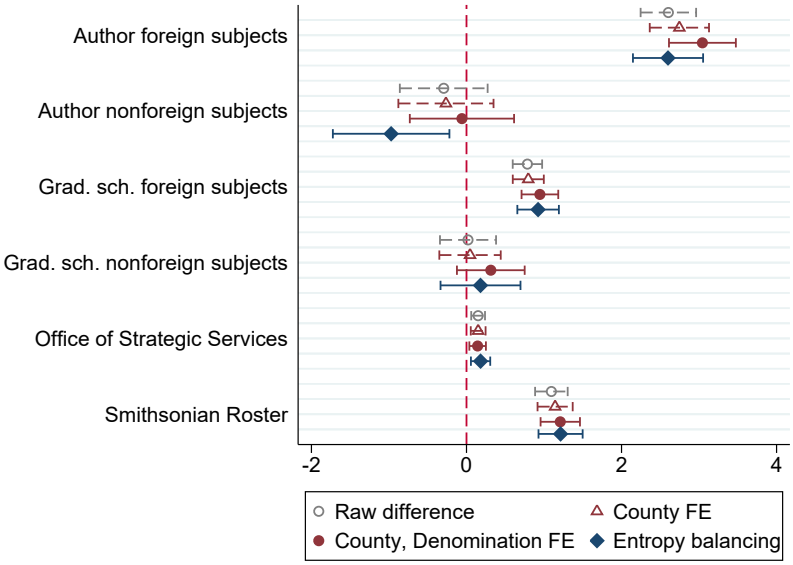
Note: The figure plots annual OpenAlex publications whose titles mention non-Western sovereign states or historically common place names, linked to authors with Wikipedia biographies active in the United States or the United Kingdom. The dataset comprises publications spanning the century from 1870 to 1970. Authors were linked to Wikipedia biographies using a triplet matching criteria of first name, middle initial, and surname. To ensure data integrity, I excluded records where the author's calculated age at the time of publication was outside the range of 20 to 80 years.

Figure 2: Covariate balance and effects of missionary experience: individual-level analysis

(a) Covariate balance

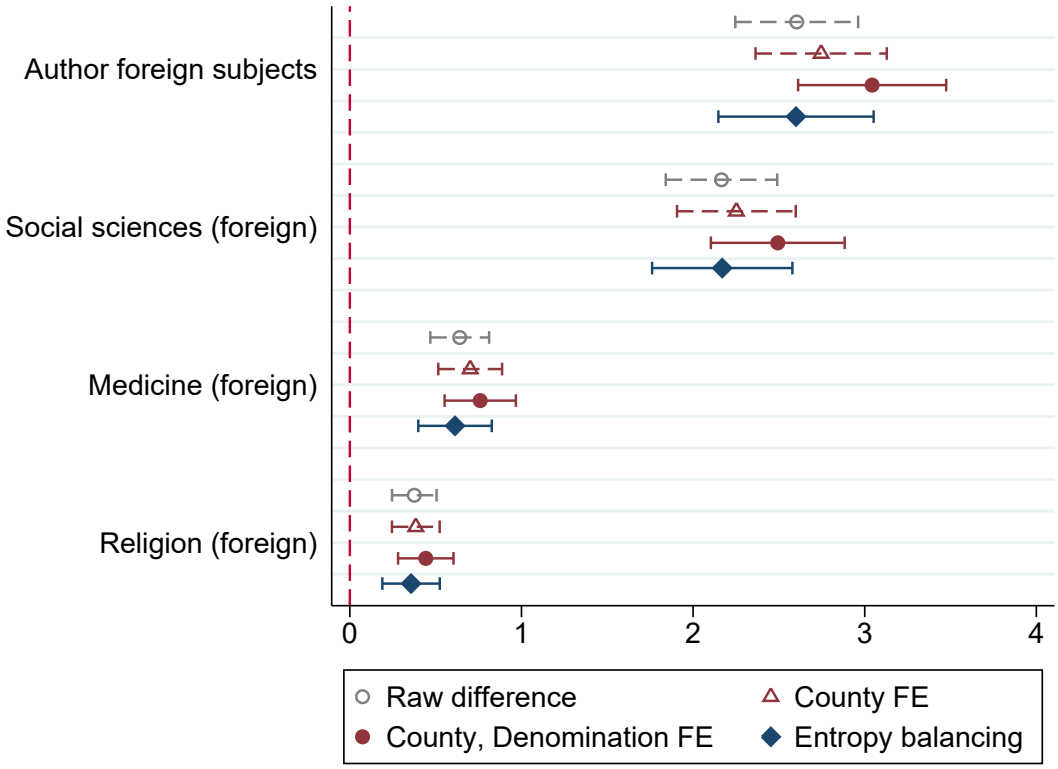


(b) Effects of missionary experience on knowledge output



Note: Panel (a) compares missionaries with unsuccessful SVM volunteers across pre-treatment census characteristics. Hollow circles control for birth year and gender. Hollow triangles add county fixed effects. Filled circles add denomination fixed effects. Filled diamonds reweight the control group using entropy balancing (Hainmueller, 2012). Panel (b) applies the same specifications to later outcomes. The figure shows that covariate imbalances among volunteers are modest and the main missionary effects are concentrated on foreign-oriented knowledge production and wartime expertise rather than on publication in general. Error bars denote 95 percent confidence intervals.

Figure 3: Publication effects by field



Note: The figure breaks the individual-level treatment effects in Equation 3 into publication subfields constructed from title keywords and OpenAlex concepts. The largest positive effects appear in the social-science and applied-service domains that missionaries disproportionately occupied, which is consistent with the historical shift of missions toward education, medicine, and social welfare. Error bars denote 95 percent confidence intervals.

Table 1: Fields with the Largest Changes in the US–UK Publication Gap, Pre- vs. Post-1940

	Panel A: US gained most					*Panel B: UK gained most*			
		US–UK Gap					US–UK Gap		
	Field	Pre	Post	Δ		Field	Pre	Post	Δ
1	Law	65	511	446	1	Media studies	18	-65	-83
2	Library science	132	490	358	2	Theology	-11	-60	-49
3	Zoology	66	342	276	3	Gender studies	4	-26	-30
4	Archaeology	153	414	261	4	Botany	19	-6	-25
5	Ancient history	-35	213	248	5	Optometry	16	-1	-17
6	Economic history	40	267	227	6	Social science	4	-13	-17
7	Classics	39	169	130	7	Horticulture	12	-3	-15
8	Art history	37	166	129	8	Environmental planning	1	-14	-15
9	Linguistics	11	134	123	9	Criminology	-3	-15	-12
10	Genealogy	32	137	105	10	Atmospheric sciences	0	-12	-12
11	Literature	-8	86	94	11	Statistics	6	-6	-12
12	Political economy	15	97	82	12	Toxicology	1	-8	-9
13	Virology	-7	69	76	13	Economic geography	6	-2	-8
14	Paleontology	11	81	70	14	Family medicine	2	-6	-8
15	Development economics	-1	64	65	15	Meteorology	5	-2	-7
16	Anthropology	23	88	65	16	Agricultural economics	21	15	-6
17	Oceanography	4	62	58	17	General surgery	1	-4	-5
18	Visual arts	17	73	56	18	Agronomy	4	-1	-5
19	Epistemology	7	62	55	19	Aerospace engineering	2	-2	-4
20	Information retrieval	12	55	43	20	Mathematical analysis	1	-3	-4

Notes: Each row reports the raw US–UK gap in publication counts on non-Western societies, computed separately for the pre-1940 and post-1940 periods. and show $\sum_{t\in\tau}(\text{Pubs}_{f,\text{US},t} - \text{Pubs}_{f,\text{UK},t})$ within period τ. reports the difference-in-differences: (Post gap) − (Pre gap). Panel A lists the twenty fields where the US gained the most ground; Panel B lists the twenty where the UK gained the most. Sample: individuals born 1881–1930 linked to OpenAlex publications. Out of 226 fields, only the top and bottom twenty are displayed.

Table 2: Top 20 Fields by Missionary Presence and British Presence

	Panel A: Most missionary-heavy				*Panel B: Most British-heavy*		
	Field	Mission	Total		Field	UK Pubs	Total
1	Ancient history	111	2488	1	Ancient history	1155	2488
2	Archaeology	44	1775	2	Archaeology	604	1775
3	Library science	38	1490	3	Library science	434	1490
4	Law	32	1440	4	Law	432	1440
5	Linguistics	27	411	5	Economic history	326	959
6	Theology	24	249	6	Media studies	226	405
7	Economic history	23	959	7	Art history	182	567
8	Religious studies	19	111	8	Classics	172	552
9	Classics	16	552	9	Theology	160	249
10	Art history	11	567	10	Zoology	158	724
11	Zoology	10	724	11	Humanities	135	323
12	Visual arts	9	292	12	Linguistics	133	411
13	Environmental ethics	8	107	13	Development economics	128	319
14	Media studies	8	405	14	Ecology	126	328
15	Environmental ethics	8	107	15	Literature	107	292
16	Genealogy	7	347	16	Visual arts	101	292
17	Political economy	6	222	17	Anthropology	100	311
18	Information retrieval	5	117	18	Genealogy	89	347
19	Information retrieval	5	117	19	Botany	86	185
20	Humanities	4	323	20	Ethnology	82	228

Notes: Panel A ranks fields by the total number of publications linked to missionaries (self or parent). Panel B ranks fields by the total number of publications linked to UK-born individuals. counts all publications (US and UK combined) in each field. Sample: individuals born 1881–1930 linked to OpenAlex publications. Out of 226 fields, only the top twenty in each category are displayed.

Table 3: U.S.-U.K. publication gap

	Publications		Citations		Concepts	
	(1)	(2)	(3)	(4)	(5)	(6)
US × Post-1940	0.04***	0.02***	0.59***	0.52***	0.32***	0.17***
	(0.01)	(0.00)	(0.08)	(0.08)	(0.05)	(0.03)
US × Post-1940 × Mission	0.64***	0.58**	5.23*	5.00*	5.31**	4.81**
	(0.25)	(0.24)	(2.98)	(2.96)	(2.36)	(2.30)
US × Post-1940 × British		0.13***		0.46		1.01***
		(0.04)		(0.41)		(0.30)
Observations	299,624	299,624	299,624	299,624	299,624	299,624
Subfields	2,236	2,236	2,236	2,236	2,236	2,236
R^2	0.81	0.81	0.59	0.59	0.79	0.79
Subfield × Year FE	Y	Y	Y	Y	Y	Y
US × Subfield FE	Y	Y	Y	Y	Y	Y
p-val: British = Mission		0.055		0.124		0.087

Notes: The unit of observation is subfield × country × publication year. 'Mission' marks subfields with missionary publication before 1940. 'British' marks subfields with early British publication activity. All lower-order interactions are included but omitted from the table. The table shows both an overall post-1940 American lead and an additional lead in missionary-linked subfields. Robust standard errors clustered by subfield are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 4: American vs. British Missionaries: Secular Influence by Direction

	Panel A: Home-Country-Facing						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	WWII Intell.	Govt. Service	Alliance Building	Knowledge Broker	Discursive Opinion	Institutional Entrepr.	Advocacy NonWest.
DV: dummy × 100							
US × Mission	2.201**	2.045**	1.865**	1.605**	3.630**	1.708*	-0.294
	(0.922)	(0.908)	(0.758)	(0.718)	(1.564)	(0.877)	(1.077)
US	0.094***	0.091***	0.203***	0.056**	0.072	0.051*	0.144***
	(0.033)	(0.031)	(0.032)	(0.022)	(0.051)	(0.028)	(0.040)
Mission	0.280	0.271	-0.202	0.167	2.263**	0.463	1.347
	(0.584)	(0.584)	(0.419)	(0.414)	(1.153)	(0.584)	(0.918)
Mean dep. var.	0.360	0.330	0.380	0.171	0.853	0.254	0.534
Observations	135100	135100	135100	135100	135100	135100	135100
R^2	0.005	0.005	0.007	0.002	0.006	0.003	0.004

	Panel B: Host-Country-Embedded						
	WWII Intell.	Govt. Service	Alliance Building	Knowledge Broker	Discursive Opinion	Institutional Entrepr.	Advocacy NonWest.
DV: dummy × 100							
US × Mission	1.217***	0.209	-0.446	0.524*	-0.780	-0.074	-1.619
	(0.418)	(0.697)	(0.632)	(0.296)	(1.022)	(0.968)	(1.170)
US	-0.162***	-0.153***	-0.015	-0.001	-0.086***	-0.041**	-0.076***
	(0.028)	(0.028)	(0.019)	(0.011)	(0.021)	(0.019)	(0.022)
Mission	-0.433***	0.416	0.615	-0.069***	1.859**	1.486*	2.646**
	(0.037)	(0.584)	(0.584)	(0.014)	(0.918)	(0.823)	(1.080)
Mean dep. var.	0.170	0.170	0.098	0.038	0.101	0.093	0.121
Observations	135100	135100	135100	135100	135100	135100	135100
R^2	0.003	0.002	0.002	0.001	0.002	0.003	0.003

Notes: Each column reports a binary outcome from LLM-based biography classification, and all outcomes are restricted to secular activities tied to expertise on non-Western societies. Panel A outcomes equal mechanism × home-country-facing, where home-country-facing denotes influence aimed at the individual's own country's government, legislature, diplomacy, or public opinion regarding a non-Western society or people. Panel B outcomes equal mechanism × host-country-embedded, where host-country-embedded denotes influence exercised from within the host country's, colony's, protectorate's, or occupation authority's institutions in a non-Western setting. U.S. is an indicator for Americans (British = 0). Mission is an indicator for missionaries or their children. All regressions include birth-year and occupation-group fixed effects. Robust standard errors are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 5: Effects of foreign missions on knowledge production

Outcome:	Grad. dissertation foreign subjects		Grad. dissertation nonforeign subjects	
(dummy×100)	(1)	(2)	(3)	(4)
Mission	0.64***	0.95***	-0.32*	0.31
	(0.08)	(0.12)	(0.16)	(0.22)
Control outcome mean:	0.13	0.13	2.46	2.46
Observations	37,106	29,380	37,106	29,380
R-squared	0.00	0.07	0.00	0.08
controls		Yes		Yes
Outcome:	Author foreign subjects		Author nonforeign subjects	
(dummy×100)	(5)	(6)	(7)	(8)
Mission	2.37***	3.04***	-0.73***	-0.06
	(0.16)	(0.22)	(0.26)	(0.34)
Control outcome mean:	0.7	0.7	6.35	6.35
Observations	37,106	29,380	37,106	29,380
R-squared	0.01	0.09	0.00	0.08
controls		Yes		Yes
Outcome:	Smithsonian Institution roster		Office of Strategic Services	
(dummy×100)	(9)	(10)	(11)	(12)
Mission	1.00***	1.21***	0.11***	0.14***
	(0.09)	(0.13)	(0.04)	(0.05)
Control outcome mean:	0.07	0.07	0.05	0.05
Observations	37,106	29,380	37,106	29,380
R-squared	0.01	0.07	0.00	0.08
controls		Yes		Yes

Note: Unit of analysis is an individual. Regressions of an indicator of non-European regional expertise on an indicator of being missionaries conditional on being volunteers to the Student Volunteer Movement. The outcome variables in Columns (1) to (4) indicate whether individual names can be matched to the ProQuest Dissertations Theses database, while Columns (5) to (8) indicate whether individual names can be matched to publications about foreign subjects using OpenAlex. The outcomes in Columns (9) and (10) reflect whether an individual's name can be matched to the Smithsonian roster (Bennett, 1947). The outcomes in Columns (11) and (12) capture whether an individual's name can be matched to the Office of Strategic Services roster or publications about foreign subjects according to OpenAlex. Odd-numbered columns report raw differences, while even-numbered columns document differences after controlling for birth year, gender, county, and denomination fixed effects. Robust standard errors, clustered by county, are provided in parentheses. *** p<0.01, ** p<0.05, * p<0.1

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Appendices

A Measurement Details

A.1 Large language model prompt

To scale the coding of Wikipedia biographies, I used `gpt-4.1-mini` with a structured extraction prompt designed for conservative classification. Rather than asking the model for open-ended interpretation, I instructed it to extract only roles and activities that were explicitly stated in the biography. The prompt therefore emphasized a strict non-inference rule: the model was told not to infer influence, expertise, or policy significance from prestige, fame, education, residence abroad, missionary service, missionary family background, or language knowledge alone. Ambiguous or weak evidence was coded as zero.

The task was restricted to *explicit secular impact* on policies or public preferences regarding non-Western peoples or societies. For this purpose, non-Western regions were defined as Asia, Africa, the Middle East, Latin America, and the Pacific, while Europe, the United States, Canada, Australia, and New Zealand were excluded unless the biography explicitly linked activity there to non-Western peoples or societies. The prompt also instructed the model not to classify biographies merely by topical content such as race, journalism, government, or education. Instead, it was told to identify the *pathway* and *direction* of influence.

The prompt organized the coding around two main axes. The first axis captured the *directionality* of influence. `home_country_facing` was coded as one only when the biography explicitly showed that the individual targeted or influenced his or her own country's government, legislature, diplomacy, or public opinion regarding a non-Western society or people. `host_country_embedded` was coded as one only when the biography explicitly showed influence exercised from within the host country's, colony's, protectorate's, or occupation authority's institutions. A third category, `transnational_institution_building`, captured explicit institution-building across borders. The second axis captured the *mechanism* of influence, distinguishing administrative or bureaucratic roles, discursive opinion shaping through writing or public speech, institutional entrepreneurship, and cultural mediation through translation or cross-cultural interpretation with public or policy consequences.

In addition, the prompt included narrower channel variables used in the analysis, such as `advocacy_for_nonwestern_peoples`, `government_service_linked_to_nonwestern_expertise`, and `knowledge_broker_role`. A separate variable, `church_adjacent_only`, was used to distinguish cases in which non-Western activity was present but remained entirely within

missionary, theological, or religious administration rather than secular policy or public influence. The main summary variable, `nonwestern_policy_or_preference_impact`, was set to one only when at least one explicit secular pathway was supported by the text.

Finally, the model was required to return only a valid JSON object, containing binary indicators for each variable, a single primary directionality field, a single primary mechanism field, an overall confidence score, and a brief factual note. This structured output reduced formatting noise and made it possible to aggregate the extracted classifications systematically.

Abridged LLM extraction prompt used for biography classification

```
You are a strict historical data extractor.
Rules: - Extract ONLY what is explicitly stated in the biography. - Never guess.
- Do NOT infer influence from prestige, fame, education, travel, residence abroad,
language skill, missionary service, or missionary background alone. - If evidence
is weak, indirect, church-adjacent, or ambiguous, return 0. - Binary variables
default to 0.
Scope rule: This task is about explicit SECULAR impact on policies or public
preferences regarding NON-WESTERN peoples or societies. Relevant regions: Asia,
Africa, the Middle East, Latin America, and the Pacific. Exclude Europe, the
United States, Canada, Australia, and New Zealand unless the biography explicitly
links activity there to non-Western peoples or societies.
Important conceptual rule: Do NOT classify mainly by topic content. Instead
classify the PATHWAY and DIRECTION of influence.
Core question: Does the biography explicitly show that this person exercised
secular influence regarding non-Western peoples or societies, and if so through
what direction and mechanism?
Axis 1: Directionality of influence
1. host_country_embedded Code 1 only if the biography explicitly states that
the person exercised influence from within the host country's, colony's,
protectorate's, or occupation authority's institutions.
2. home_country_facing Code 1 only if the biography explicitly shows that the
person targeted or influenced their own country's government, legislature,
diplomacy, or public opinion regarding a non-Western society or people.
3. transnational_institution_building Code 1 only if the biography explicitly
states that the person founded, led, or built an organization, network, school
system, program, campaign, or durable institution operating across borders with
consequences for non-Western peoples or societies.
Axis 2: Mechanism of influence
1. administrative_bureaucratic Official administrative, diplomatic, legal,
advisory, commission, or governmental roles.
2. discursive_opinion_shaping Writing, journalism, publishing, speeches,
```

```
broadcasting, public advocacy, or public-intellectual work shaping public
understanding or preferences.
3.  institutional_entrepreneurship Founding or building organizations, programs,
campaigns, associations, or institutions.
4.  cultural_mediation Translation, dictionary-making, romanization systems, or
cross-cultural interpretation with explicitly public, policy, or institutionally
consequential role.  Do NOT code for language knowledge alone.
Additional channels
- advocacy_for_nonwestern_peoples - government_service_linked_to_nonwestern_expertise
- church_adjacent_only - knowledge_broker_role
Negative rules:  - Do NOT code positive impact from missionary service alone.
- Do NOT code positive impact from missionary family background alone.  - Do
NOT code positive impact from church office, seminary work, evangelism, Bible
translation, religious teaching, or mission administration alone.  - Do NOT code
ordinary academic, medical, diplomatic, political, or journalistic roles unless
the biography explicitly ties them to influence regarding non-Western peoples or
societies.
Primary classification task:  Set nonwestern_policy_or_preference_impact = 1 only if
the biography explicitly supports at least one positive secular pathway.
Output:  Return ONLY one raw JSON object with binary indicators, a primary
directionality field, a primary mechanism field, an overall confidence score, and a
brief factual note.
```

A.2 Keyword construction for non-Western knowledge

The publication-based measures begin from a hand-built list of sovereign states and historically common place names around 1900. I search publication titles for those names and classify a title as foreign-related when it explicitly mentions a non-Western country, region, or historical political entity. The keyword list includes modern and historical variants when usage changed over time, such as Persia and Iran or Ottoman and Turkey. The purpose of this procedure is comparability rather than maximal recall: I aim to capture work that was clearly about a non-Western society rather than all work that might contain implicit foreign content.

A.3 Subfield definitions

The field-level figures and tables use broad keyword-based groupings designed to match the occupations missionaries disproportionately occupied. Social-science publications include terms related to agriculture, demography, development, economics, history, political science, and sociology. Medicine and nursing include titles related to nursing, pathology,

bacteriology, immunology, virology, and clinical medicine. Religion includes work explicitly tied to Christianity, theology, missions, or religion. Graduate dissertations use analogous broad field labels available in ProQuest.

A.4 Student Volunteer Movement archival data

The SVM records were digitized from archival materials housed at the Yale Divinity Library. The core sources list volunteers and missionaries alphabetically and by denomination, often with addresses, schools, birth years, and destination countries. I combine these summary volumes with application materials to distinguish people who volunteered from those who ultimately sailed. The resulting data include 12,265 missionaries and 24,841 volunteers who did not ultimately become missionaries. The records are especially valuable because they make it possible to compare missionaries with runner-up applicants rather than with the general population.

A.5 Variable definitions and sources

A.5.1 Individual data

- Individual-level census data (1900, 1910): ?. Sample in the balance test is restricted to children in the household younger than twenty (`relate` variable in the census: Child [301], Adopted child [302], Stepchild [303], Adopted [304], Child-in-law [401], Step child-in-law [402], Grandchild [901], Step grandchild [903], Grandchild-in-law [904])
  - Parental occupation score ($00): Occupational income score (`occscore`) of the household head (`relate`=101).
  - Parent religious occupation: Household head has one of the following two occupations: Clergymen (`occ1950`=9) or Religious workers (`occ1950`=78)
  - Foreign born: `nativity`=5
  - Parent foreign born: Father foreign, mother native (`nativity`=2), Mother foreign, father native (`nativity`=3), Both parents foreign (`nativity`=4)
  - City pop (000)s: `citypop`
  - Home ownership: Owned or being bought (`ownershp=10`)
  - Two parents: Married-couple family household (`hhtype`=1)
  - White: Race: white (`racwht`=2)
  - Farm household: Farm status (`farm`=2)
  - Employed: In the labor force (`labforce`=2)
  - School attendance: In school (`school`=2)
  - Literacy: able to read and write (`lit`=4)
- Publication output
  - Book or article publication: OpenAlex
  - Graduate dissertation: Dissertations - ProQuest accessed through Proquest TDM studio[2]. To reduce false positives, I exclude matches where the gap between the degree year and the birth year of volunteers or missionaries is less than twenty years or more than forty years, ensuring the individual's age at degree completion is between twenty and forty.

[2] https://tdmstudio.proquest.com/home

- Smithsonian Roster: Sourced from Smithsonina Institution Archives. Record Unit 87—Ethnogeographic Board (Washington, D. C.). [3] I digitize the following records:
  - Personnel lists of Africa (Installments I-IV)
  - Personnel list of Asia
  - Personnel lists of Oceania (Installments I-VI)
  - Asiatic geographers compiled by George B. Cressey
  - African list 127
  - Partial list of personnel with field experience in Burma
  - American Political Science Association—Political scientists with competence regarding foreign countries
- Office of Strategic Services: Sourced from the National Archives webpage.[4]

[3] https://siarchives.si.edu/collections/siris_arc_216694

[4] https://www.archives.gov/files/iwg/declassified-records/rg-226-oss/personnel-database.pdf

Figure A.1: Sample records from the Ethnographic Board (Smithsonian Roster)

(a) Personnel list of Oceania—Installment IV

Boot, Dr. Earnest R. (b. 1916, Wisc.), historian. Box 824, R.F.D. No. 3, Annapolis, Md. (2474); Dept. of English and History, U.S. Naval Academy, Annapolis, Md.

Bowles, Dr. Gordon T. (b. 1904, Japan), anthropologist. 134 Hilldale Road, Lansdowne, Penna.; Far Eastern Division, Board of Economic Warfare, Commerce Dept. Bldg., Washington, D.C. (District 2200, ext.2827).

Boyes, Major Alfred (b. 1898, England), mining engineer. P.O. Box 234, Keewat Minn. (4422); Butler Bros., Cooley, Minn. (Nashwauk 85).

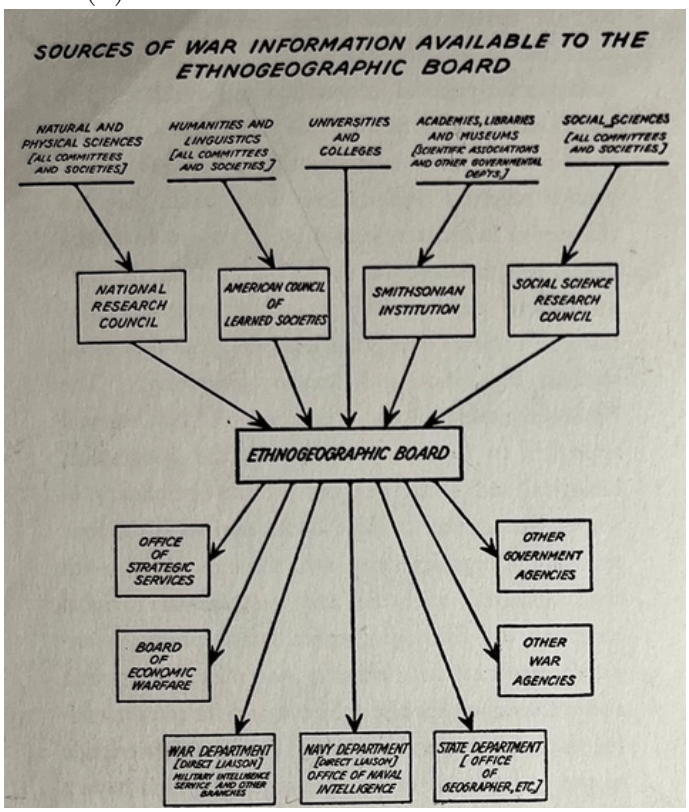
Bredin, Mrs. Dee van B. (b. 1900, Sumatra), writer, photographer, and radio commentator. 2 Sutton Place South, New York, N.Y. (Plaza 8-2954).

Brevet, Jan (b. 1888, Java), salesman. 2146 Northwest 33rd Ave., Portland, Ore. (Be. 5796); By-Products Dept., Swift and Co., North Portland, Ore. (Un. 1156).

Brown, Lawrence E. (b. 1901, Ind.), oil worker. 315 Minner Ave., Oildale, Calif. (2-6176).

Bryan, Lieut. Park A. (b. 1905, Ind.), officer in U.S.

(b) Distribution of Smithsonian roster



Sources: Smithsonian Institution Archives. Figure (a) is a sample page of the Smithsonian roster and Figure (b) is a flow chart explaining how the roster was compiled and distributed.

B Additional Results

B.1 Census match

I employ an iterative record-linking procedure to match archival records to census data (Abramitzky et al., 2021). An archival record and a census record are considered matched if they share standardized first and last names, have consistent birth years, and line up on geography. I begin with the most stringent criteria and then gradually relax the match requirements. The high match rate reflects the unusually rich location information in the SVM records.

The automated linking procedure may still produce false positives. Following Bailey et al. (2020), I therefore report both a baseline match and a more conservative match that keeps only individuals who are unique within a narrow age window. Match rates remain high by the standards of the historical-linkage literature (Ang and Chinoy, 2023; Michelman et al., 2022). The main difference by treatment status arises because some missionaries were abroad during the census and therefore not enumerated, a concern that largely disappears in the younger cohorts used for balance analysis.

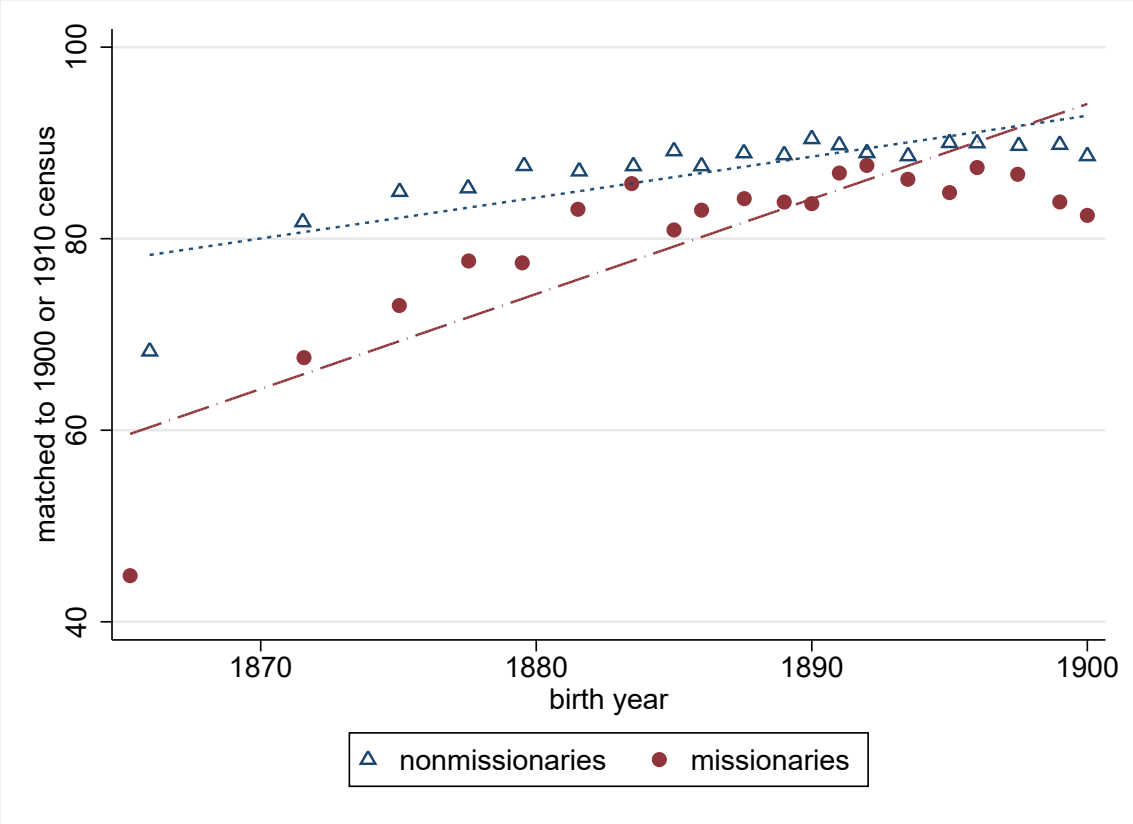
Table B.1: Matching to the census

	(1)	(2)	(3)
DV:	Matched to 1900 or 1910 census		
Panel A: Baseline matching			
Mission	-3.45***	-0.24	-5.20***
	(0.50)	(0.81)	(0.64)
Observations	29,351	11,859	16,854
R-squared	0.10	0.14	0.16
Control outcome mean	87.09	88.55	85.77
Controls	Yes	Yes	Yes
		birthyear	birthyear
Sample restriction	no	>1890	≤1890
Panel B: Conservative matching			
Mission	-3.65***	0.12	-6.11***
	(0.65)	(1.01)	(0.84)
Observations	29,351	11,859	16,854
R-squared	0.09	0.14	0.13
Control outcome mean	69.65	73.03	66.90
Controls	Yes	Yes	Yes
		birthyear	birthyear
Sample restriction	no	>1890	≤1890

Note: The unit of analysis is an individual in the SVM records. The dependent variable equals one hundred if the individual is matched to the 1900 or 1910 census. Controls include birth year, gender, denomination, and county fixed effects. The missionary disadvantage in the full sample reflects the fact that some missionaries were abroad during census enumeration. That difference disappears for the younger cohorts used in the balance exercise.

B.2 Census match rate by birth year

Figure B.1: Census match rate by birth year



Note: The vertical axis indicates whether an individual in the SVM records is matched to either the 1900 or 1910 census, and the horizontal axis is birth year. Match rates are lower for older missionaries because some had already left the United States by the time of census enumeration.

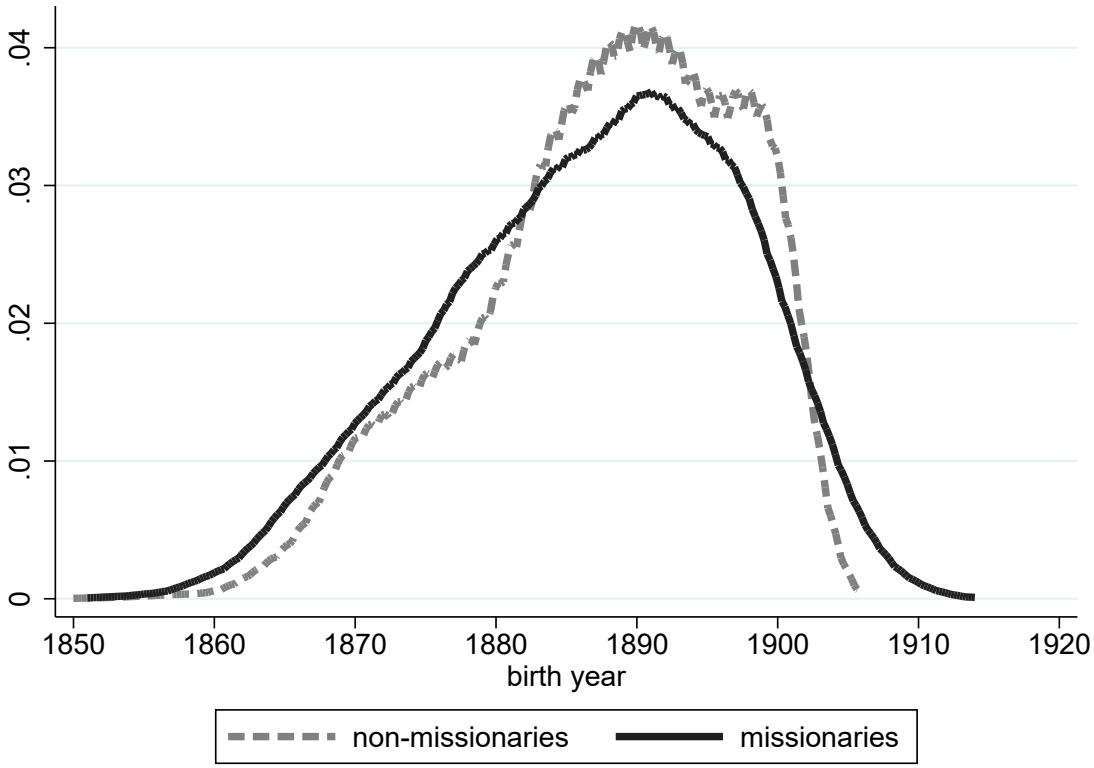
Table B.2: Balance test with a more conservative census match

Variables	(1) diff (s.e.)	(2) control mean	(3) N	(4) age
Parental occ. score ($00)	0.15 (0.23)	20.96	21,419	[0,20]
Parent religious occ.	2.38*** (0.45)	6.13	21,419	[0,20]
Foreign born	0.51** (0.24)	1.64	21,419	[0,20]
Foreign born parents	1.11* (0.63)	17.01	21,419	[0,20]
City pop. (000s)	-1.22 (2.12)	106.61	21,419	[0,20]
Home ownership	1.27 (0.82)	63.21	21,419	[0,20]
Two parents	0.47 (0.46)	90.41	21,419	[0,20]
White	-0.03 (0.19)	98.26	21,419	[0,20]
Farm household	-1.38* (0.78)	39.35	21,419	[0,20]
Employed	-0.01 (0.60)	11.49	11,138	[10,20]
School attendance	-0.20 (0.78)	84.89	11,138	[10,20]
Literacy	-0.33 (0.21)	98.74	11,138	[10,20]

Note: This table repeats the balance exercise using the conservative census match. Results are similar to the baseline balance table: relative to unsuccessful volunteers, missionaries are broadly similar on observables once attention is restricted to the applicant pool.

B.3 Demographics of missionaries

Figure B.2: Kernel density plot of birth year



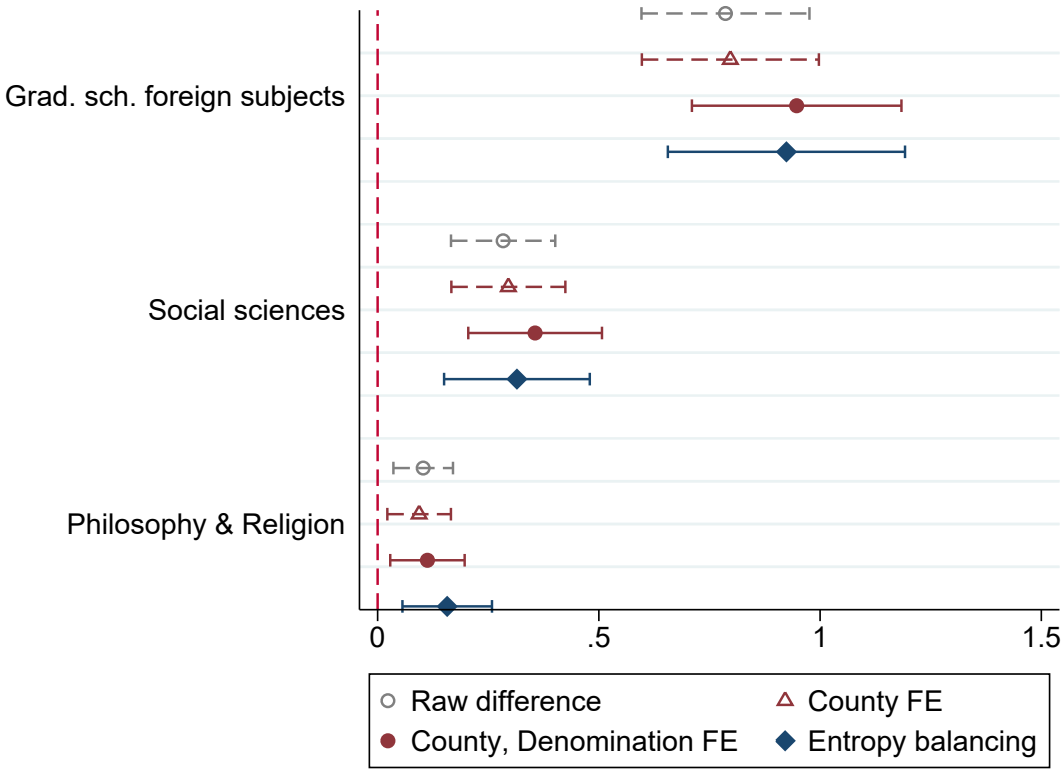
Note: Kernel density plots of birth years in the archival records by missionaries and non-missionaries. Ten individuals born before 1850 are excluded for presentation. The distributions overlap substantially, which is consistent with the treatment and control groups being drawn from the same historical recruitment pool.

Table B.3: Balance checks: volunteers and missionaries

	volunteers – general population			missionaries – volunteers			
	diff (s.e.)	control mean	N	diff (s.e.)	control mean	N	age
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Parental occ. score ($00)	2.10 (0.10)***	18.85	65,816,681	0.01 (0.19)	20.69	27,532	[0,20)
Parent religious occ.	5.54 (0.18)***	0.42	65,816,681	1.86 (0.36)***	5.48	27,532	[0,20)
Foreign born	-1.02 (0.16)***	2.87	65,816,681	0.38 (0.20)*	1.76	27,532	[0,20)
Foreign born parents	-7.76 (0.44)***	25.73	65,816,681	1.13 (0.56)**	18.26	27,532	[0,20)
City pop. (000s)	-3.21 (5.49)	282.05	65,816,681	-0.84 (2.11)	131.22	27,532	[0,20)
Home ownership	8.39 (0.37)***	46.70	65,816,681	1.13 (0.72)	60.45	27,532	[0,20)
Two parents	1.54 (0.21)***	89.57	65,816,681	0.10 (0.41)	90.27	27,532	[0,20)
White	4.95 (0.30)***	87.45	65,816,681	-0.23 (0.21)	97.11	27,532	[0,20)
Farm household	-1.53 (0.36)***	39.60	65,816,681	-0.98 (0.66)	38.98	27,532	[0,20)
Employed	-8.00 (0.29)***	21.41	25,522,632	0.36 (0.55)	12.51	14,084	(10,20)
School attendance	14.65 (0.33)***	64.82	25,522,632	-0.42 (0.76)	82.62	14,084	(10,20)
Literacy	2.33 (0.16)***	92.74	25,522,632	-0.16 (0.20)	98.29	14,084	(10,20)

Note: Column (1) compares SVM volunteers with the broader population. Column (4) compares missionaries with unsuccessful volunteers. Both columns control for census year, birth year, gender, and county fixed effects. The key result is that volunteers are highly selected relative to the broader population, but missionaries and unsuccessful volunteers are much closer to one another.

Figure B.3: Graduate dissertation by field



Note: The figure presents estimates from Equation 3 across graduate dissertation subfields. The largest positive effects appear in foreign-subject dissertations in the social sciences and in philosophy and religion. Error bars indicate 95 percent confidence intervals.

Table B.4: Effects on publication by subfield

Outcome:	Grad. dissertation social sciences		Grad. dissertation philosophy & religion	
(dummy×100)	(1)	(2)	(3)	(4)
Mission	0.18*	0.44***	0.09***	0.11***
	(0.10)	(0.14)	(0.03)	(0.04)
Observations	33,733	29,380	33,733	29,380
R-squared	0.00	0.06	0.00	0.05
Control group mean	0.57	0.57	0.01	0.01
Controls		Y		Y
Outcome:	Grad. dissertation STEM		Grad. dissertation language	
(dummy×100)	(5)	(6)	(7)	(8)
Mission	-0.26***	-0.16	-0.07	-0.03
	(0.10)	(0.12)	(0.06)	(0.09)
Observations	33,733	29,380	33,733	29,380
R-squared	0.00	0.07	0.00	0.08
Control group mean	0.81	0.81	0.30	0.30
Controls		Y		Y
Outcome:	Author foreign subjects social sciences		Author foreign subjects medicine & nursing	
(dummy×100)	(9)	(10)	(11)	(12)
Mission	2.01***	2.49***	0.64***	0.76***
	(0.16)	(0.20)	(0.09)	(0.12)
Observations	33,733	29,380	33,733	29,380
R-squared	0.01	0.09	0.00	0.06
Control group mean	0.54	0.54	0.08	0.08
Controls		Y		Y

Note: The unit of analysis is an individual. The field breakdown shows that missionary experience mainly increased foreign-oriented work in the social sciences, medicine, nursing, and religion-adjacent fields, rather than raising publication across all domains.

B.4 Heterogeneous effects by denomination

Table B.5: Effects on regional expertise during WWII

DV:(dummy×100)	Author foreign subjects		Grad. dissertation foreign subjects		Grad. dissertation social sciences	
	(1)	(2)	(3)	(4)	(5)	(6)
Mission	2.30***	2.49***	1.56***	1.35***	0.67	0.84***
	(0.56)	(0.36)	(0.40)	(0.25)	(0.46)	(0.27)
Mision	0.83		-0.69*		-0.27	
×Mainline	(0.59)		(0.41)		(0.47)	
Mission		0.75*		-0.56**		-0.56*
×Hocking report		(0.44)		(0.26)		(0.29)
Observations	29,380	29,380	29,380	29,380	29,380	29,380
R-squared	0.09	0.09	0.07	0.07	0.06	0.06
Control group mean	0.65	0.65	0.65	0.65	0.65	0.65
DV:(dummy×100)	Smithsonian roster		Office of Strategic Services		WWII Army Enlistment	
	(7)	(8)	(9)	(10)	(11)	(12)
Mission	0.57**	0.75***	0.01	0.02	-0.14	0.07
	(0.27)	(0.19)	(0.05)	(0.06)	(0.09)	(0.15)
Mission	0.72**		0.15**		0.18	
×Mainline	(0.28)		(0.06)		(0.12)	
Mission		0.63***		0.17**		-0.06
×Hocking report		(0.23)		(0.08)		(0.16)
Observations	29,380	29,380	29,380	29,380	29,380	29,380
R-squared	0.07	0.07	0.08	0.08	0.07	0.07
Control group mean	0.07	0.07	0.05	0.05	0.24	0.24

Note: The unit of analysis is an individual. The table asks whether the missionary effect differs across denominational families. The positive baseline coefficients remain visible across specifications, with some evidence that the effect is stronger in the denominations most tied to the mainstream ecumenical rethinking of missions.

B.5 Turkey disruption design

To further address concerns that the differences between missionaries and volunteers who did not eventually sail may not be as good as random, I compare missionaries in Turkey with other missionaries before and after 1915. Turkey was undergoing significant political instability during this period, including the Armenian Genocide and the Turkish War of Independence. These political changes were exogenous to the missionaries' choices, yet they disrupted their opportunities to engage with and learn about foreign cultures.

For example, missionary Henry H. White initially went to Turkey in 1915 but had to return because his school was closed during the Armenian Genocide.[5] A 1921 local newspaper article also reports that Mustafa Kemal opposed many foreign influences and another missionary in my sample, Theodore D. Riggs, was expelled from Turkey turkeynews2. In the case of Henry H. White, he later served as a missionary in China. However, many other missionaries who went to Turkey after 1915 were likely less exposed to foreign countries.

If missionaries were purely attracted to their mission out of curiosity about foreign cultures, those whose work in Turkey was disrupted would have likely pursued other occupations and continued to write about foreign countries. To test whether the reduced exposure to foreign culture in Turkey due to political instability affected publication output, I regress three different types of publication output on the interaction between serving in Turkey and sailing after 1915.

The sample is restricted to missionaries who sailed after 1900 (the first year of missionary sailing to Turkey in my data), whose sailing year is available, and whose destination country is recorded. The control group consists of missionaries who went to other countries, not volunteers who did not sail. Out of 6,263 such missionaries, 138 missionaries served in Turkey between 1901-1923. Using these missionaries, I estimate the following equation

$$pub_{idt} = \beta_t(Turkey_d \times After1915_t) + \delta_d + \delta_{c(d),t} + \varepsilon_{idt} \tag{4}$$

where pub_{idt} represents the publication output of a missionary i who was sent to destination d in year t. The estimated coefficient β_t captures the effect of being assigned to Turkey after 1915 on publication output. δ_d controls for destination fixed effects, while $\delta_{c(d),t}$ accounts for continent-by-sailing-year fixed effects. Error terms are clustered at the destination region level.

In Table ?? and Figure ??, I find that the instability in Turkey reduced publication output

[5] I learned this from the personal memoir I received from his grandson and an economist Lawrence H. White.

not only about Turkey but also about foreign subjects. If the selection into missionary work, compared to the runner-up volunteers, was purely driven by interest in foreign countries rather than religiosity, we would expect the coefficients in columns (3) and (4) to be zero, as these individuals would have eventually learned about foreign cultures through other channels. However, that was not the case. Lastly, I checked for authorship on non-foreign subjects and found no significant differences. Out of 138 missionaries in Turkey, only one person's name could be matched to graduate dissertation data on foreign subjects, so I do not include this outcome in my analysis.

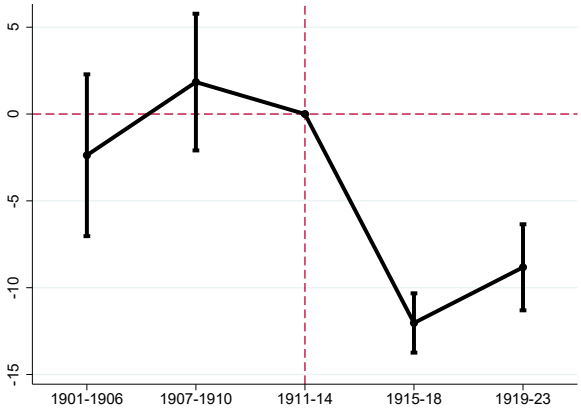
Table B.6: Missionaries in Turkey after 1915

	Pub. Turkey		Pub. foreign subjects		Pub. all subjects	
DV: (dummy×100)	(1)	(2)	(3)	(4)	(5)	(6)
Turkey×Sail after 1915	-10.09***	-9.58***	-10.11***	-7.08***	3.63***	1.78
	(0.04)	(0.97)	(0.46)	(2.40)	(0.67)	(2.93)
Observations	6,263	5,459	6,263	5,459	6,263	5,459
R-squared	0.10	0.11	0.02	0.05	0.02	0.05
Control group mean	0.05	0.05	4.00	4.00	6.62	6.62
Destination FE	Y	Y	Y	Y	Y	Y
After 1915 FE	Y	Y	Y	Y	Y	Y
Individual controls		Y		Y		Y
Continent-by-After 1915 FE		Y		Y		Y

Note: The unit of analysis is a missionary, for whom the sail year and destination country are available. Regressions are performed with an indicator of publication output as the dependent variable, focusing on the interaction between serving in Turkey and a dummy variable equal to one for missionaries who sailed in 1915 or later. The outcome variables in Columns (1) and (2) indicate whether individual names can be matched to publications with titles that include the words "Turkey," "Turkish," or "Ottoman," using data from OpenAlex. The outcome variables in Columns (3) and (4) capture whether individuals can be matched to publications about foreign subjects, also using OpenAlex. In contrast, the outcome variables in Columns (5) and (6) reflect whether individuals can be matched to authors who did not write about foreign subjects. Odd-numbered columns show raw differences, controlling for destination fixed effects and a time dummy set to one if the sailing year is 1915 or later. Even-numbered columns add further controls for birth year fixed effects, gender fixed effects, and a destination continent-by-time dummy for the year 1915 or later. Robust standard errors, clustered by 49 destination regions, are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Figure B.4: Missionaries in Turkey after 1915

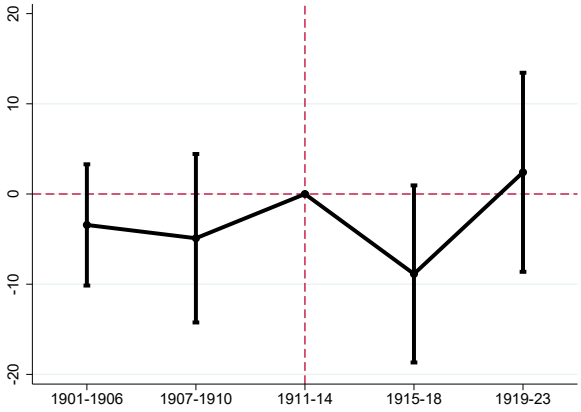
(a) Publication on Turkey



(b) Publication on foreign subjects



(c) Publication on all subjects



Note: The panel names represent the outcome variables. The estimated coefficients, along with 95 percent confidence intervals clustered by destination region, are displayed. The coefficients reflect the interaction between serving as a missionary in Turkey and the time indicator for the sailing year. Controls include destination, birth year, gender, denomination fixed effects and continent by sailing year bin fixed effects.