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France's Economic Wound:
How the Huguenot Exodus Shaped Regional Development

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Abstract

In 1685, Louis XIV's revocation of the Edict of Nantes expelled some 200,000 Huguenots—one of the most skill-selective forced migrations in early modern Europe. While their contributions to England, Prussia and the Dutch Republic are well documented, the economic losses borne by the French regions they left behind have remained surprisingly unmeasured, despite the Huguenots' disproportionate role in textiles, luxury crafts, finance and international trade. This paper provides the first economy-wide, micro-quantitative estimate of the long-run cost of this exodus for France. Using a newly assembled parish-level panel of Protestant baptism registers (1570–1700) linked to the industrial censuses of 1839 and 1860, we trace how a seventeenth-century demographic shock shaped regional development nearly two centuries later. We uncover three core results. (1) A one-standard-deviation decline in Huguenot baptisms ($\approx$ –20%) led to enduring losses: –5.8% industrial employment, –4.4% establishments and –5.1% wages in 1839, with output deficits still visible in 1860. (2) These effects persisted remarkably: by 1860, industrial production remained 2.8% lower—about 480,000 francs per arrondissement. (3) The impact hinged on institutional and intellectual complementarities: regions distant from universities, printing presses, commercial hubs or Parliaments suffered the deepest scars. Together, these findings show how the removal of a highly skilled minority durably reshaped France's economic geography, leaving an imprint that lasted for nearly two centuries.

Keywords: Huguenots; Forced migration; Human capital; Economic persistence; Industrialization; Regional development; Historical shocks; Microhistorical data; Skill-selective migration.

JEL Codes: N33; N34; J61; O15; R11; F22; C23; N93.

1 Introduction

In October 1685, France began to bleed from every pore—not on distant battlefields, but in its ports, workshops, and trading houses. Louis XIV's revocation of the Edict of Nantes expelled roughly 200,000 Protestants, the Huguenots. This event not only disrupted the lives of a religious minority but also fundamentally altered France's economic landscape. Skilled artisans, successful merchants, and influential financiers fled cities like Lyon, Nantes, and Rouen, triggering immediate economic turmoil. Contemporary observers lamented a nation "bleeding talent from every vein" (Scoville, 1962b). Historians have documented extensively the visible economic gains to host countries such as England, the Netherlands, and Prussia, where Huguenot refugees significantly enhanced local industries (Hornung, 2014; Scoville, 1952; Becker and Ferrara, 2019). While these positive externalities are well-known, a systematic quantitative evaluation of the economic damage inflicted on the French regions these migrants left behind remains largely absent from economic historiography.

This oversight is striking given that forced population movements can lead to enduring economic stagnation in sending regions (Putterman and Weil, 2010; Federico and Malanima, 2004; Rajan and Zingales, 2003). Although a substantial literature highlights migrants' contributions to innovation and growth in host economies (Bahar et al., 2024; Sequeira et al., 2020; Hornung, 2014; Moser et al., 2014), far less is understood about the lasting costs suffered by regions that lose skilled inhabitants who are deeply embedded in commercial and financial networks (Sánchez-Alonso, 2019; Botticini, 2000; Trivellato, 2017; Abramitzky et al., 2014). The economic decline following the Revocation stemmed from the systematic dismantling of these very networks. Huguenots had established dominant positions in key sectors like textiles, luxury goods, and finance, while building extensive merchant connections that integrated French production into European markets (Scoville, 1951, 1962a). Their expulsion hindered access to export markets, created a vacuum in regional capital markets, and, most critically, eliminated the human capital embodied in skilled artisans who had spearheaded technological innovation (Grassby, 1960; Scoville, 1952). This pattern of disruption is not unique; the forced expulsions of skilled minorities from Nazi Germany and post-war Eastern Europe similarly dismantled industrial knowledge networks and produced persistent economic decline (Buggle et al., 2023; Becker et al., 2020).

This paper addresses this gap by providing the first economy-wide, micro-quantitative assessment of the long-run economic consequences of the Huguenot exodus on French regional development. The analysis relies on a novel dataset constructed from newly digitized parish-level baptismal registers from approximately 120 Protestant congregations between 1570 and

1700. We link this historical data to comprehensive industrial censuses from 1839 and 1860, which offer precise arrondissement-level information on industrial establishments, employment, wages, and output. The empirical strategy exploits within-department variation in the decline of Protestant baptisms to estimate its causal impact on nineteenth-century industrial outcomes, controlling for unobserved departmental heterogeneity and local geographic characteristics. This approach builds on modern identification strategies in economic history that leverage sharp geographical discontinuities or quasi-experimental variation to infer long-run causal effects (Dell, 2010). To test the mechanisms behind persistence, we further examine how the impact of the exodus was mediated by pre-existing local conditions, such as proximity to medieval universities (proxying for knowledge centers) and Parliaments (high courts, proxying for institutional quality). A series of robustness checks, including Conley standard errors to account for spatial correlation, confirms the validity of the findings.

The results show that the forced emigration of the Huguenots caused significant and long-lasting economic losses in the affected French regions. A one-standard-deviation decline in local Huguenot baptisms (approximately 20 percent) is associated with 5.8 percent lower industrial employment, 4.4 percent fewer establishments, and 5.1 percent lower male industrial wages in 1839. These impacts persisted for nearly two centuries, with the total value of industrial production remaining 2.8 percent lower in 1860, equivalent to a loss of roughly 480,000 francs[1] per arrondissement. The analysis of the channels reveals a story of institutional complementarities: the economic damage from the exodus was significantly more severe in regions that were geographically isolated from alternative sources of knowledge or strong formal institutions. The loss of Huguenot human capital and networks was most damaging precisely where there were no substitutes to fill the void.

This paper makes two key contributions. First, by quantifying the persistent negative impacts on the sending region, it provides a necessary counterpart to the extensive research emphasizing the productivity gains enjoyed by receiving economies (Hornung, 2014; Scoville, 1952), thus offering a more complete understanding of the consequences of forced migration. Second, it contributes to the literature on regional economic persistence by empirically demonstrating how historical shocks interact with local endowments to shape long-term inequalities (Voigtländer and Voth, 2012; Docquier and Rapoport, 2012; Clemens, 2011). By identifying the channels through which human capital loss, network disruption, and institutional context determine regional resilience, this paper highlights the mechanisms that can lock regions into divergent development paths for centuries.

[1]One franc equalled approximately 0.29 grams of gold. Based on the value of gold, this equates to around 13 million euros in 2025.

The remainder of the paper proceeds as follows. Section 2 provides detailed historical context. Section 3 outlines the dataset construction and empirical methods. Section 4 presents the core empirical results, mechanism analysis, and robustness checks. Finally, Section 5 summarizes the contributions and concludes.

2 Historical Background

2.1 France before the Edict of Nantes (1598)

Before 1598, there was considerable political fragmentation, religious turmoil and economic instability in France. Most of it came from long internal conflicts and devastating Wars of Religion between 1562 and 1598. Most of these wars were between the catholic majority and the Huguenots, a Calvinist Protestant minority and weakened the monarchy (Scoville, 1953). Moreover, these conflicts also intensified feudal division and weakened national cohesion (Scoville, 1953). In some violent episodes, such as the St Bartholomew's Day Massacre (1572), thousands of Huguenots were killed which caused the erosion of social trust (Hornung, 2014). The killing of the Huguenots disrupted trade, which was in the hands of the Huguenots, and this in turn had a negative effect on economic activity and investment (Hornung, 2014). Hence, religious violence in France increased both transaction costs but also risks premiums in financial markets. This in turn negatively affected investment activity in productive sectors, even lucrative export-orientated industries (Scoville, 1962a,b). The Huguenots made up around 10% of France's population, yet had a disproportionately important economic impact. Their focus on education, technical expertise and capital formation created significant economic advantages, fostering urban dynamism and regional prosperity (Scoville, 1951). In general, critical economic sectors such as textiles, silk, wool or luxury goods were dominated by the Huguenots (Scoville, 1951). Moreover, many Huguenots were also important figures in commerce, finance, manufacturing and agriculture. These protestant merchants were important in building international trade networks mainly in Nantes and Bordeaux, from where they facilitated trade with England, Germany and the Netherlands (Scoville, 1953). Due to the Huguenots crucial role in the French economy, silk exports from Lyon and textile production in Rouen fluctuated greatly at the height of the religious conflict (Scoville, 1962a,b).

Under King Henry II, France experienced severe fiscal pressures in the beginning and middle of the 16th century. These were mainly caused by high court expenditures but also on royal favourites (Kelly, 1918). In order to finance the Kings' expensive life, excessive taxation was introduced[2] which negatively affected the economy and caused increased the negative sentiment

[2]Particularly through the *taille* and *gabelle*. The *taille* was a direct tax on land and income, whereas it was

towards the King. At the same time fiscal deficits became increasingly higher and high-interest rate state loans were taken to cover for them, increasing economic instability (Kelly, 1918). Simultaneously, inflation increased, affecting peasants and artisans disproportionately as they spent a great part of their money on basic commodities which rapid became more expensive. The rise in food prices therefore led to increased poverty and food shortages, which in turn fuelled social unrest (Kelly, 1918). Protestant support for economic reform, notably the Ordinance of Orleans (1560), aimed to reduce the power of the guilds and promote freer labour markets. Such reforms were initially resisted by Catholic interests, further increasing tensions in the urban economy and fuelling religious divisions (Kelly, 1918).

In 1561 and 1562 economic activity got disrupted in major cities like Paris, Lyon, Rouen and Marseilles due to the outbreak of bubonic plague (Kelly, 1918). Protestant leaders criticized Catholic authorities for their poor responses to disease, famine and economic hardship. This intensified social and religious tensions even more, as economic mismanagement and financial hardship significantly contributed to the expansion of Protestantism, particularly among artisans, merchants, and urban populations (Kelly, 1918). For many who became Protestants, this was also a way of protesting against high taxes, corruption within the Catholic hierarchy and guild-based monopolies (Kelly, 1918).

2.2 The French Economy before the Edict of Nantes

Before the Edict of Nantes, the French economy was mainly based on agriculture, textiles, and artisanal manufacturing. Agricultural practices were generally traditional and feudal, characterized by limited technological innovation (Grassby, 1960). In contrast, urban economies, particularly in Lyon, Paris and Rouen, had dynamic craft sectors, including silk weaving, cloth making and metalworking, largely driven by Protestant artisans known for their efficiency and high productivity (Scoville, 1951). Protestant financial networks, particularly those established by prominent families such as the Huguenots in Paris and Lyon, played important roles in stabilizing French credit markets. Moreover, these financial networks were also key drivers in facilitating capital formation, which was essential for early economic modernisation (Scoville, 1951).

The economic decline of the nobility, burdened by debts from military campaigns and ransoms, contrasted sharply with the rising Protestant bourgeoisie, whose commercial and financial strength increased substantially during this period. Protestant merchants and financiers gained economic influence, undermining traditional feudal structures and advocating for greater political representation in institutions (Kelly, 1918). This broader shift in economic power had significant

not imposed on the nobility and clergy. The *gabelle* was an indirect tax on salt.

regional implications. Regions with substantial Protestant populations, such as Lyon, Tours, and Nantes, notably outperformed predominantly Catholic regions in terms of productivity, economic resilience, and technological innovation. These differences reflect the Protestant communities' stronger entrepreneurial ethos and deeper connections to international trade networks (Scoville, 1951, 1953).

2.3 During the Edict of Nantes

In 1598 King Henry IV issued the Edict of Nantes which, by establishing religious tolerance, which greatly reduced religious conflicts in France. Hence, this led to a phase of relative stability and economic expansion which lasted almost one century (Scoville, 1953). As protestant communities, like the Huguenots, benefited from increased security and the right to live their faith, they were able to significantly increase investments and to attract foreign merchants. Hence, this boosted France's position in the European market (Scoville, 1953). During that period, Protestant entrepreneurs and financiers actively strengthened domestic capital markets and stimulated international trade. At the same time, Protestant artisans, notably in the silk and textile industries of Lyon, Tours, and Nîmes, set international standards and facilitated substantial wealth accumulation (Scoville, 1952). The Protestant merchants still dominated maritime trade networks from Nantes and La Rochelle which reinforced France's economic integration into international markets (Scoville, 1962a). The concentration of highly skilled human capital among Protestants notably accelerated regional economic growth, reflecting their disproportionate educational and technical advantages during the Edict's effectiveness (Squicciarini and Voigtländer, 2015).

1661 was a turning point for the Huguenots in France. The accession of Louis XIV in 1661 was the beginning of a reversal in religious tolerance, which reflected his absolutist ambitions and religious zeal. Between 1661 and 1685, more than 300 restrictive royal decrees increasingly targeted Protestant civil and economic rights, excluding them systematically from key professions, civil offices, and trade guilds (Scoville, 1962b). Economic coercion substantially disrupted local economies dependent on Protestant business leadership, creating an environment of economic instability and uncertainty (Scoville, 1953). Moreover, the *dragonnades*, a policy of religious persecution, tried to force Huguenots to convert to Catholicism. Under Louis XIV, the mercantilist policies of Jean-Baptiste Colbert initially fostered significant economic growth by incentivize manufacturing and export industries, which in turn benefited Protestant enterprises engaged in these sectors (Scoville, 1962a). Over time, however, Colbert's policies increasingly discriminated against Protestant entrepreneurs, undermining earlier gains due to Louis XIV's shifting political priorities and religious biases (Scoville, 1962a).

2.4 The Edict's Revocation (1685) and its Immediate and Long-term Impact

Louis XIV's revocation of the Edict of Nantes in 1685 severely intensified persecution, banned Protestant worship, destroyed temples, and mandated forced conversions, precipitating the mass emigration of approximately 200,000 Huguenots. This emigration brought essential skills, capital and entrepreneurial knowledge abroad, significantly damaging French industry and commerce (Scoville, 1962b; Beaudreau, 2017). Strict laws criminalising emigration, with penalties including confiscation of assets, imprisonment and forced labour, were circumvented by clandestine networks and forged documents, allowing the continued outflow of capital and skilled labour (Scoville, 1962b; Franck and Michalopoulos, 2017). Following the revocation, Protestant economic participation in France was severely reduced. Laws excluded Protestants from guild membership, limited property rights, restricted business partnerships, and mandated Catholic conformity for public office and commercial licences (Scoville, 1962b). These measures devastated important industries, notably textiles, silk, wool, finance, and luxury manufacturing. Capital flight significantly impaired credit markets, which substantially reduced financing for domestic enterprises and triggered declines in industries such as lace-making, textiles, glass, and metallurgy (Scoville, 1953, 1962a). In turn, the mass emigration predominantly benefited host countries, including England, the Dutch Republic, Prussia, Switzerland, and Ireland, each offering incentives to attract skilled Protestant migrants. These nations experienced significant productivity gains and economic growth due to technological diffusion and skill transfer from the Huguenot diaspora (Hornung, 2014; Scoville, 1952). However, within France, the confiscation of Protestant assets largely benefited Catholic elites, resulting in inefficient redistribution, discouraged investment, and worsening economic stagnation (Grassby, 1960; Franck and Michalopoulos, 2017). Ultimately, the revocation marked an important turning point, significantly shifting European economic leadership away from France by redistributing human capital and technological expertise throughout neighbouring economies.

3 Data

This section introduces the three main sources used in the empirical analysis, evaluates their coverage and reliability, and explains how they are merged into an arrondissement–level panel.

3.1 Huguenot demographic records

The core explanatory variable is built from annual baptism counts recorded in Reformed parish registers between the 1570s and the 1690s (Benedict, 1991). The first national synod of the French

Reformed Church (1559) required every congregation to keep such books; the Ordonnance de Saint-Germain-en-Laye (1667) ordered that duplicates be filed with the local civil court, creating a rare double-entry system that historians regard as exceptionally complete for the early-modern period (Le Mée, 1975). A census of surviving volumes yields 120 congregations with at least forty consecutive years of data. Those churches represent roughly seventeen percent of the seven hundred active Reformed congregations in the 1660s and about one quarter of the total Protestant population, because large urban churches are more likely to have continuous series (Benedict, 1991). All sixteen provincial synods and fifty-one of the sixty-one colloques appear in the sample, though thin coverage of the Cévennes, Vivarais and Pays de Gex means that rural Midi parishes account for only nine percent of observations, while northern urban churches make up forty-six percent. Linking each parish to its nineteenth-century administrative successor produces 101 arrondissements, which together contained thirty-eight percent of factories and forty-one percent of industrial employment in 1839 (authors' calculation from Postel-Vinay, Gilles, 2023). On both demographic and economic grounds the coverage is therefore broadly representative of mid-nineteenth-century France.

A critical consideration for the measure of Huguenot decline is the potential for non-random data availability. If the survival of parish registers is systematically correlated with underlying economic conditions, this could introduce bias into our estimates. Historical analysis of the surviving records by Benedict (1991) indicates that record loss is indeed non-random: only nine percent of small, rural churches in the poorer agrarian zones of the Midi and Centre-West keep unbroken registers, whereas forty-six percent of large, northern urban parishes do. This pattern of missingness, however, likely biases the results against finding a negative long-run effect of Protestant flight. Because the sample is over-representative of more resilient, economically dynamic urban centers, any estimated negative impact is less likely to be driven by the inclusion of peripheric, stagnating regions where records were lost. In essence, the sample composition makes it harder, not easier, to find the significant negative effects we document, suggesting our estimates may represent a lower bound on the true economic damage in France's industrial and commercial heartlands. It is important to acknowledge, however, that this limits our ability to generalize these findings to the more peripheral agrarian regions, where the dynamics of persistence may have differed.

Two further checks confirm that baptisms capture economically relevant human-capital loss. First, digitised entries for Caen identify 9,547 fathers' occupations between 1640 and 1685; more than seventy percent belong to skilled artisanal or mercantile groups, and year-to-year declines in baptisms closely mirror declines among those skilled strata (Benedict, 1991). Second, in

Rouen a one-percent fall in Protestant baptisms predicts a 0.9 percent fall in new master-weaver admissions once timing and extra-muros births are corrected (Scoville, 1962a). Because elite households were the most mobile, observed baptism losses understate the true depletion of skills, making the estimated economic effects conservative lower bounds.

3.2 Industrial outcomes and controls

Industrial performance is measured with the factory-level *Enquêtes industrielles* of 1839–1847 and 1860–1865 (Postel-Vinay, Gilles, 2023). Inspectors completed printed schedules during on-site visits, owners and prefects signed each form, and bundles were forwarded to the *Conseil d'État*. Identical questionnaires were reused in 1847 and 161, permitting consistency checks across waves. Two départements (Basses-Alpes, Lozère) failed to return their 1839 schedules; results are unaffected when those territories are omitted or when outcomes are normalised to the complete 1847 follow-up. To capture permanent differences in agricultural potential, the analysis controls for the arrondissement-level mean of the FAO Global Agro-Ecological Zones suitability index for wheat, rain-fed, low-input cultivation under the 1961–1990 climate baseline (Fischer et al., 2021a,b). Using a pre-revocation latitude–longitude grid ensures that estimated effects are not driven by variation in soil quality or climate.[3]

To ensure that the estimated persistence of the Huguenot exodus is not simply picking up pre-existing advantages, we control for a set of *pre-1500 locational fundamentals*. For each church we measure the distance to the nearest (i) university founded before 1500 and city with a printing press installed before 1501, which proxy for early stocks of human capital and knowledge (Hirsch, 1960); (ii) major medieval market fair and royal mint, which capture commercial and financial development (Harvard University, 2025); and (iii) bishopric established before 1500 (Harvard University, 2025) and (iv) *Parliament*, the high court of the *Ancien Régime*, which index institutional and administrative power.

[3]The use of FAO-GAEZ data as a proxy for historical agricultural potential has been standard in the literature (e.g., Nunn and Qian, 2011; Voigtländer and Voth, 2013; Bustos et al., 2016). However, this approach is not without criticism. Recent work by Rhode (2024) argues that GAEZ indices are weak predictors of actual historical yields. Rhode (2024) shows that the GAEZ models contain anachronistic assumptions about technology and crop biology, are based on modern climate normals, and fail to capture the socio-economic and institutional factors (such as slavery in the US South) that shaped historical land use. The primary implication for this study is the potential for measurement error in the wheat suitability control. If this error is classical (i.e., random noise), it would lead to attenuation bias, making it more difficult to find significant effects for our main variable of interest. The strong results we find for the Huguenot exodus can therefore be seen as robust to this potential imprecision; if anything, our estimates are likely conservative.

3.3 Construction of the arrondissement panel

Each parish in the baptism register was geolocated and matched to its seventeenth-century commune; communes were then assigned to arrondissement boundaries as defined in the 1836 administrative map. Where several parishes fell within a single arrondissement, baptism counts were summed or converted to rolling averages depending on the specification. Industrial establishments were aggregated from the factory schedules to the same arrondissement units after harmonising prefecture spellings. The resulting panel combines annual Huguenot population change, quinquennial industrial indicators, 1836 population, and time-invariant agro-ecological controls. Figures 6 and 7 illustrate the temporal completeness of the baptism series: reporting rises sharply after the Edict of Nantes in 1598, stabilises at sixty-five to seventy-five churches through most of the seventeenth century, and collapses after the 1685 Revocation, while seventy percent of parishes record at least seventy years of data. A flow-chart of the aggregation procedure appears in Figure 8.

The combination of double-entry church registers, verified factory censuses and exogenous agro-ecological controls generates a balanced and internally consistent dataset that is well suited to measuring the long-run economic impact of forced Protestant emigration.

4 Results

4.1 Summary Statistics

Table 1 provides descriptive statistics for the variables included in the empirical analysis, organized by variable type. Panel A reports on the main explanatory variable and key geographic controls. The mean *Growth Rate* of Huguenot baptisms is -0.20, indicating an average decline of 20% across the arrondissements in the sample. However, the large standard deviation of 1.41 and the wide range from -1.00 (complete disappearance) to 9.41 (substantial growth in a few resilient locations) highlight the considerable regional heterogeneity in the demographic shock precipitated by the Revocation. The table also shows substantial variation in 1836 population levels and wheat suitability, confirming the diverse nature of the arrondissements in the sample. Panel B details the historical proximity controls. There is significant geographic variation in access to these pre-Reformation centers. The mean distance to the nearest university, for example, is approximately 87 km, with a standard deviation of 42 km. This indicates that while some arrondissements were located within major intellectual hubs, others were considerably more peripheral. Similarly, the distance to a Parliament, the proxy for high-level legal institutions, averages 105 km. In contrast, the mean distance to a bishopric is much lower at 54 km, reflect-

ing the denser geographic network of religious administration compared to higher learning or supreme legal authority. This variation is essential for the identification strategy, as it allows us to test whether these different types of historical endowments moderated the long-term impact of the Huguenot exodus.

Panels C and D summarize the industrial outcomes from the 1839 and 1860 censuses. The data reveals a French economy undergoing a spatially uneven process of industrialization. In 1839, the average arrondissement produced over 17 million francs in industrial value, but the standard deviation is more than double the mean, driven by major industrial powerhouses. The number of establishments, workers, and wages show similarly large dispersions. The low mean number of steam engines in 1839 (9 per arrondissement) compared to the number of water-powered engines (123) confirms the early stage of industrial technology. By 1860, we see clear growth and transformation. The average value of production increased to over 24 million francs, the number of establishments grew by nearly 50 percent, and the use of steam power, measured by horsepower (FMVAP1860), expanded dramatically. This broad statistical overview underscores the dynamic and heterogeneous economic landscape against which we measure the persistent effects of the seventeenth-century demographic shock.

4.2 Huguenots in France

Figure 1 shows the locations of Huguenot churches across France, identified by red dots over departmental boundaries. Several important observations arise. First, there are some clusters with many Huguenot churches in certain regions. Four major clusters can be identified: In the south eastern part in the region of Lyon, Grenoble and Valence. In southern France close to Nîmes, Avignon and Montpellier. The next cluster is in the west, spanning from Nantes, La Rochelle to Bordeaux and the last cluster is around Rouen in the north. These cluster allign very well with the historic maps about protestant communities from Musée Protestant (2025). First, there is a noticeable clustering of Huguenot churches in certain regions, particularly the southwest, the lower Rhone corridor, and pockets in the west (around Poitou–Charentes). Second, the distribution reflects historical accounts that Protestants concentrated in particular places where the local nobility offered greater protection or where municipal structures allowed greater freedom of worship. Third, while the dots are scattered throughout France, the uneven spatial distribution suggests that huguenot communities established themselves more successfully in economically dynamic centers with either intensive trade (La Rochelle) or a local industry (Rouen, Nîmes and Lyon). Figure 5 adopts a finer administrative unit – the arrondissement. Based on our data about Huguenot churches, the map shows the arrondissements with at least one

Table 1: Summary Statistics

Variable	N	Mean	Std. Dev.	Min	Max
Panel A: Huguenot Persistence and Geographic Controls					
Growth Rate	58	-0.20	1.41	-1.00	9.41
Population (1836)	71	396,529.00	118,306.00	131,162.00	720,525.00
Wheat Suitability Index	77	8,443.00	5,185.00	3,294.00	27,900.00
Latitude	77	46.29	2.07	42.92	49.94
Longitude	77	2.04	2.19	-1.83	6.20
Panel B: Historical Proximity Controls (in km)					
Dist. to Printing Press (pre-1501)	77	102.93	48.00	1.91	227.72
Dist. to Bishopric (pre-1500)	77	54.46	28.22	2.99	130.56
Dist. to Market Fair (medieval)	77	217.10	120.74	9.01	501.72
Dist. to Mint (pre-1500)	77	66.85	41.98	1.90	187.96
Dist. to Parliament (pre-1500)	77	104.66	52.83	5.02	226.07
Dist. to University (pre-1500)	77	86.61	42.34	1.77	208.33
Panel C: Industrial Outcomes (1839)					
Value of Production (francs)	65	17,162,521.00	39,124,167.00	825,669.00	292,941,021.00
Number of Establishments	65	210.00	151.00	4.00	667.00
Number of Workers	65	5,163.00	14,137.00	191.00	106,344.00
Male Wages (centimes)	65	10,464.00	14,688.00	575.00	102,285.00
Rental Value (francs)	65	159,882.00	192,118.00	0.00	1,276,972.00
Number of Water Engines	65	123.00	125.00	0.00	638.00
Number of Steam Engines	65	9.00	17.00	0.00	113.00
Panel D: Industrial Outcomes (1860)					
Value of Production (francs)	65	24,501,673.00	33,825,008.00	847,000.00	215,846,000.00
Number of Establishments	65	301.00	228.00	40.00	1,470.00
Number of Workers	65	4,788.00	6,459.00	228.00	38,458.00
Male Wages (centimes)	65	5,797.00	3,671.00	815.00	17,980.00
Force of Steam Engines (hp)	65	363.00	668.00	0.00	4,177.00

Notes: All variables are at the arrondissement level. *GrowthRate* is the percentage change in average annual baptisms between 1578–1610 and 1679–1692. *pop*1836 is the total population in 1836. *wheatS* is a Wheat Suitability Index. $VALPRO$ is the Industrial Value (1839) and represents the total production value (in francs). $NBETAB$ is the Number of Industrial Establishments (1839). $NOUV$ refers to the total number of workers employed in the industrial sector (1839). $SALHOM$ are Male Wages (1839), measured in centimes. $VALLOC$ is Rental Value (1839) which is a proxy for capital stock and represents the total rental value of industrial buildings (in francs). $NMEAU$ and $NMVAP$ are the number of Water-Powered and Steam-Powered Engines (1839). *Latitude* and *Longitude* correspond to the geographic coordinates of each unit of observation. *VALPRO 1860*, *NBETAB 1860*, *NOUV 1860* and *NMVAP 1860* are the the total production value (in francs), the Number of Industrial Establishments, the total number of workers employed in the industrial sector and the number of Steam-Powered Engines in 1860. Historical proximity controls measure the great-circle distance in kilometers from the arrondissement centroid to the nearest historical center of the specified type.

church. Hence, the picture from before becomes even clearer. The map aligns perfectly with the archival maps from Musée Protestant (2025). This pattern therefore closely matches historical evidence of Huguenots in cities such as Montpellier, Nîmes, Rouen and around La Rochelle. In figure 2 the growth rate of baptisms on arrondissement level is shown. Unsurprisingly it is mostly negative. The shading scheme conveys the intensity of decline, with darker or more saturated colours indicating substantial drops. In particular, the South West, around Montpellier and Nîmes, long regarded as the Protestant heartland, has seen some of the sharpest declines as wells as the area around Rouen and La Rochelle and Bordeaux.

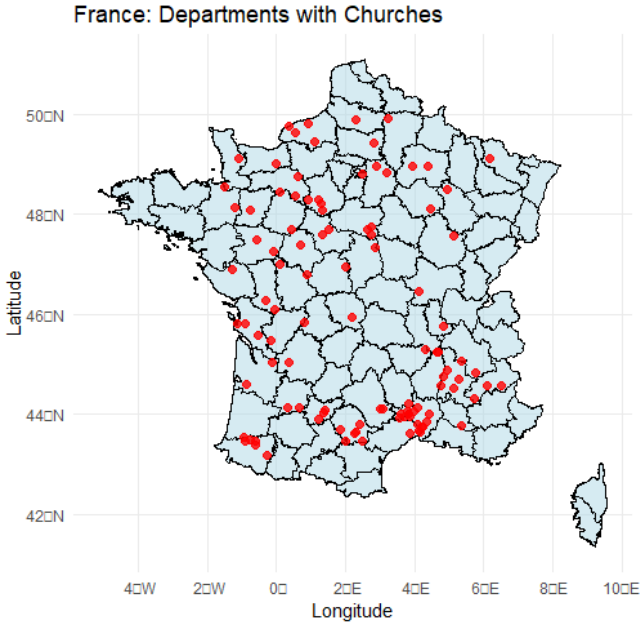

Figure 1: Huguenot Churches across Departments

The yearly aggregated number of Huguenot Baptisms, based on the church-level data set, is shown in Figure 3. Three different patterns emerge. First, until the Edict of Nantes (1598) hardly and Baptisms were documented, as they Huguenots and Catholics were in war. This changed after 1598 when the annual number of baptisms was fairly stable between 20,000 and 35,000 baptisms per year. Between 1627 and 1629 there was a small bump in the series caused by the Anglo-Franco war. Louis XIV became king in 1661 and revoked the Edict of Nantes in 1685. As a result, the number of baptisms fell steadily from the mid 1660s to 1685. This large-scale demographic collapse in baptisms confirms the historical record: as persecution intensified and many skilled Protestants fled abroad, local birth records in France declined sharply, depriving future congregations of replacement members.[4] Turning to figure 9, which shows the number

[4]One of the first Huguenot families to abandon France's collapsing guarantees was the Crommelins of Saint-Quentin. Louis Crommelin, a master linen-manufacturer, slipped across the Dutch frontier in 1685 with several relatives and a small cache of capital; within a decade he had accepted William III's invitation to settle in Lisburn, Ulster, where he introduced Dutch spinning frames, built a model bleach-green, and headed the newly created

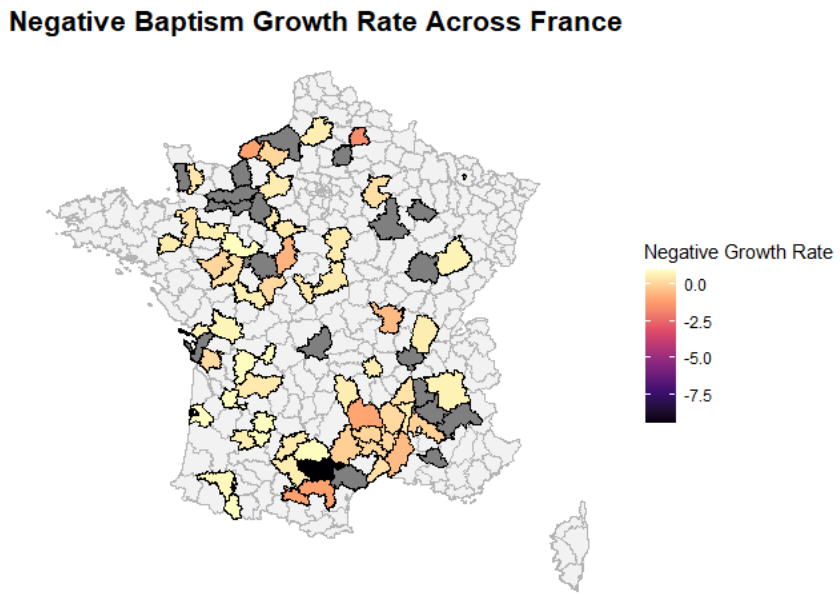

Figure 2: Baptism Data per Arrondissement

of churches with baptismal data. In the sample of about 100 churches, most churches had no baptisms before the Edict of Nantes in 1598. After that we see a big jump in the number of churches with baptisms: about 70 to 90% of the churches reported baptisms between 1598 and 1675. After that, an increasing number of churches reported no baptisms.

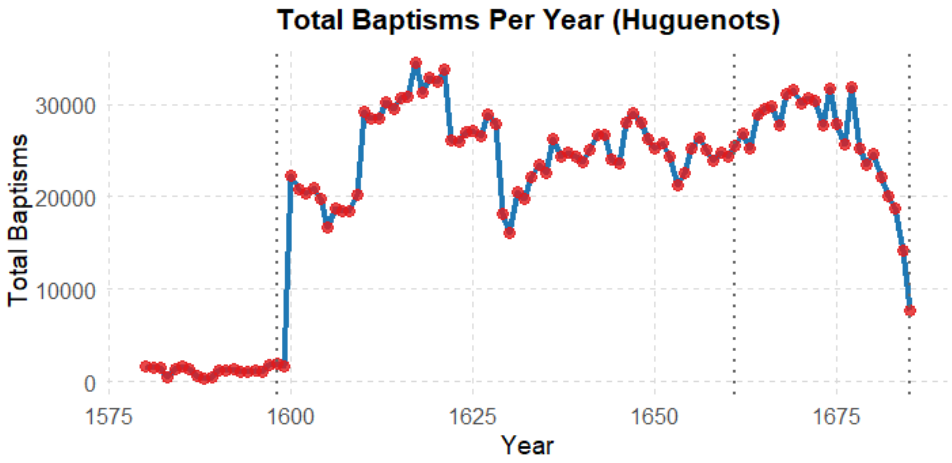

Figure 3: Baptisms p.a.: Dashed lines indicate Edict of Nantes (1598), the Accession of Louis XIV in 1661 and the Revocation of the Edict of Nantes in 1685

The economic landscape of early nineteenth-century France, as revealed by the 1839 industrial census (Postel-Vinay, Gilles, 2023) and demographic data, was characterized by significant regional heterogeneity. An examination of the spatial distribution of key indicators reveals sev-

Royal Linen Board (Agnew, 1886). By 1710 his refugee colony was exporting fine Irish linen to London and Amsterdam, and Crommelin himself—once classified an heretic "new convert" in Picardy—was celebrated by the Irish Parliament as the industry's national benefactor (Agnew, 1886).

eral distinct patterns. Population density, as shown by the 1836 data, was highest in the major urban centers, particularly around Paris, Lyon, and the port city of Bordeaux. This demographic concentration was overlaid on a landscape of varied agricultural potential; the wheat suitability index, a proxy for this potential, is highest in the fertile plains of northern and central France and declines in the more rugged southern and eastern regions. This geographic variation is strongly mirrored in the industrial data. The value of industrial production in 1839 was highly concentrated in a few key industrial hubs. The regions around Paris and Lyon, along with the northern textile centers, stand out as the primary engines of early industrialization. This pattern of industrial dominance is reinforced by the spatial distribution of both the number of industrial establishments and the total number of industrial employees, which are similarly clustered in these core manufacturing arrondissements. Furthermore, this uneven industrial geography translated directly into regional income disparities. Male wages show significant spatial variation, with the highest wages consistently observed in the most industrialized regions, suggesting a premium for labor in these dynamic centers. The adoption of new technologies was also spatially uneven. Water-powered engines, reliant on hydrological conditions, were widespread in the mountainous regions of eastern and south-eastern France. In contrast, steam engines—a more modern and capital-intensive technology—were at this early stage almost exclusively concentrated in the key industrial cities, highlighting their role as the vanguards of the new industrial era. This geographic clustering of population, agricultural potential, and industrial activity underscores the importance of controlling for spatial heterogeneity in the analysis.

4.3 Baseline Specification

To estimate the long-term economic impact of the Huguenot exodus following the coronation of Louis XIV, we analyze whether regions that experienced greater population losses, measured by more pronounced declines in baptism growth rates between the pre-exodus period (1578–1610) and the post-exodus period (1679–1692), later exhibited weaker industrial performance during the early industrial era (1839–1860). The underlying empirical strategy employs several regressions. To account for potential confounding factors, we first control for agricultural suitability (proxied by a wheat suitability index) and subsequently incorporate geographic coordinates (latitude and longitude) to adjust for spatial heterogeneity. Hence, we estimate the following model:

$$LogY_i = \beta_0 + \beta_1 \,\text{Growth\_Rate}_i + \beta_2 \, LogWheatS_i + \beta_3 \, lat_i + \beta_4 \, lon_i + \alpha_{d(i)} + \varepsilon_i, \qquad (1)$$

$LogY_i$ is the log of the economic dependent variable in arrondissement i, which is based on the

industrial census from 1839 or 1860. $LogWheatS_i$ is the wheat suitability index in arrondissement i and lon_i and lat_i are the coordinates of the centroid of the respective arrondissement. Moreover, $\alpha_{d(i)}$ represents fixed effects for the department (indexed by d).

4.4 Industrial Performance (1839)

Table 4 presents the results from the baseline specification. As can be seen, $Growth\_Rate$, did not influence $LogVALPRO$, the total production value, significantly. The second column shows that in arrondissements with higher emigration (more negative $Growth\_Rate$), fewer Industrial Establishments ($NBETAB$) existed in 1839. Column (3) further highlights that they also had less workers in the industrial sector ($NOUV$), which also had lower salaries ($SALHOM$), as depicted in Column (4). Moreover, table 4 shows that in areas with lower $Growth\_Rate$ fewer water powered engines ($NMEAU$) were located, again showing that these areas were less industrial advances. However, the exodus of Huguenots did not affect the number of steam engines ($NMVAP$) nor the rental values of industrial buildings ($VALLOC$). In table 2, we further include *latitude* and *longitude* for unobserved location specific characteristics other than the wheat suitability index and department fixed effects in the previous table. When controlling for geography, the coefficient for Growth Rate remains significant and economically meaningful across various industrial measures. Specifically, industrial establishments (Column 2), industrial employment (Column 3), and male wages (Column 4) indicate clearly that regions with less Huguenot emigration between 1578 and 1692 had substantially higher levels of industrial activity in 1839. The longitude coefficient, indicating more industry in the east, further supports regional heterogeneity in industrial development, reflecting possible advantages due to proximity to more industrialised or trade-connected regions. More interestingly, the results from table 2 indicate that the average decline in baptisms reduced the number of Industrial Establishments ($NBETAB$) by 4.4%[5], reduced the number workers in the industrial sector ($NOUV$) by over 5.8% and reduced the average salary of a worker ($SALHOM$) by 5.1%.

Hence, the empirical analysis shows that regions with substantial declines in the Protestant population, indicated by strongly negative growth in baptisms between 1578–1610 and 1679–1692, exhibit notable negative long-term impacts on industrial outcomes. In 1839, these regions had significantly fewer industrial establishments, smaller industrial workforces, and lower male wages, confirming the persistence of human capital depletion effects. In addition, the reduced use of water-powered engines in these sectors indicates reduced technological investment. However,

[5]At an average growth rate of -0.20 and an estimated impact of 0.2254 (2, column 2), the average impact is roughly

$$0.2254 \times -0.20 \approx -0.044.$$

this implies a reduction of approximately 4.4%

Table 2: Regression Results

Dependent Variable:	*LogVALPRO*	*LogNBETAB*	*LogNOUV*	*LogSALHOM*	*LogVALLOC*	*LogNMEAU*	*LogNMVAP*
Model:	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Variables							
Growth Rate	0.1249	0.2254**	0.3000***	0.2615***	0.0555	0.1266	0.0758
	(0.0980)	(0.0860)	(0.0777)	(0.0511)	(0.0800)	(0.1587)	(0.1078)
Log(WheatS)	0.1693	0.0779	-0.3941	-0.4019	-0.0520	0.3357	0.1194
	(0.5103)	(0.6356)	(0.4519)	(0.3616)	(0.5002)	(1.165)	(0.5384)
lat	1.714	0.4659	4.391***	3.958***	0.4207	-3.464	3.406
	(1.651)	(1.722)	(1.491)	(1.098)	(1.633)	(3.183)	(2.331)
lon	2.254*	2.578**	2.897**	2.335**	2.599**	2.014	1.663
	(1.301)	(0.9996)	(1.268)	(0.9275)	(1.135)	(1.460)	(1.034)
Fit Statistics							
Observations	48	48	48	48	48	48	48
Within R^2	0.3398	0.7008	0.5779	0.6716	0.5359	0.5857	0.2025

DEP-Fixed Effects included in all models. Clustered (DEP) standard errors in parentheses.
Dependent Variables from Industrial Census in 1839 and in log(1+y).
Significance levels: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

contrary to initial expectations, total industrial production value and the number of steam engines were not significantly affected in this earlier period, suggesting partial resilience in certain capital-intensive investments.

To provide a concise visual overview of the primary findings from our baseline regressions, Figure 4 summarizes the estimated coefficients for the Huguenot baptism 'Growth Rate' on key industrial outcomes for both 1839 and 1860. These coefficients, derived from models controlling for agricultural suitability, geographic coordinates, and department fixed effects, illustrate the persistent negative economic consequences of the Huguenot exodus. A positive coefficient indicates that regions experiencing higher (less negative) Huguenot baptism growth rates subsequently exhibited better industrial performance. The figure clearly shows that the effects, particularly on the number of establishments, workers, and male wages, were statistically significant and economically substantial in both periods. While some effects show a slight attenuation by 1860 (e.g., male wages), the overall pattern confirms the long-lasting scar left by the forced migration. Notably, the impact on the overall value of production becomes statistically significant in 1860, suggesting that the initial losses in human capital and establishments eventually translated into a broader economic output deficit over the long run.

4.5 Industrial Persistence: Evidence from the 1860 Census

The long-run persistence of these economic effects is evident in the industrial census of 1860 (Tables 5 and 3). The findings confirm the patterns observed two decades prior, solidifying the narrative of a lasting economic legacy. In models including geographical controls (Table 3), a region's historical Protestant *Growth Rate* continues to significantly predict key industrial outcomes, including a higher number of establishments (*NBETAB*), more industrial workers

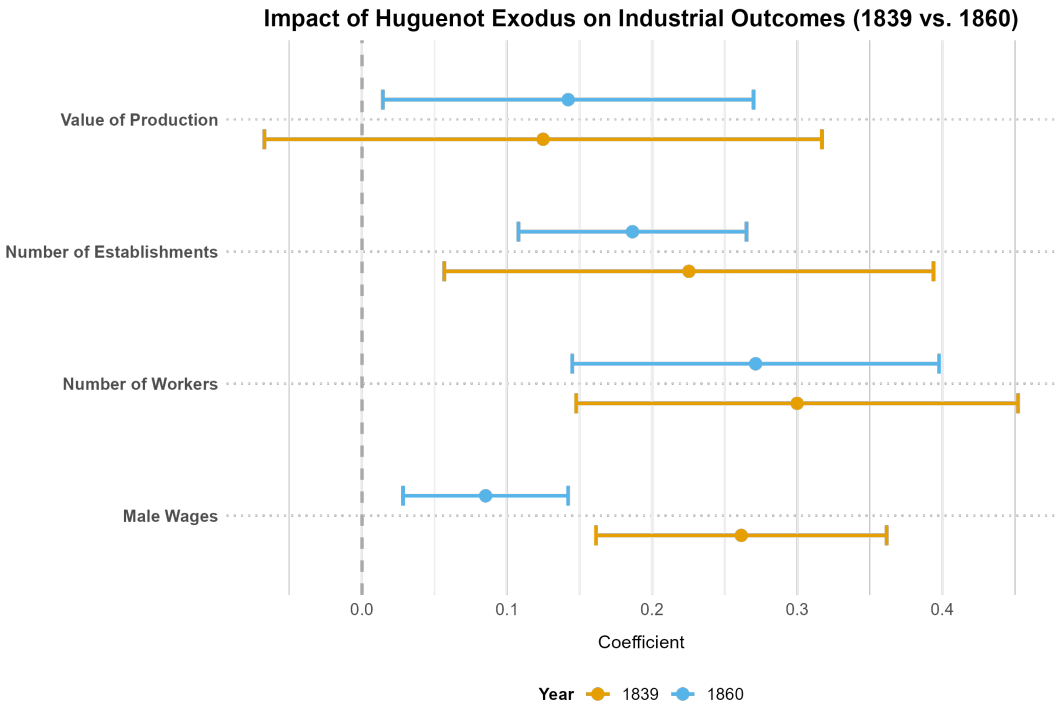

Figure 4: Impact of Huguenot Exodus on Industrial Outcomes (1839 vs. 1860)

Notes: The figure presents the estimated coefficients (points) and their 95% confidence intervals (horizontal bars) for the Huguenot baptism 'Growth Rate' on various industrial outcomes in 1839 (orange) and 1860 (blue). A positive coefficient indicates that higher (less negative) Huguenot baptism growth is associated with better industrial outcomes. All regression models include department fixed effects and control for Log(Wheat Suitability), Latitude, and Longitude. Dependent variables are in log(1+y) form. Standard errors are clustered by department.

($NOUV$), and higher average wages ($SALHOM$), although the magnitude of these effects had diminished slightly since 1839. Most notably, the exodus left a deep scar on industrial productivity: a one standard deviation decline in the historical Protestant population growth corresponds to a 2.8% reduction in the total value of industrial production ($VALPRO$), equivalent to a loss of approximately 480,550 francs for the average department. These results confirm that the economic shock of the Revocation was not fleeting but endured well into the Second Industrial Revolution.

Table 3: Regression Results for 1860 Data (Clustered SE)

Dependent Variables:	*LogVALPRO*	*LogNBETAB*	*LogNOUV*	*LogSALHOM*	*LogNMVAP*
Model:	(1)	(2)	(3)	(4)	(5)
Variables					
Growth Rate	0.1422**	0.1865***	0.2714***	0.0853***	-0.2636
	(0.0652)	(0.0401)	(0.0645)	(0.0290)	(0.2266)
Log(WheatS)	0.3240	-0.1588	-0.3105	-0.1048	1.355
	(0.4592)	(0.3006)	(0.5125)	(0.1611)	(1.507)
lat	0.6245	1.062**	2.455***	1.372***	-1.563
	(1.116)	(0.3946)	(0.7481)	(0.3084)	(4.684)
lon	1.196*	1.351***	1.000	0.8363***	1.187
	(0.6058)	(0.3111)	(0.7681)	(0.2920)	(2.199)
Fit Statistics					
Observations	49	49	49	49	49
Within R^2	0.52273	0.81934	0.53726	0.50172	0.12053

DEP-Fixed Effects included in all models. Clustered (DEP) standard errors in parentheses.
Dependent Variables from the Industrial Census in 1860 and in log(1+y).
Significance levels: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

4.6 Accounting for Spatial Correlation

The baseline specification controls for department-level fixed effects, but unobserved economic shocks or measurement error may still exhibit spatial correlation across neighboring arrondissements, potentially biasing the standard errors. Economic theory suggests such dependence is common, as geographically proximate regions often share unobserved local market characteristics, infrastructure, or agro-climatic shocks (Conley, 1999). The non-parametric approach developed by Conley (1999) is particularly well-suited for this context, as it allows for arbitrary forms of spatial correlation based on geographic distance and remains robust even when these locations are measured with some error (Conley and Molinari, 2007). To ensure our inferences are robust to such dependencies, we re-estimate the main models using this method (for a general treatment of spatial econometrics, see Conley, 2010).

Following standard practice, we calculate standard errors using a Bartlett kernel that down-weights the influence of observations as the distance between them increases. To test the sen-

sitivity of the results to the assumed spatial range of correlation, we implement this procedure across four different distance cutoffs: 75 km, 100 km, 150 km, and 200 km. The complete results for each of these specifications, covering both the 1839 and 1860 outcomes, are presented in Tables 8 through 11. The results demonstrate that our core findings are highly robust to the potential presence of spatial autocorrelation. Across all four cutoffs, the main coefficients of interest on the *Growth Rate* variable retain their sign, approximate magnitude, and statistical significance, closely mirroring the baseline regressions presented in Tables 2 and 3. This consistency confirms that the estimated long-term negative impacts of the Huguenot exodus are not an artifact of unobserved spatial dependencies, strengthening the causal interpretation of the primary findings.

4.7 Historical Context and the Channels of Persistence

To understand why these effects persisted for nearly two centuries, the quantitative findings must be interpreted within their historical context. The Huguenot minority played a disproportionately influential role in France's early modern economy, leveraging a strong emphasis on education, international trade networks, and specialized skills in industries like textiles, silk, and finance (Scoville, 1951, 1953). The historical literature suggests that their exodus caused lasting damage primarily through the erosion of human capital and the disruption of irreplaceable commercial networks.

The loss of human capital and knowledge was a critical channel. The Protestant Reformation was an intellectual movement rooted in literacy, and this cultural trait translated into economic dynamism (Squicciarini and Voigtländer, 2015). As Lachenicht (2007) documents, Huguenot refugees rerouted vital information flows across Europe, sharing technical recipes for silk weaving and watchmaking through correspondence networks that now benefited cities like Berlin and Geneva instead of Lyon and Rouen. When these skilled individuals vanished from French centers, apprenticeship intakes halved and local innovation potential withered (Benedict, 1991). Simultaneously, the exodus severed crucial trade and credit networks built on dense ties of kinship and co-religion. These relationships fostered high levels of trust, lowered transaction costs, and allowed Huguenot merchants to pool capital and substitute for weak formal institutions (Grassby, 1960; Lachenicht, 2007). Their reputation for diligence was a valuable asset, granting them privileged access to finance and licenses (Benedict, 1984). The disappearance of these trust-based networks in France led to a documented contraction in local credit registers, disrupting the flow of capital essential for industrial activity (Fornerod and Benedict, 2009).

This paper moves beyond the historical narrative by empirically testing the importance of

these channels. To do so, we investigate how the negative impact of the Huguenot decline was mediated by pre-existing local conditions that could either substitute for or complement what was lost. To test the importance of human capital, we explore interactions with proxies for early intellectual centers: the distance to a medieval university and a pre-1501 city with a printing press (Dittmar, 2011). To assess the role of formal institutions in backstopping contracts, we measure the effect's interaction with the distance to a royal parliament. Finally, to disentangle the Huguenot contribution from a location's pre-existing commercial advantages, we account for interactions with the distance to a royal mint and a major medieval market fair. By systematically analyzing these interactions, we can more credibly identify the specific mechanisms through which the loss of Huguenot communities shaped long-term regional inequality.

4.7.1 Quantifying the Channels of Persistence

The historical evidence suggests that the economic decline was the product of a powerful confluence of three interconnected factors: the depletion of specialized human capital, the disintegration of economic networks, and the erosion of local institutional dynamism. By interacting the measure of Huguenot persistence with the geographic proximity to pre-Reformation historical centers, we test empirically for the relative importance of these channels. The results are best understood visually through the interaction plots in Figures 10 and 11, which reveal a clear story of institutional and intellectual complementarities.[6]

Human Capital, Knowledge, and the University Nexus Consistent with literature emphasizing the high skill level of Protestant communities (Squicciarini and Voigtländer, 2015; Scoville, 1952), the results show that the loss of this human capital was the most critical driver of long-term divergence. The visual evidence in Figure 10 powerfully illustrates this point. For both industrial employment (NOUV) and male wages (SALHOM), the positive economic impact of Huguenot persistence was conditional on proximity to a university. This suggests that the mechanism was more complex than a simple loss of skilled workers; rather, the economic value of Huguenot persistence was magnified by the local knowledge environment. As shown in the regression tables (e.g., Table 6, column 6), a one-standard-deviation increase in distance from a university (42.3 km) attenuated the positive effect of Huguenot persistence on 1839 male wages by 2.9 percentage points. This powerful complementarity suggests that Huguenot artisans and entrepreneurs did not operate in a vacuum; their ability to drive innovation and productivity was magnified when they could engage with a vibrant intellectual ecosystem, a process that a university environment could facilitate but which could not be easily replicated elsewhere.

[6] A complete set of the individual regression tables, Tables 12 through 23, is reported in Section 7.1.

Institutional Anchors and Financial Networks Our findings also clarify the precise nature of the network disruption. While Hornung (2014) and Lachenicht (2007) highlight the importance of international, co-religious networks, the results show that the effectiveness of these networks was contingent on the strength of local formal institutions. Indeed, historical accounts have long emphasized how informal, trust-based networks can serve as crucial institutional substitutes in environments with weak formal legal systems (Greif, 1993). Figure 10 shows that Huguenot persistence had the greatest positive impact on wages and employment in regions close to a Parliament, where property rights and contracts were more secure. This institutional complementarity became even more critical for later, capital-intensive development. As visualized in Figure 11, by 1860 proximity to both a mint (a proxy for financial centers) and a Parliament were highly significant moderators for the value of industrial production (Valpro) and the adoption of steam engines (Fmvap). This provides strong quantitative backing for the narrative presented by Scoville (1962a) on the role of Huguenot financiers. Their informal, trust-based credit networks were most effective at mobilizing capital for technological upgrading when they were anchored in a stable and predictable formal institutional environment. The exodus shattered these informal networks, and regions far from formal institutional substitutes suffered the most in the long run.

Other Demographic Responses A possible concern is whether the baptismal rate is a clean proxy for emigration, or if it also captures other demographic responses to persecution, such as lower fertility or higher infant mortality among the non-migrating population. We argue that the variable correctly captures the total demographic and human capital shock to the region, of which emigration was the primary and most economically damaging component. Historical accounts consistently show that it was the most economically active households—merchants, skilled artisans, and financiers—who possessed the means and networks to emigrate (Scoville, 1962b). Therefore, the physical removal of this high-value human capital represents the dominant channel. To the extent that the remaining, likely poorer, Huguenot population also experienced lower fertility due to persecution, this represents a secondary, reinforcing channel of demographic decline. Both mechanisms, the exit of the skilled and the suppression of the rest, contribute to a negative shock to the region's human capital base. Thus, while we cannot perfectly disentangle the two effects, both point in the same direction of economic decline, and our measure effectively captures their combined long-term impact. However, while our empirical strategy aims to isolate the impact of the exodus, the observed decline in baptisms may also reflect broader, pre-existing or concurrent forms of institutional or social decline in these regions, which could themselves have independently contributed to the long-term economic stagnation observed.

5 Conclusion

This paper has examined the long-run economic consequences of a defining event in French history: the Revocation of the Edict of Nantes and the subsequent forced emigration of the Huguenot minority. By constructing a novel dataset linking seventeenth-century Protestant demographic records to nineteenth-century industrial censuses, this study provides a systematic, quantitative assessment of the exodus's impact on regional development. The empirical strategy, which relies on within-department variation in the intensity of the demographic decline, isolates the persistent effects of this historical shock from other confounding factors. The results are stark. Regions that experienced a more severe loss of their Protestant population in the late seventeenth century were significantly less industrialized nearly 150 years later, with fewer establishments, lower employment, and depressed wages. This economic disadvantage was remarkably durable, still visible in lower industrial production values in 1860. More importantly, this paper moves beyond documenting this persistence to empirically testing the channels through which it operated. The analysis reveals a story of complementarities between the informal, network-based capital of the Huguenots and the formal institutional and intellectual infrastructure of the regions they inhabited. The economic damage from the exodus was most severe in areas that were isolated from pre-existing centers of knowledge (Universities) and legal stability (Parliaments). This shows that the economic value of the Huguenot communities was not just additive, but also multiplicative. It was enhanced by an environment of intellectual freedom and robust formal institutions. Their expulsion, therefore, was not just a loss of skilled individuals, but a crippling blow to the complex local ecosystems that fostered early industrial growth.

These findings provide robust, quantitative validation of the extensive historical research that emphasises the important economic role of Huguenot communities in early modern France (Scoville, 1951, 1962a). Moving beyond narrative accounts, the analysis identifies and measures the specific economic consequences of the persecution. It confirms that the departure of skilled artisans and entrepreneurs created a long-term deficit in technical knowledge and organisational capacity. These findings reinforce theoretical arguments about the fundamental importance of human capital, networks and institutional quality for sustained growth (Squicciarini and Voigtländer, 2015; Becker and Ferrara, 2019; Voigtländer and Voth, 2012).

The contribution of this paper is therefore twofold. First, it provides a necessary counterpart to the extensive literature that has documented the substantial economic benefits of the Huguenot diaspora for host countries like Prussia and England (Hornung, 2014; Moser et al., 2014). By quantifying the symmetric and enduring costs borne by the sending regions in France, this paper offers a more complete picture of the economic consequences of this state-sanctioned intolerance,

contributing to the understanding of long-run impacts of forced migration on sending economies (Abramitzky et al., 2014). Second, it contributes to broader debates in economic history on the persistence of historical shocks and the long-term determinants of regional inequality (Acemoglu et al., 2001; Dell, 2010). This paper illustrates empirically how a targeted political action against an economically vital minority can permanently alter a country's economic geography, creating patterns of regional disparity that endure for centuries. The Huguenot case, as analyzed here, serves as a powerful historical laboratory demonstrating that the impact of a "brain drain" is not uniform but is critically shaped by the institutional and intellectual landscape of the sending economy.

Finally, this analysis opens several paths for future research. While this study quantitatively identifies the long-term impact and broad channels, a deeper qualitative investigation of specific regions or cities — for example, through detailed case studies of Caen or Rouen — could yield invaluable insights into the precise micro-mechanisms by which human capital was lost, networks were disrupted, and resilience (or its absence) manifested on the ground. Did some regions develop substitute institutions or new commercial networks to compensate for the loss? Did the response of the remaining local Catholic elites—whether they productively reallocated confiscated assets or engaged in simple rent-extraction—shape long-term outcomes? Furthermore, one could investigate the interaction between this deep historical shock and later developments, such as the transport revolutions of the nineteenth century. Did the arrival of the railway disproportionately benefit resilient regions, thereby exacerbating these historical inequalities, or did it help lagging regions to overcome their initial disadvantages? Answering these questions would further enrich our understanding of the complex interplay between historical legacies and subsequent economic development, providing valuable lessons on the fragility of human capital and the enduring consequences of forced migration.

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7 Appendix

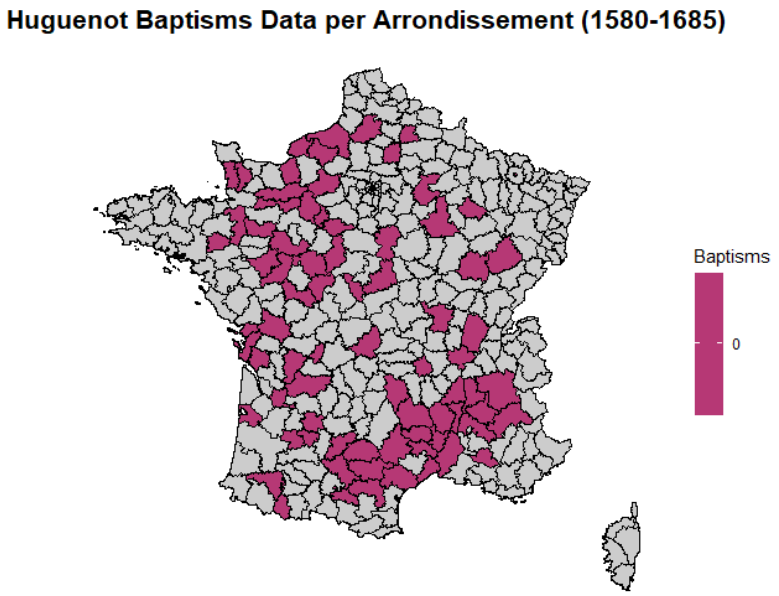

Figure 5: Baptism Data per Arrondissement

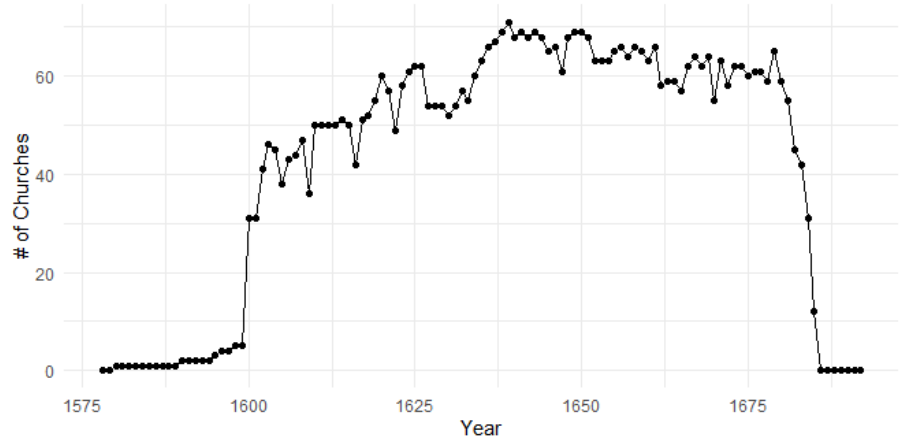

Figure 6: Number of churches reporting baptisms per year

Table 4: Regression Results

Dependent Variable:	*LogVALPRO*	*LogNBETAB*	*LogNOUV*	*LogSALHOM*	*LogVALLOC*	*LogNMEAU*	*LogNMVAP*
Model:	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Variables							
Growth Rate	0.1471	0.3055**	0.2483*	0.2044*	0.1380	0.3294**	0.0136
	(0.1329)	(0.1304)	(0.1344)	(0.1026)	(0.1379)	(0.1478)	(0.0941)
Log(WheatS)	-0.2292	-0.4378	-0.8186	-0.7274	-0.5738	-0.2205	-0.0888
	(1.090)	(1.079)	(1.057)	(0.8066)	(1.125)	(1.250)	(0.7503)
Fit Statistics							
Observations	48	48	48	48	48	48	48
Within R^2	0.0778	0.3160	0.1685	0.1931	0.0622	0.2314	0.0008

DEP-Fixed Effects included in all models. Clustered (DEP) standard errors in parentheses.
Dependent Variables from Industrial Census in 1839 and in log(1+y).
Significance levels: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Table 5: Regression Results for 1860 Data

Dependent Variables:	*LogVALPRO*	*LogNBETAB*	*LogNOUV*	*LogSALHOM*	*LogNMVAP*
Model:	(1)	(2)	(3)	(4)	(5)
Variables					
Growth Rate	0.1620**	0.1940***	0.2075***	0.0602	-0.1530
	(0.0796)	(0.0659)	(0.0720)	(0.0366)	(0.1972)
Log(WheatS)	0.1373	-0.3282	-0.2422	-0.1268	0.9164
	(0.6996)	(0.6139)	(0.6466)	(0.3046)	(1.784)
Fit Statistics					
Observations	49	49	49	49	49
Within R^2	0.34699	0.47130	0.32503	0.10202	0.03576

DEP-Fixed Effects included in all models. Clustered (DEP) standard errors in parentheses.
Dependent Variables from the Industrial Census in 1860 and in log(1+y).
Significance levels: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Table 6: Huguenot Persistence × Distance Interactions, 1839 Outcomes

	VALPRO	NBETAB	NOUV	SALHOM	VALLOC	NMEAU
	(1)	(2)	(3)	(4)	(5)	(6)
Growth Rate × Printing Press	0.0095	0.0002	0.0063	0.0008	0.0052	0.0009
	(0.0194)	(0.0171)	(0.0189)	(0.0141)	(0.0177)	(0.0231)
Growth Rate × Bishopric	−0.0002	0.0008	−0.0182	−0.0239	0.0011	0.0396
	(0.0406)	(0.0284)	(0.0322)	(0.0219)	(0.0327)	(0.0565)
Growth Rate × Market Fair	0.0002	0.0056	−0.0046	−0.0035	0.0034	0.0165
	(0.0099)	(0.0105)	(0.0101)	(0.0077)	(0.0112)	(0.0129)
Growth Rate × Mint	−0.0042	−0.0241	−0.0219	−0.0254*	−0.0115	−0.0220
	(0.0111)	(0.0230)	(0.0137)	(0.0129)	(0.0199)	(0.0477)
Growth Rate × Parliament	−0.0316	−0.0417***	−0.0623**	−0.0579***	−0.0357***	−0.0124
	(0.0242)	(0.0031)	(0.0249)	(0.0160)	(0.0104)	(0.0193)
Growth Rate × University	−0.0620***	−0.0314	−0.0872***	−0.0688***	−0.0401	0.0175
	(0.0196)	(0.0325)	(0.0203)	(0.0167)	(0.0313)	(0.0428)
Observations	48	48	48	48	48	48

Notes: Each outcome is estimated in a stand-alone regression—e.g.
$\text{VALPRO}_{it} = \beta_1 \,\text{GrowthRate}_i + \gamma X_{it} + \beta_2 \,\text{GrowthRate}_i \times X_{it} + \alpha_d + \varepsilon_{it}$,
$\text{NBETAB}_{it} = \beta_1 \,\text{GrowthRate}_i + \gamma X_{it} + \beta_2$
$\text{GrowthRate}_i \times X_{it} + \alpha_d + \varepsilon_{it}$,
and so forth—so the coefficients shown come from mutually independent model runs.
The full tables are in Section 7.1. All models Coefficients with robust standard errors (clustered by department) in parentheses.

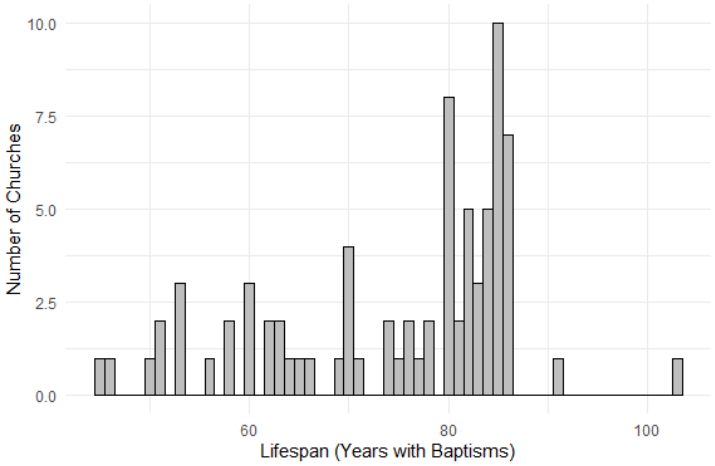

Figure 7: Histogram of church lifespans (years with recorded baptisms)

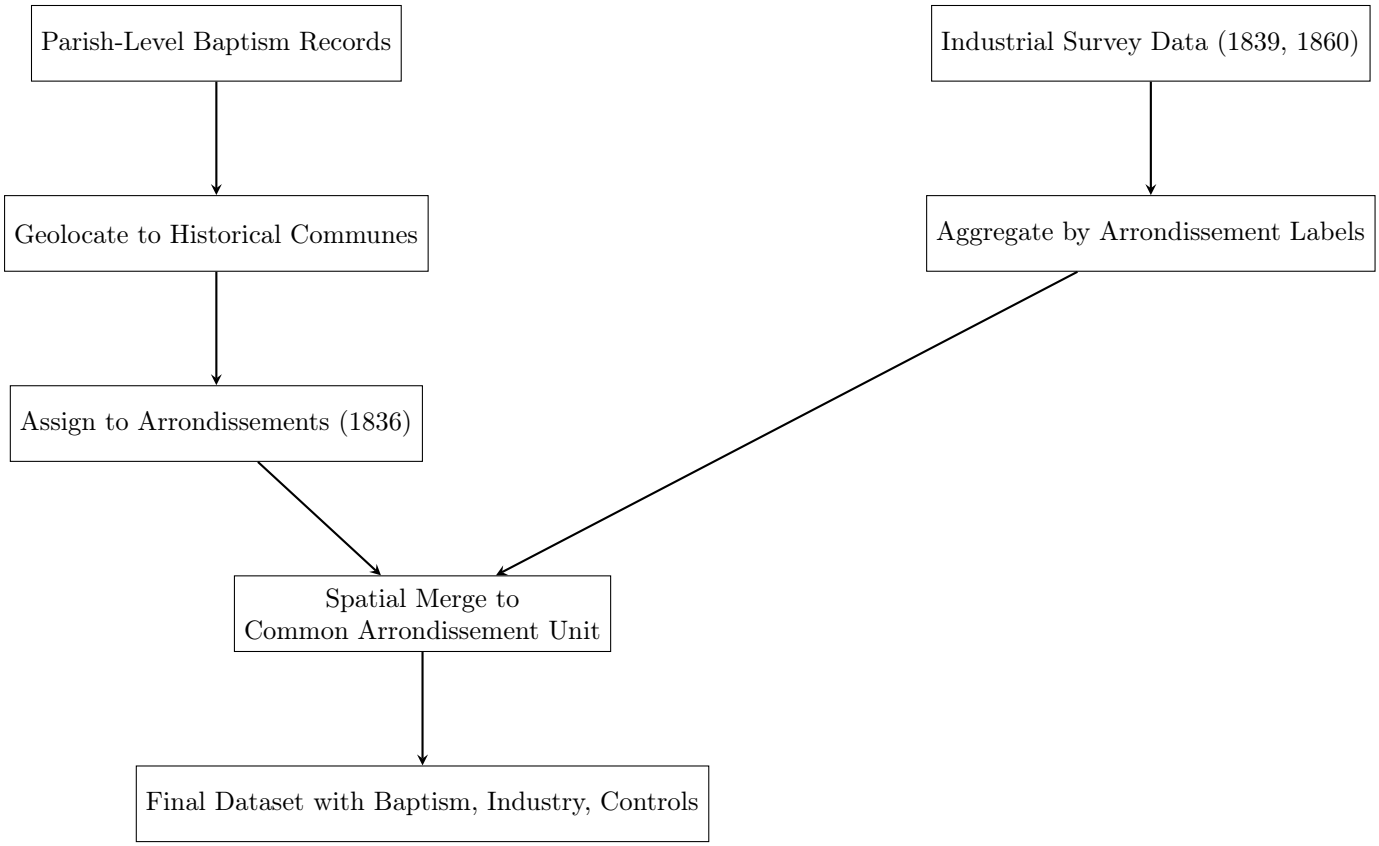

Figure 8: Flowchart of Spatial Aggregation and Merging Procedure

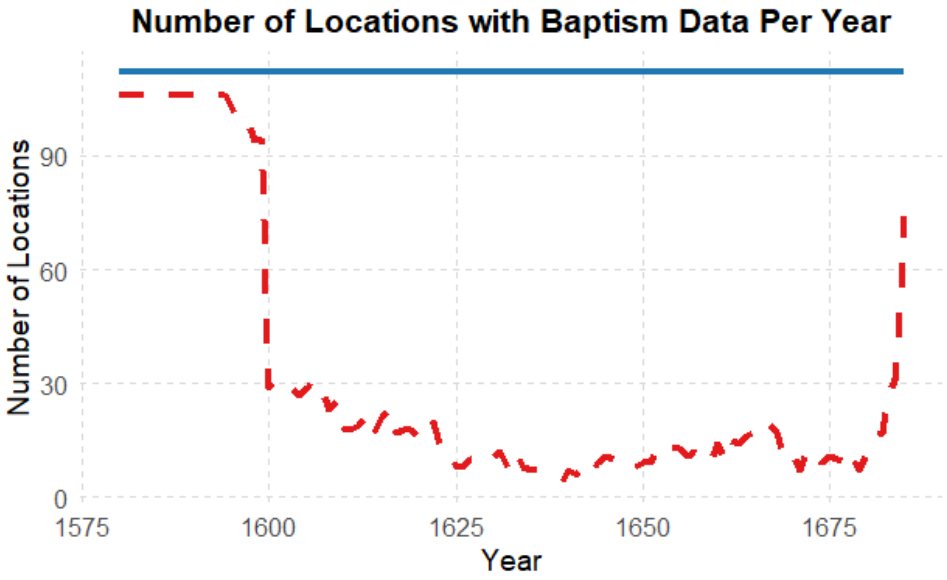

Figure 9: Number of Locations with Baptism Data Per Year. The solid blue line represents the total number of locations with recorded baptism data in each year, while the dashed red line indicates the number of locations where no baptisms were recorded ($Bapt = 0$). This visualization highlights trends in data availability and potential historical patterns in baptism records.

Table 7: Huguenot Persistence × Distance Interactions, 1860 Outcomes

	VALPRO (1)	NBETAB (2)	NOUV (3)	SALHOM (4)	NMVAP (5)
Growth Rate × Printing Press	−0.0080	−0.0044	−0.0027	0.0026	−0.0329
	(0.0080)	(0.0052)	(0.0095)	(0.0049)	(0.0200)
Growth Rate × Bishopric	−0.0245	−0.0167*	−0.0263	−0.0004	−0.1209**
	(0.0208)	(0.0092)	(0.0249)	(0.0120)	(0.0537)
Growth Rate × Market Fair	0.0059**	0.0031*	0.0023	−0.0003	0.0167**
	(0.0029)	(0.0018)	(0.0029)	(0.0018)	(0.0082)
Growth Rate × Mint	−0.0100**	−0.0024	−0.0004	0.0013	−0.0308***
	(0.0037)	(0.0041)	(0.0070)	(0.0026)	(0.0076)
Growth Rate × Parliament	−0.0140***	−0.0049	−0.0036	−0.0016	−0.0441***
	(0.0035)	(0.0038)	(0.0069)	(0.0027)	(0.0061)
Growth Rate × University	−0.0228***	−0.0130*	−0.0176	−0.0076	−0.0690***
	(0.0083)	(0.0074)	(0.0117)	(0.0073)	(0.0171)
Observations	49	49	49	49	49

Notes: Each outcome is estimated in a stand-alone regression—e.g.
$\text{VALPRO}_{it} = \beta_1 \text{GrowthRate}_i + \gamma X_{it} + \beta_2 \text{GrowthRate}_i \times X_{it} + \alpha_d + \varepsilon_{it}$,
$\text{NBETAB}_{it} = \beta_1 \text{GrowthRate}_i + \gamma X_{it} + \beta_2 \text{GrowthRate}_i \times X_{it} + \alpha_d + \varepsilon_{it}$, and so forth—so the coefficients shown come from mutually independent model runs. The full tables are in Section 7.1.
All models Coefficients with robust standard errors (clustered by department) in parentheses.

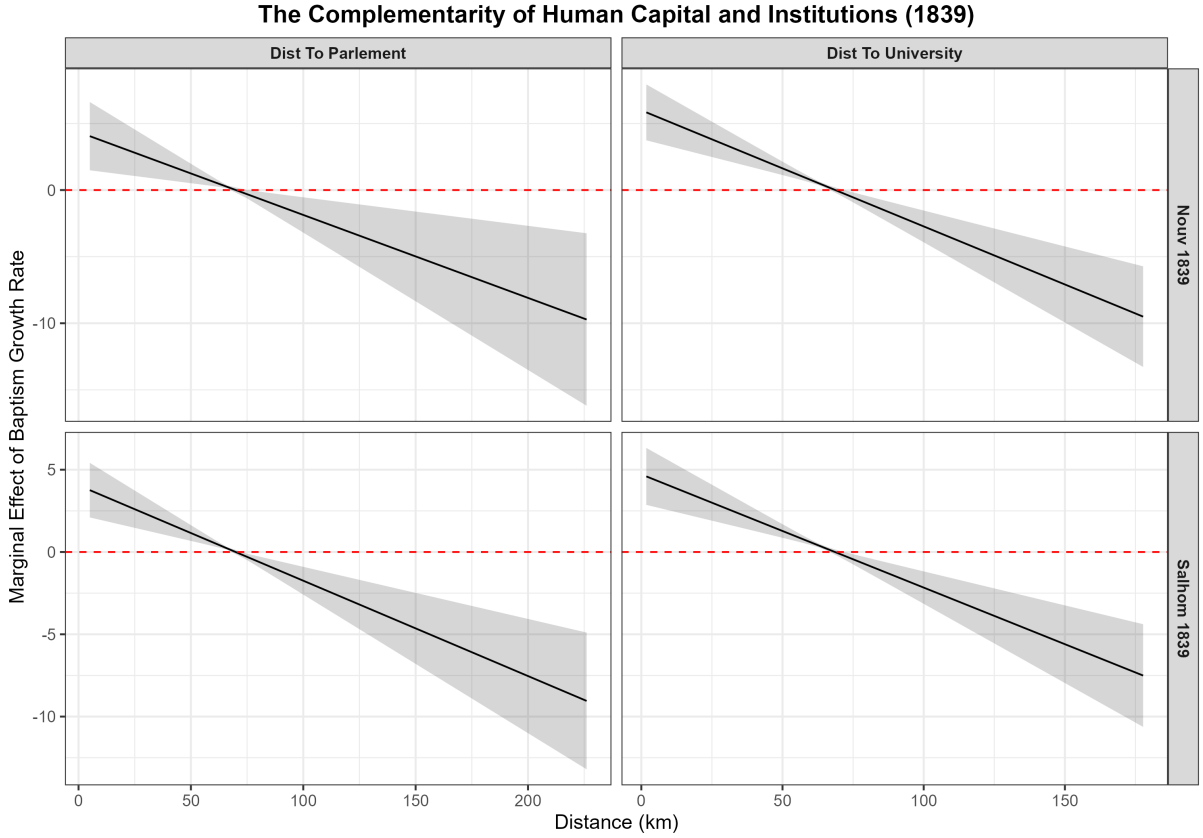

Figure 10: The Complementarity of Human Capital and Institutions (1839)

Notes: The figure plots the marginal effect of the Huguenot baptism growth rate on 1839 industrial outcomes, conditional on the distance to key historical centers. Each panel represents a separate regression model. The solid line is the point estimate of the marginal effect, and the shaded region is the 90% confidence interval, calculated using robust standard errors clustered at the department level.

Table 8: Effect of Growth Rate on Industrial Outcomes (Conley SEs, 75 km Cutoff)

(a) Panel A: 1839 Outcomes

	VALPRO	NBETAB	NOUV	SALHOM	VALLOC	NMEAU	NMVAP
Growth Rate	0.125	0.225**	0.300***	0.261***	0.056	0.127	0.076
	(0.079)	(0.069)	(0.062)	(0.040)	(0.064)	(0.128)	(0.087)
log(Wheat Suitability)	0.169	0.078	-0.394	-0.402	-0.052	0.336	0.119
	(0.414)	(0.529)	(0.361)	(0.294)	(0.410)	(0.972)	(0.449)

(b) Panel B: 1860 Outcomes

	VALPRO	NBETAB	NOUV	SALHOM	FMVAP
Growth Rate	0.142**	0.187***	0.271***	0.085**	-0.264
	(0.054)	(0.033)	(0.054)	(0.024)	(0.183)
log(Wheat Suitability)	0.324	-0.159	-0.311	-0.105	1.355
	(0.369)	(0.243)	(0.419)	(0.133)	(1.222)

Notes: Significance: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.
Conley (1999) standard errors in parentheses. All regressions include department fixed effects and controls for latitude and longitude. The dependent variable is in log(1+y) form.

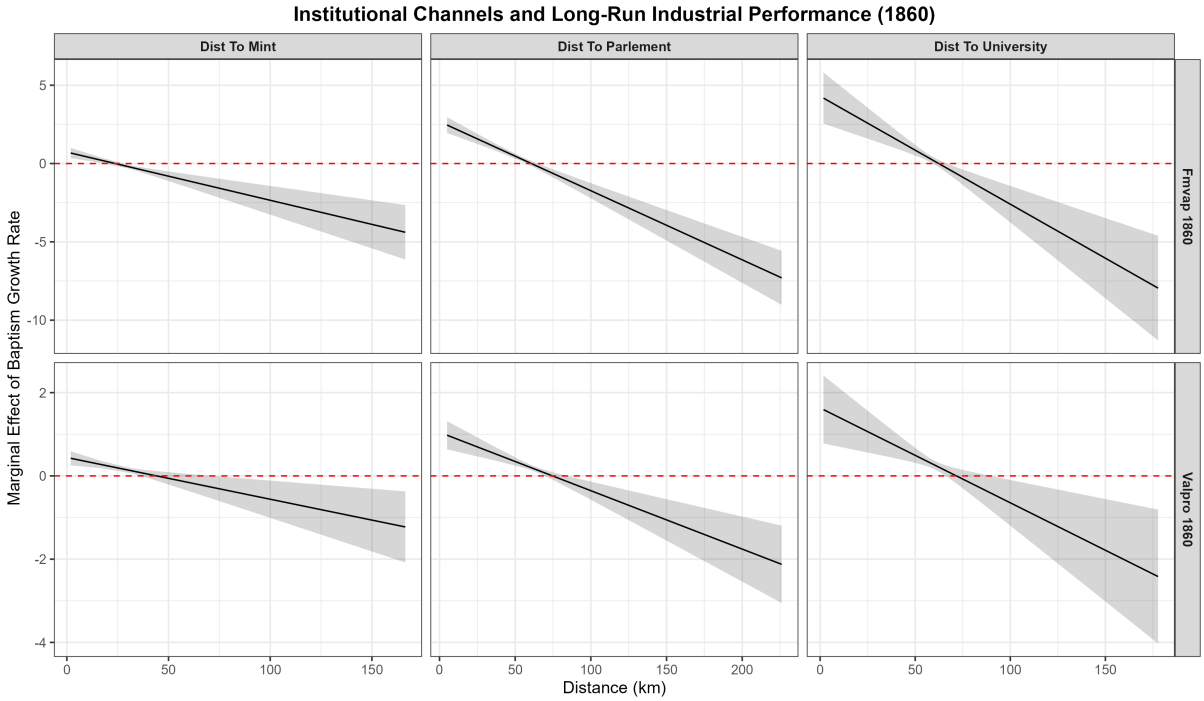

Figure 11: Institutional Channels and Long-Run Industrial Performance (1860)

Notes: The figure plots the marginal effect of the Huguenot baptism growth rate on 1860 industrial outcomes, conditional on the distance to key historical centers. Each panel represents a separate regression model. The solid line is the point estimate of the marginal effect, and the shaded region is the 90% confidence interval, calculated using robust standard errors clustered at the department level.

Table 9: Effect of Growth Rate on Industrial Outcomes (Conley SEs, 100 km Cutoff)

(a) Panel A: 1839 Outcomes

	VALPRO	NBETAB	NOUV	SALHOM	VALLOC	NMEAU	NMVAP
Growth Rate	0.125	0.225**	0.300***	0.261***	0.056	0.127	0.076
	(0.081)	(0.070)	(0.062)	(0.040)	(0.064)	(0.133)	(0.089)
log(Wheat Suitability)	0.169	0.078	-0.394	-0.402	-0.052	0.336	0.119
	(0.413)	(0.531)	(0.356)	(0.286)	(0.400)	(1.001)	(0.448)

(b) Panel B: 1860 Outcomes

	VALPRO	NBETAB	NOUV	SALHOM	FMVAP
Growth Rate	0.142*	0.187***	0.271***	0.085**	-0.264
	(0.058)	(0.035)	(0.056)	(0.024)	(0.191)
log(Wheat Suitability)	0.324	-0.159	-0.311	-0.105	1.355
	(0.369)	(0.253)	(0.428)	(0.135)	(1.234)

Notes: Significance: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.
Conley (1999) standard errors in parentheses. All regressions include department fixed effects and controls for latitude and longitude. The dependent variable is in log(1+y) form.

Table 10: Effect of Growth Rate on Industrial Outcomes (Conley SEs, 150 km Cutoff)

(a) Panel A: 1839 Outcomes

	VALPRO	NBETAB	NOUV	SALHOM	VALLOC	NMEAU	NMVAP
Growth Rate	0.125	0.225**	0.300***	0.261***	0.056	0.127	0.076
	(0.079)	(0.069)	(0.060)	(0.037)	(0.061)	(0.138)	(0.089)
log(Wheat Suitability)	0.169	0.078	-0.394	-0.402	-0.052	0.336	0.119
	(0.394)	(0.520)	(0.331)	(0.262)	(0.369)	(1.029)	(0.435)

(b) Panel B: 1860 Outcomes

	VALPRO	NBETAB	NOUV	SALHOM	FMVAP
Growth Rate	0.142*	0.187***	0.271***	0.085**	-0.264
	(0.061)	(0.036)	(0.058)	(0.024)	(0.199)
log(Wheat Suitability)	0.324	-0.159	-0.311	-0.105	1.355
	(0.354)	(0.258)	(0.429)	(0.131)	(1.203)

Notes: Significance: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.
Conley (1999) standard errors in parentheses. All regressions include department fixed effects and controls for latitude and longitude. The dependent variable is in log(1+y) form.

Table 11: Effect of Growth Rate on Industrial Outcomes (Conley SEs, 200 km Cutoff)

(a) Panel A: 1839 Outcomes

	VALPRO	NBETAB	NOUV	SALHOM	VALLOC	NMEAU	NMVAP
Growth Rate	0.125*	0.225**	0.300***	0.261***	0.056	0.127	0.076
	(0.068)	(0.070)	(0.053)	(0.033)	(0.057)	(0.145)	(0.086)
log(Wheat Suitability)	0.169	0.078	-0.394	-0.402	-0.052	0.336	0.119
	(0.358)	(0.519)	(0.319)	(0.247)	(0.352)	(1.068)	(0.436)

(b) Panel B: 1860 Outcomes

	VALPRO	NBETAB	NOUV	SALHOM	FMVAP
Growth Rate	0.142**	0.187***	0.271***	0.085***	-0.264
	(0.059)	(0.032)	(0.055)	(0.021)	(0.190)
log(Wheat Suitability)	0.324	-0.159	-0.311	-0.105	1.355
	(0.312)	(0.225)	(0.401)	(0.112)	(1.079)

Notes: Significance: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.
Conley (1999) standard errors in parentheses. All regressions include department fixed effects and controls for latitude and longitude. The dependent variable is in log(1+y) form.

7.1 Online Appendix

Table 12: Summary of Interaction Effects on VALPRO_1839

Dependent Variable:	**log1p(VALPRO_1839)**					
Historical Center:	**Printing Press**	**Bishopric**	**Market Fair**	**Mint**	**Parliament**	**University**
Huguenot Persistence (Growth Rate)	-0.2644	0.1742	0.0759	0.2184	2.178	4.277***
	(0.4470)	(1.252)	(3.204)	(0.3444)	(1.628)	(1.243)
Historical Center	0.0140	-0.0437***	-0.0100	-0.0730***	-0.0552***	-0.0633***
	(0.0449)	(0.0107)	(0.0202)	(0.0040)	(0.0127)	(0.0123)
Persistence x Center	0.0095	-0.0002	0.0002	-0.0042	-0.0316	-0.0620***
	(0.0194)	(0.0406)	(0.0099)	(0.0111)	(0.0242)	(0.0196)
Log(Wheat Suitability)	0.3381	0.6730	-0.0742	2.071***	0.4570	-0.6833
	(2.049)	(0.6318)	(1.334)	(0.3422)	(0.5074)	(1.009)
Observations	48	48	48	48	48	48
R^2	0.81690	0.90111	0.79133	0.98847	0.93503	0.92224
Within R^2	0.20646	0.57142	0.09563	0.95001	0.71844	0.66301

Notes: All models include department fixed effects. Standard errors, clustered at the department level, are in parentheses. All distances in km. Significance levels: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$

Table 13: Summary of Interaction Effects on NBETAB_1839

Dependent Variable:	**log1p(NBETAB_1839)**					
Historical Center:	**Printing Press**	**Bishopric**	**Market Fair**	**Mint**	**Parliament**	**University**
Huguenot Persistence (Growth Rate)	0.1026	0.3037	-1.440	1.041	3.011***	2.415
	(0.3749)	(0.8485)	(3.411)	(0.7065)	(0.2199)	(2.078)
Historical Center	0.0297	-0.0426***	-0.0047	-0.0517***	-0.0624***	-0.0433**
	(0.0336)	(0.0137)	(0.0224)	(0.0113)	(0.0033)	(0.0209)
Persistence x Center	0.0002	0.0008	0.0056	-0.0241	-0.0417***	-0.0314
	(0.0171)	(0.0284)	(0.0105)	(0.0230)	(0.0031)	(0.0325)
Log(Wheat Suitability)	0.6761	0.4322	-0.1035	1.147*	0.2073	-0.8623
	(1.703)	(1.025)	(1.279)	(0.6246)	(0.2151)	(1.232)
Observations	48	48	48	48	48	48
R^2	0.89663	0.95330	0.88324	0.95911	0.99775	0.91102
Within R^2	0.45280	0.75276	0.38193	0.78357	0.98807	0.52897

Notes: All models include department fixed effects. Standard errors, clustered at the department level, are in parentheses. All distances in km. Significance levels: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$

Table 14: Summary of Interaction Effects on NOUV_1839

Dependent Variable:	**log1p(NOUV_1839)**					
Historical Center:	**Printing Press**	**Bishopric**	**Market Fair**	**Mint**	**Parliament**	**University**
Huguenot Persistence (Growth Rate)	-0.0928	0.8371	1.717	0.9011*	4.360**	5.989***
	(0.4645)	(0.9910)	(3.279)	(0.4462)	(1.682)	(1.311)
Historical Center	0.0196	-0.0491***	-0.0306	-0.0654***	-0.0642***	-0.0486***
	(0.0386)	(0.0144)	(0.0196)	(0.0120)	(0.0166)	(0.0142)
Persistence x Center	0.0063	-0.0182	-0.0046	-0.0219	-0.0623**	-0.0872***
	(0.0189)	(0.0322)	(0.0101)	(0.0137)	(0.0249)	(0.0203)
Log(Wheat Suitability)	-0.0563	0.3860	-0.6009	1.206*	-0.5773	-0.7599
	(1.762)	(0.8070)	(1.311)	(0.6324)	(0.6023)	(0.7612)
Observations	48	48	48	48	48	48
R^2	0.86567	0.93657	0.86519	0.97617	0.94671	0.95903
Within R^2	0.28641	0.66305	0.28388	0.87343	0.71689	0.78235

Notes: All models include department fixed effects. Standard errors, clustered at the department level, are in parentheses. All distances in km. Significance levels: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$

Table 15: Summary of Interaction Effects on SALHOM_1839

Dependent Variable:	**log1p(SALHOM_1839)**					
Historical Center:	**Printing Press**	**Bishopric**	**Market Fair**	**Mint**	**Parliament**	**University**
Huguenot Persistence (Growth Rate)	0.0473	0.9613	1.301	0.9899**	4.050***	4.716***
	(0.3524)	(0.6683)	(2.503)	(0.4212)	(1.087)	(1.081)
Historical Center	0.0194	-0.0382***	-0.0272*	-0.0434***	-0.0518***	-0.0274**
	(0.0269)	(0.0124)	(0.0152)	(0.0120)	(0.0113)	(0.0120)
Persistence x Center	0.0008	-0.0239	-0.0035	-0.0254*	-0.0579***	-0.0688***
	(0.0141)	(0.0219)	(0.0077)	(0.0129)	(0.0160)	(0.0167)
Log(Wheat Suitability)	0.0047	0.3120	-0.5023	0.5949	-0.7023	-0.4925
	(1.262)	(0.7701)	(1.012)	(0.5788)	(0.4315)	(0.5975)
Observations	48	48	48	48	48	48
R^2	0.90842	0.95725	0.91452	0.97376	0.97048	0.96835
Within R^2	0.30126	0.67383	0.34784	0.79980	0.77479	0.75850

Notes: All models include department fixed effects. Standard errors, clustered at the department level, are in parentheses. All distances in km. Significance levels: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$

Table 16: Summary of Interaction Effects on VALLOC_1839

Dependent Variable:	**log1p(VALLOC_1839)**					
Historical Center:	**Printing Press**	**Bishopric**	**Market Fair**	**Mint**	**Parliament**	**University**
Huguenot Persistence (Growth Rate)	-0.2372	0.1266	-0.9305	0.4541	2.435***	2.831
	(0.3998)	(0.9999)	(3.641)	(0.6099)	(0.7078)	(2.019)
Historical Center	0.0300	-0.0465***	-0.0047	-0.0632***	-0.0615***	-0.0540**
	(0.0373)	(0.0114)	(0.0236)	(0.0106)	(0.0084)	(0.0219)
Persistence x Center	0.0052	0.0011	0.0034	-0.0115	-0.0357***	-0.0401
	(0.0177)	(0.0327)	(0.0112)	(0.0199)	(0.0104)	(0.0313)
Log(Wheat Suitability)	0.5743	0.3711	-0.3432	1.401**	0.1803	-1.094
	(1.798)	(0.7605)	(1.389)	(0.5377)	(0.2801)	(1.201)
Observations	48	48	48	48	48	48
R^2	0.96081	0.98240	0.94925	0.98901	0.99628	0.96987
Within R^2	0.30322	0.68718	0.09770	0.80460	0.93381	0.46439

Notes: All models include department fixed effects. Standard errors, clustered at the department level, are in parentheses. All distances in km. Significance levels: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$

Table 17: Summary of Interaction Effects on NMEAU_1839

Dependent Variable:	**log1p(NMEAU_1839)**					
Historical Center:	**Printing Press**	**Bishopric**	**Market Fair**	**Mint**	**Parliament**	**University**
Huguenot Persistence (Growth Rate)	0.1531	-0.8793	-4.853	0.9961	1.022	-0.7037
	(0.5218)	(1.699)	(4.163)	(1.483)	(1.285)	(2.686)
Historical Center	0.0221	-0.0326	0.0292	-0.0527***	-0.0632***	-0.0639***
	(0.0421)	(0.0244)	(0.0408)	(0.0112)	(0.0157)	(0.0214)
Persistence x Center	0.0009	0.0396	0.0165	-0.0220	-0.0124	0.0175
	(0.0231)	(0.0565)	(0.0129)	(0.0477)	(0.0193)	(0.0428)
Log(Wheat Suitability)	0.6099	0.0307	0.1496	1.401	1.087*	-1.505
	(2.235)	(1.797)	(1.429)	(0.9696)	(0.6297)	(1.784)
Observations	48	48	48	48	48	48
R^2	0.86344	0.90838	0.89201	0.90371	0.98430	0.90244
Within R^2	0.27547	0.51389	0.42707	0.48915	0.91672	0.48242

Notes: All models include department fixed effects. Standard errors, clustered at the department level, are in parentheses. All distances in km. Significance levels: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$

Table 18: Summary of Interaction Effects on NMVAP_1839

Dependent Variable:	**log1p(NMVAP_1839)**					
Historical Center:	**Printing Press**	**Bishopric**	**Market Fair**	**Mint**	**Parliament**	**University**
Huguenot Persistence (Growth Rate)	-0.1792	-0.8340	0.0325	0.7989**	2.295	4.384***
	(0.4538)	(1.281)	(2.255)	(0.3714)	(1.556)	(1.170)
Historical Center	-0.0240	-0.0231	-0.0140	-0.0579***	-0.0490***	-0.0650***
	(0.0433)	(0.0161)	(0.0129)	(0.0202)	(0.0045)	(0.0184)
Persistence x Center	0.0104	0.0278	-0.0000344	-0.0258**	-0.0350	-0.0657***
	(0.0205)	(0.0424)	(0.0069)	(0.0104)	(0.0229)	(0.0180)
Log(Wheat Suitability)	-0.9386	0.0918	0.1097	1.689	0.3676	-0.5354
	(2.045)	(1.201)	(0.9939)	(1.061)	(0.5567)	(0.8318)
Observations	48	48	48	48	48	48
R^2	0.87790	0.90894	0.87135	0.96174	0.93103	0.96200
Within R^2	0.08608	0.31843	0.03704	0.71365	0.48378	0.71559

Notes: All models include department fixed effects. Standard errors, clustered at the department level, are in parentheses. All distances in km. Significance levels: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$

Table 19: Summary of Interaction Effects on VALPRO_1860

Dependent Variable:	**log1p(VALPRO_1860)**					
Historical Center:	**Printing Press**	**Bishopric**	**Market Fair**	**Mint**	**Parliament**	**University**
Huguenot Persistence (Growth Rate)	0.3692**	0.9346	-1.698*	0.4423***	1.047***	1.633***
	(0.1397)	(0.6305)	(0.9642)	(0.1103)	(0.2227)	(0.5107)
Historical Center	0.0082	-0.0208**	-0.0089	-0.0319***	-0.0242***	-0.0053
	(0.0241)	(0.0088)	(0.0054)	(0.0063)	(0.0071)	(0.0109)
Persistence x Center	-0.0080	-0.0245	0.0059**	-0.0100**	-0.0140***	-0.0228***
	(0.0080)	(0.0208)	(0.0029)	(0.0037)	(0.0035)	(0.0083)
Log(Wheat Suitability)	0.5406	0.7689	0.6427	1.384***	0.6832	0.5539
	(1.127)	(0.6147)	(0.5587)	(0.3977)	(0.4058)	(0.7364)
Observations	49	49	49	49	49	49
R^2	0.95464	0.96428	0.96642	0.99018	0.97907	0.96590
Within R^2	0.44305	0.56148	0.58767	0.87945	0.74307	0.58129

Notes: All models include department fixed effects. Standard errors, clustered at the department level, are in parentheses. All distances in km. Significance levels: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$

Table 20: Summary of Interaction Effects on NBETAB_1860

Dependent Variable:	**log1p(NBETAB_1860)**					
Historical Center:	**Printing Press**	**Bishopric**	**Market Fair**	**Mint**	**Parliament**	**University**
Huguenot Persistence (Growth Rate)	0.2674**	0.7268**	-0.7729	0.2466*	0.4932*	1.026**
	(0.1111)	(0.2846)	(0.5976)	(0.1283)	(0.2445)	(0.4582)
Historical Center	0.0110	-0.0214***	-0.0163***	-0.0218***	-0.0140**	0.0055
	(0.0144)	(0.0047)	(0.0028)	(0.0052)	(0.0061)	(0.0082)
Persistence x Center	-0.0044	-0.0167*	0.0031*	-0.0024	-0.0049	-0.0130*
	(0.0052)	(0.0092)	(0.0018)	(0.0041)	(0.0038)	(0.0074)
Log(Wheat Suitability)	0.1074	0.1855	0.0206	0.4362	-0.0181	-0.0274
	(0.7535)	(0.2843)	(0.3866)	(0.4522)	(0.4560)	(0.6051)
Observations	49	49	49	49	49	49
R^2	0.94576	0.98213	0.97464	0.97350	0.96318	0.94797
Within R^2	0.53192	0.84581	0.78111	0.77135	0.68228	0.55103

Notes: All models include department fixed effects. Standard errors, clustered at the department level, are in parentheses. All distances in km. Significance levels: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$

Table 21: Summary of Interaction Effects on NOUV_1860

Dependent Variable:	**log1p(NOUV_1860)**					
Historical Center:	**Printing Press**	**Bishopric**	**Market Fair**	**Mint**	**Parliament**	**University**
Huguenot Persistence (Growth Rate)	0.2783	1.037	-0.4946	0.1900	0.4158	1.333*
	(0.1760)	(0.7502)	(0.9627)	(0.2008)	(0.4358)	(0.7346)
Historical Center	0.0028	-0.0221**	-0.0161	-0.0285***	-0.0131	0.0073
	(0.0258)	(0.0096)	(0.0101)	(0.0105)	(0.0126)	(0.0162)
Persistence x Center	-0.0027	-0.0263	0.0023	-0.0004	-0.0036	-0.0176
	(0.0095)	(0.0249)	(0.0029)	(0.0070)	(0.0069)	(0.0117)
Log(Wheat Suitability)	-0.1053	0.4332	0.0422	0.7065	0.0450	0.1640
	(1.230)	(0.6905)	(0.5646)	(0.7148)	(0.5870)	(0.6879)
Observations	49	49	49	49	49	49
R^2	0.94452	0.96162	0.95552	0.96562	0.95258	0.95036
Within R^2	0.33495	0.53996	0.46674	0.58784	0.43151	0.40496

Notes: All models include department fixed effects. Standard errors, clustered at the department level, are in parentheses. All distances in km. Significance levels: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$

Table 22: Summary of Interaction Effects on SALHOM_1860

Dependent Variable:	**log1p(SALHOM_1860)**					
Historical Center:	**Printing Press**	**Bishopric**	**Market Fair**	**Mint**	**Parliament**	**University**
Huguenot Persistence (Growth Rate)	-0.0042	0.0867	0.1646	-0.0016	0.1468	0.5515
	(0.0902)	(0.3638)	(0.5786)	(0.0790)	(0.1823)	(0.4777)
Historical Center	-0.0031	-0.0125***	-0.0104***	-0.0221***	-0.0098	-0.0017
	(0.0140)	(0.0042)	(0.0028)	(0.0037)	(0.0059)	(0.0092)
Persistence x Center	0.0026	-0.0004	-0.0003	0.0013	-0.0016	-0.0076
	(0.0049)	(0.0120)	(0.0018)	(0.0026)	(0.0027)	(0.0073)
Log(Wheat Suitability)	-0.2713	0.0251	-0.0746	0.5792**	0.0872	0.0128
	(0.6706)	(0.2906)	(0.3408)	(0.2343)	(0.1467)	(0.3334)
Observations	49	49	49	49	49	49
R^2	0.93602	0.96547	0.94790	0.98360	0.95511	0.94065
Within R^2	0.13992	0.53583	0.29965	0.77951	0.39652	0.20212

Notes: All models include department fixed effects. Standard errors, clustered at the department level, are in parentheses. All distances in km. Significance levels: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$

Table 23: Summary of Interaction Effects on FMVAP_1860

Dependent Variable:	**log1p(FMVAP_1860)**					
Historical Center:	**Printing Press**	**Bishopric**	**Market Fair**	**Mint**	**Parliament**	**University**
Huguenot Persistence (Growth Rate)	0.5612	3.595**	-5.405*	0.7310***	2.678***	4.300***
	(0.3721)	(1.632)	(2.711)	(0.2151)	(0.3372)	(1.022)
Historical Center	0.0549	-0.0477**	0.0130	-0.0738***	-0.0559***	-0.0187
	(0.0652)	(0.0231)	(0.0306)	(0.0126)	(0.0160)	(0.0186)
Persistence x Center	-0.0329	-0.1209**	0.0167**	-0.0308***	-0.0441***	-0.0690***
	(0.0200)	(0.0537)	(0.0082)	(0.0076)	(0.0061)	(0.0171)
Log(Wheat Suitability)	3.268	3.390**	2.063	3.948***	2.202*	2.157
	(2.767)	(1.550)	(1.720)	(0.8712)	(1.158)	(1.679)
Observations	49	49	49	49	49	49
R^2	0.90552	0.92322	0.90377	0.95104	0.93198	0.92207
Within R^2	0.31829	0.44599	0.30561	0.64676	0.50917	0.43767

Notes: All models include department fixed effects. Standard errors, clustered at the department level, are in parentheses. All distances in km. Significance levels: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$

7.2 Appendix: Railway Development and Persistence

This appendix provides an exploratory analysis investigating how the development of railways in the mid-nineteenth century might have interacted with the long-term economic effects of the Huguenot exodus. As discussed in the conclusion, a key question is whether new transport infrastructure exacerbated existing inequalities by disproportionately benefiting historically resilient regions, or if it acted as a leveling force, helping lagging regions to overcome their initial disadvantages.

To address this, we extend our baseline regression model by introducing two measures of railway development as of 1860, along with their interaction with our main explanatory variable, *GrowthRate* (Huguenot baptism growth rate). For this reason, we used the 1860 railway network from Thévenin and Mimeur (2023). The first measure, Railway Density ('RailKmPer1k'), captures the intensity of railway access as kilometers of railway lines per 1,000 km^2 in the arrondissement in 1860. The second measure, Railway Presence ('RailInDep1860'), is a binary dummy variable that takes a value of 1 if the arrondissement had any railway lines in 1860, and 0 otherwise, thus capturing the mere presence or absence of this transformative technology.

The empirical specification for this exploratory analysis takes the form:

$$\begin{aligned}\text{Log}Y_{i,1860} = \beta_0 + \beta_1\,\text{Growth\_Rate}_i + \beta_2\,\text{RailwayVar}_i \\ + \beta_3\,(\text{Growth\_Rate}_i \times \text{RailwayVar}_i) + \beta_4\,\text{LogWheatS}_i + \alpha_{d(i)} + \varepsilon_i,\end{aligned}$$

where $LogY_{i,1860}$ represents the log of industrial outcomes in 1860 (Value of Production, Number of Establishments, Number of Workers, Male Wages, Force of Steam Engines), RailwayVar_i is either 'RailKmPer1k' or 'RailInDep1860', and all other variables are as defined in the main text. Department fixed effects ($\alpha_{d(i)}$) are included, and standard errors are clustered at the department level. The interaction term, β_3, is crucial: a negative coefficient would suggest that railways attenuated the positive effect of Huguenot persistence, implying a leveling effect, while a positive coefficient would suggest an exacerbating effect.

Table 24 presents the results of this exploratory analysis, organized into two panels.

In *Panel A*, we interact the Huguenot *GrowthRate* with the continuous measure of railway density. The coefficients on the interaction term ('*GrowthRate* × RailKmPer1k') are consistently negative across all industrial outcomes. Specifically, for total industrial production value ('VALPRO'), the number of establishments ('NBETAB'), and the force of steam engines ('FMVAP'), these negative interactions are statistically significant at conventional levels. This suggests that in arrondissements with higher railway density, the positive long-term impact of greater Huguenot

persistence (i.e., less exodus) on industrial outcomes was significantly diminished. In other words, railways appear to have provided an alternative source of economic dynamism that partially compensated for the historical disadvantage caused by the Huguenot emigration, thereby acting as a force for convergence.

Panel B investigates the interaction with a simpler dummy variable indicating the mere presence of railways in a department. Here, the evidence for a leveling effect is even stronger and more consistent. The interaction term ('$GrowthRate \times$ RailInDep1860') is negative and statistically significant for all industrial outcomes: 'VALPRO', 'NBETAB', 'NOUV', 'SALHOM', and 'FMVAP'. This indicates that the positive impact of Huguenot persistence on industrial development was notably smaller in arrondissements that had railway access by 1860 compared to those that did not. For instance, the marginal effect of Huguenot persistence on male wages ('SALHOM') is 1.303 in arrondissements without railways, but 1.303 - 1.269 = 0.034 in arrondissements with railways. This dramatic attenuation of the effect underscores that railway infrastructure provided a significant new pathway for economic growth, which lessened the relative advantage of historically resilient regions and helped to mitigate the long-term economic scars in those areas more affected by the Huguenot exodus.

The exploratory analysis suggests that the arrival of railways in nineteenth-century France played a role in reducing the regional economic disparities created by the seventeenth-century Huguenot exodus. While arrondissements that retained more of their Huguenot population continued to enjoy a long-term economic advantage, this advantage was significantly dampened in areas that gained access to the railway network. This indicates that new transport infrastructure acted as a powerful modernizing force, offering an alternative engine of growth that helped historically lagging regions to overcome some of their inherited disadvantages. This finding contributes to the understanding of how subsequent historical shocks can interact with and reshape the persistent effects of earlier events.

Table 24: Exploratory Analysis: Interaction of Huguenot Persistence with Railway Development (1860 Outcomes)

Panel A: Interaction with Railway Density (km/1000 inhabitants)					
Dependent Variable:	Log VALPRO	Log NBETAB	Log NOUV	Log SALHOM	Log FMVAP
	(1)	(2)	(3)	(4)	(5)
Huguenot Baptism Growth Rate	0.4612***	0.3657***	0.3940*	0.1383	0.8710*
	(0.1327)	(0.0979)	(0.2012)	(0.0969)	(0.4819)
Log(Wheat Suitability)	0.5147	-0.1118	-0.0070	-0.0283	2.208
	(0.7001)	(0.6278)	(0.6959)	(0.3143)	(1.643)
Growth Rate × RailKmPer1k	-0.0325**	-0.0186*	-0.0203	-0.0085	-0.1113*
	(0.0157)	(0.0107)	(0.0218)	(0.0100)	(0.0552)
Observations	49	49	49	49	49
Within R^2	0.449	0.526	0.360	0.129	0.251
Panel B: Interaction with Railway Presence (dummy = 1 if rail in department)					
Dependent Variable:	Log VALPRO	Log NBETAB	Log NOUV	Log SALHOM	Log FMVAP
	(1)	(2)	(3)	(4)	(5)
Huguenot Baptism Growth Rate	1.134**	1.050**	1.171**	1.303***	2.215*
	(0.4909)	(0.4338)	(0.4864)	(0.2109)	(1.151)
Log(Wheat Suitability)	0.2913	-0.1927	-0.0897	0.0699	1.291
	(0.8043)	(0.7138)	(0.7641)	(0.3375)	(1.989)
Growth Rate × RailInDep1860	-0.9931*	-0.8744*	-0.9841*	-1.269***	-2.419*
	(0.5722)	(0.5022)	(0.5687)	(0.2448)	(1.327)
Observations	49	49	49	49	49
Within R^2	0.384	0.517	0.357	0.334	0.075

Notes: All models include department fixed effects. Standard errors, clustered at the department level, are in parentheses. Dependent variables are in log(1+y) form. Railway density (RailKmPer1k) is railway kilometers per $1000km^2$. Railway presence (RailInDep1860) is a dummy. All distances in km. Significance levels: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$