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CENTURY ARGENTINA: TESTING ALBERDI'S THESIS**

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Institutions and Economic Growth in 19th Century Argentina: Testing Alberdi's Thesis

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Abstract

This paper evaluates a largely overlooked thesis developed by Juan Bautista Alberdi of Argentina's 19th-century economic development using econometric time-series methods. Annual series of GDP per capita, export performance, and monthly London prices of bonds issued by the Republic of Argentina and the Province of Buenos Aires are used to test whether major institutional events in 1853, 1862, and 1880 correspond to statistically significant structural changes in economic performance and sovereign credit risk. The results provide consistent evidence of institutional turning points consistent with Alberdi's thesis and challenge conventional interpretations that identify the early 1860s as the start of Argentina's convergence to the Western Offshoots.

JEL Codes: N16, N26, N46, O43, P16, F14, C22

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1. Introduction

The relationship between institutions and economic performance occupies a central place in modern economic theory. From the seminal work by North (1990, 1994) and North and Weingast (1989) to the more recent contributions of Acemoglu and Robinson (2012), among others, the literature on long-run development has emphasized that institutional arrangements governing property rights, fiscal authority, and political power play a decisive role in shaping economic outcomes. The evolution of Argentina's economy in the 19th century offers a particularly valuable historical setting in which to examine the interaction between institutions, culture and economic performance.

In *Estudios Económicos* (1895), a book he wrote between 1874 and 1878, Juan Bautista Alberdi proposed an institutional interpretation of Argentina's economic and political evolution since independence. He argued that Argentina's sustainable long-run economic growth depended not only on its natural advantages—fertile land, navigable rivers and favorable climate— but also, critically, on an institutional framework that established a solid and stable national government that could protect property rights, a necessary condition to attract immigrants and capital from Europe. The Constitution of 1853, partly inspired by Alberdi's writings, created an institutional framework consistent with what Acemoglu and Robinson (2012) would characterize as “inclusive” institutions. It affirmed the primacy of the national government and designated the city of Buenos Aires as its capital. Strong economic interests in the province of Buenos Aires opposed this arrangement leading to a decade long civil war.

Between 1859 and 1861, following two major land battles and intense negotiations, a compromise was reached which partially reversed the 1853 framework. The national government was left without a capital and for the next eighteen years it uncomfortably resided in the city of Buenos Aires as an informal “guest” of the provincial government. The *de facto* restoration of centralized fiscal control in Buenos Aires created a regime that concentrated revenue and decision-making authority in the latter at the expense of the national government. Alberdi described it “economic and political dualism”, an “extractive” regime that transferred resources and power from the national government to that of the province of Buenos Aires. This generated political instability and a series of costly internal insurrections. This lasting institutional anomaly came to an end after a short revolution in mid 1880 which was followed by the federalization of the city of Buenos Aires in 1880. During the intervening period, Alberdi was the most vocal and persistent advocate of this measure.

Modern historiography generally associates the beginning of the period of Argentina’s sustained economic growth with the consolidation of national authority in the early 1860. A broad consensus has emerged that the presidencies of Mitre, Sarmiento, and Avellaneda laid the institutional foundations for Argentina’s integration into the global economy and its 19th century phenomenal growth. For example, according to Díaz Alejandro (1970), who wrote the pioneering work in Argentine economy history, “it is a difficult and arbitrary task to break into the flow of economic history. I shall take as my starting point the period around 1860 when, after more than fifty years of political turmoil and civil wars following the May Revolution of 1810 against Spain, the Argentine ruling classes responded vigorously to the growth opportunities created by European industrialization and

technological advances in transportation” (p.2). Econometric studies have reinforced this interpretation (see for example Della Paolera, Irigoin and Bózzoli, 2003).

Alberdi’s contribution has been largely ignored by the literature, which is surprising given his standing as one of Argentina’s foremost intellectuals and the putative father of Argentina’s constitution. Part of the explanation is that *Estudios Económicos* is one of his least known and understood books. It is a collection of unedited notes about poverty and economic crises in Latin America that was stitched together in a disorganized fashion and published posthumously without the benefit of the author’s revision. Another reason why Alberdi’s historical contribution may have also been overlooked is that early historiography in Argentina was controlled for decades by Mitre, his rival, who was also an historian and outlived him for more than two decades.

This paper tests Alberdi’s thesis by evaluating whether the institutional events of 1853, 1862, and 1880 correspond to statistically identifiable changes in economic performance. In addition to testing structural breaks in GDP per capita growth trajectories, the paper evaluates Argentina’s participation in European import markets in comparison to Chile, a neighboring economy of broadly similar size during the period 1820-1875 and exposed to similar external demand conditions.

2. Alberdi’s Thesis

Main Outline of the Argument

Alberdi’s interpretation of Argentina’s nineteenth-century development rested on the relationship between political authority, trade, and fiscal power. His central proposition

was that sustained economic progress required a national government capable of exercising effective authority, protecting property rights, and guaranteeing freedom of trade across the territory. A weak or fiscally dependent national authority, in his view, was not merely inefficient but politically destabilizing, because it generated costly internal and external wars and prevented the full integration of the national economy.

Alberdi believed that Argentina possessed exceptional natural advantages which included fertile land, extensive navigable rivers, a temperate climate, and privileged access to European migration and capital. In his view, these endowments gave the country unusually favorable long-run prospects and ensured that economic expansion could occur even under imperfect institutional arrangements. In support of this view, he invoked Adam Smith's observation that England continued to advance in wealth despite the profusion and inefficiency of its government. The implication was clear: economic progress could occur under imperfect institutions, but at a slower pace and with greater instability than would otherwise be possible. For this reason, he warned against interpreting growth alone as evidence of sound government.

Under Spanish rule, the fiscal structure of the Río de la Plata depended primarily on the mining revenues of Alto Perú, which constituted the financial backbone of the viceroyalty. Buenos Aires functioned mainly as an administrative and logistical center within this system. The wars of independence severed this fiscal link. With the loss of the mining territories, Buenos Aires was forced to replace mining revenues with customs duties, making foreign trade the principal source of public finance. From that moment onward, control over trade became synonymous with control over fiscal power.

According to Alberdi, the government of Juan Manuel de Rosas preserved the fiscal dependence on trade but reintroduced a centralized structure by restricting river navigation and channeling external commerce through the port of Buenos Aires. This policy restored the effective centrality of Buenos Aires within the national economy and subordinated the littoral provinces to its fiscal and commercial interests.

The overthrow of Rosas in 1852 marked what Alberdi regarded as an economic revolution. The reforms initiated under Urquiza restored freedom of river navigation and sought to distribute the benefits of foreign trade across the national territory. The Constitution of 1853 embodied this transformation by establishing legal equality, commercial openness, and institutional guarantees designed to attract immigration and capital. In Alberdi's formulation, Buenos Aires would prosper most securely not by monopolizing trade but by fostering the prosperity of the provinces.

The constitutional settlement that followed the conflicts of the late 1850s reversed key elements of the earlier reform process. The compromise of 1860 restored the effective centrality of Buenos Aires over foreign commerce and fiscal resources while preserving republican forms. In analytical terms, this paper describes the institutional structure that emerged after 1860 as an "unholy trinity" of three mutually reinforcing mechanisms — the port, the customs house, and the provincial bank — that allowed Buenos Aires to consolidate financial power while leaving the national government dependent on provincial resources.

This configuration produced what Alberdi described as a dual political and economic order. The national government remained formally sovereign but materially subordinated to the

Province of Buenos Aires, which controlled the principal mechanisms of fiscal and financial power. The provincial bank was an additional instrument of political influence, extending the reach of Buenos Aires beyond its jurisdiction and strengthening its ability to sustain credit and military operations during periods of conflict. The result was continued economic expansion—driven by Argentina’s natural advantages—but under institutional arrangements that concentrated resources in Buenos Aires and limited the diffusion of growth across the national territory.

The resolution of this institutional contradiction occurred with the federalization of Buenos Aires in 1880. By establishing the national government in an autonomous capital and consolidating control over customs revenues, federalization dismantled the institutional structure that had sustained provincial dominance. In Alberdi’s interpretation, this reform restored the alignment between political authority, fiscal capacity, and national integration that was necessary for sustained economic development. In other words, natural endowments could generate absolute growth even under the extractive dualism that prevailed after 1862, but only the resolution of that dualism in 1880 unleashed the faster relative convergence and market penetration that Alberdi regarded as the hallmark of sound institutions

Alberdi interpreted Argentina’s economic and political evolution since 1810 as a succession of institutional regimes defined by the control over fiscal resources. Each regime altered the distribution of fiscal power and the capacity of the national government to exercise effective authority. Chronologically, this evolution went through three turning points: a positive break in 1853 associated with liberal constitutional reform; a negative reaction between 1860 and 1862; and a new positive break after 1880. Importantly,

Alberdi viewed the 1860–1862 regime as a partial reversal of the 1853 framework. Some of the liberal reforms introduced in 1853 — most notably freedom of river navigation, commercial openness, equal rights of foreigners and republican forms — remained in place. In his view, these surviving elements, together with Argentina’s exceptional natural endowments, continued to support economic expansion even under the extractive dualism that prevailed after 1862. However, the reimposition of fiscal centrality in Buenos Aires prevented the country from realizing its full catch-up potential relative to the Western Offshoots and in international markets.

The thesis lends itself to empirical testing. If Alberdi’s interpretation is correct, one should observe an improvement in Argentina’s growth trajectory after 1853, a moderation in the pace of relative convergence after 1862, and a renewed strengthening after 1880. Moreover, one should observe the clearest evidence of post-1880 improvement not only in domestic output, but also in Argentina’s capacity to penetrate external markets and converge to the Western Offshoots.

The Extractive Nature of the 1862–1880 Institutional System

The institutional order that emerged after 1862 combined political unification with fiscal asymmetry. Although customs revenues were formally nationalized during the 1860s, the geographic concentration of foreign trade in the port of Buenos Aires grew. This concentration gave the province a structural advantage in shaping both fiscal outcomes and financial perceptions.

This institutional configuration allowed Buenos Aires to financially dominate the national government. At its center was a self-reinforcing mechanism linking the port, the customs

house, and the provincial bank. The port concentrated external trade, which generated customs revenues, which in turn sustained the credit of the provincial government. This, in turn, supported the issuance of paper money by the provincial state-owned bank, whose notes circulated widely beyond the boundaries of the province and were accepted for the payment of national taxes, providing seignorage revenues to the provincial treasury.

It is important to distinguish the *de jure* allocation of customs revenues from the geographic concentration of customs activity. Under the fiscal arrangements following the Pact of 1859, the national government initially guaranteed to the Province of Buenos Aires the equivalent of its customs revenues for a limited period. By the end of the 1860s, customs revenues were formally transferred to the national treasury. Nevertheless, the physical concentration of external trade in the Buenos Aires customs house remained unchanged. As Alberdi emphasized, this concentration created statistical and financial impressions that overstated the economic strength of the province relative to the rest of the country.

The evidence supports this interpretation. In 1853 Argentina had approximately 1.45 million inhabitants, of whom roughly 250,000 resided in the Province of Buenos Aires, including about 100,000 in the city itself. Even under generous assumptions regarding consumption differences between the city and province of Buenos Aires and the provinces, a significant portion of customs revenues recorded at the Buenos Aires customs house must have originated in economic activity in the rest of the country.

The concentration of customs activity also influenced the perceptions of international investors. Data reported by Investors Monthly Manual (IMM), shows that between 1871 and 1875 the bonds issued by the Province of Buenos Aires traded in London above those

issued by the national government, and the premium widened sharply during the crisis of 1876, reaching levels consistent with market expectations of asymmetric fiscal strength. This pattern suggests that investors interpreted the geographic concentration of trade and fiscal revenues in Buenos Aires as evidence of its financial superiority over the nation.

Taken together, these elements define what can be described, in modern terminology, as an extractive economic and political regime. Rather than promoting balanced national development, it provided substantial financial leverage to the province of Buenos Aires.

Institutional Consolidation After 1880

By the mid-1870s, the institutional contradictions of the post-1862 system had become increasingly difficult to sustain. The financial crisis of 1876 exposed the fragility of a fiscal structure in which national credit depended on the financial strength of a single province. Although economic expansion continued, the divergence between provincial and national securities in international markets revealed the persistence of a hierarchy of credit inconsistent with the existence of a unified national state.

The 1876 crisis was Avellaneda's "road to Damascus". There was an irony in this. He had built his stellar political career supporting the 1860 regime. The event that triggered this realization was a humiliating negotiation with the Buenos Aires bank to obtain a loan to avoid a sovereign default. The national administration was forced to accept draconian terms to secure the funds, among them giving legal tender status to the Bank's inconvertible banknotes. The agreement also crippled National Bank created by Sarmiento in 1872 with the objective of securing the financial independence to the national government. During this period, the bonds issued by the province of Buenos Aires commanded a premium of

30% over the price of those with similar terms issued by the Republic. The unviability of the dual regime became starkly clear. “The whole must always be worth more than the part; it is axiomatic,” Avellaneda said. “If there were no other reason for declaring this city the capital of the Republic, this reason alone would suffice.” (Varela, 1906. 252).

In November 1879 Avellaneda announced his intention to introduce legislation to federalize the city of Buenos Aires and establish an autonomous national capital. The initiative was formally presented to Congress in July 1880. After a short and bloody revolution that quashed the opposition of the provincial authorities, it was approved by the National Congress in October. The process was completed two months later, when the provincial legislature formally accepted the federalization law, as required by the constitution. From that moment onward, the national government exercised direct authority over the principal customs house and the territory that sustained its fiscal base.

By separating the national government from provincial authority and placing the customs infrastructure under national control, the reform altered the relationship between fiscal capacity and political authority. The institutional dualism that had characterized the preceding period was replaced by a structure in which national credit rested on resources directly controlled by the national state. Further measures were taken in 1881 to establish a national currency.

Evidence from the bond market is consistent with this institutional transformation. Price series published by IMM show that provincial bonds issued by Buenos Aires traded at premiums relative to national securities during the years preceding federalization, reflecting investor perceptions of greater provincial financial strength. Following the

reforms of 1880, this hierarchy of credit shifted. The convergence of valuations between provincial and national securities provides indirect evidence that investors interpreted federalization as strengthening the institutional foundations of public credit.

From Alberdi's perspective, federalization represented the resolution of a structural contradiction that had defined the period after 1862. The national government had long exercised political authority without controlling the fiscal resources required to sustain it. The creation of an autonomous capital and the transfer of effective control over customs activity aligned fiscal capacity with national authority. In doing so, the reform completed the institutional transition required for the consolidation of a stable national state.

The reforms of 1880 therefore marked more than the conclusion of a political dispute. They represented the institutional reorganization necessary to transform a system of provincial fiscal predominance into one capable of sustaining national authority. The economic consequences of this transition, particularly in the evolution of trade, public credit, and relative income levels, form the basis of the empirical analysis that follows.

3. The Marginalization of Alberdi

Editorial Limitations of Estudios Económicos

One reason Alberdi's interpretation failed to shape subsequent historical scholarship lies in the editorial limitations of *Estudios Económicos* itself. Although analytically ambitious, the work suffered from structural weaknesses that affected its reception. The text was unevenly organized, frequently repetitive, and occasionally polemical in tone. Arguments were sometimes presented in fragmentary form rather than integrated into a coherent

analytical structure. These editorial deficiencies made the book vulnerable to dismissal by contemporaries who were predisposed to interpret Alberdi's conclusions as politically motivated rather than analytically grounded. The problem was not the absence of conceptual clarity but the absence of editorial discipline. In this sense, the structure of the work itself contributed to its marginalization. Readers encountering its more rhetorical passages could easily overlook the analytical framework underlying Alberdi's argument. This weakness was compounded by the circumstances under which the work circulated. Unlike the constitutional writings that had secured Alberdi's intellectual authority in earlier decades, *Estudios Económicos* did not benefit from careful editorial consolidation or systematic presentation. As a result, its central hypothesis—linking institutional structure to fiscal capacity and long-term development—remained embedded within a text that many readers perceived as politically charged rather than analytically rigorous.

Early Critiques of Estudios Economicos

Alberdi's thesis was contested early on, and the most influential objections came from Paul Groussac (1895), José Ingenieros (1916) and Ernesto Quesada (1923). Groussac's review of *Estudios Económicos* (1895) was extraordinarily severe. He criticized the book's disorganized structure, its repetitions, its dogmatic style and lack of scientific rigor. More importantly, he argued that Alberdi's historical interpretation was distorted by political prejudice and personal antipathies toward Mitre, Sarmiento, and Avellaneda. He rejected Alberdi's thesis and defended the builders of the post-1862 national order as the true architects of modern Argentina. Ingenieros (1918) took a more balanced position. He recognized Alberdi's valuable contributions to political economy and sociology but also dismissed the core elements of his thesis as too influenced by his personal animosities.

Quesada (1923) also described the book as “disorganized” and endorsed Groussac’s devastating critique. These opinions contributed to cement the view that Alberdi’s thesis was subjective, politically biased, rhetorically exaggerated, or methodologically unbalanced.

More important perhaps was the fact that Mitre outlived Alberdi by twenty-two years, during which he forged a reputation as an historian. As founder of the national academy of history, he controlled the development of Argentine historiography and ensured that Alberdi’s views were not widely disseminated. Poor editing of *Estudios Económicos* also had its share in pushing Alberdi’s view into a memory hole. As Groussac pointed out the book’s disorganized structure, repetitions, vacuousness and obvious falsehoods would be the best antidote to its diffusion.

The Construction of the Mitrista Historical Narrative

Another decisive factor in the marginalization of Alberdi’s interpretation was the consolidation of a competing historical narrative shaped by Bartolomé Mitre and his intellectual successors. Mitre survived Alberdi by more than two decades and occupied a central institutional position in the formation of Argentine historical scholarship. As a leading political figure and later as a dominant presence within the emerging national historical institutions, he played a decisive role in shaping the narrative of national development. Under this interpretation, the period following the political unification of 1862 became associated with institutional consolidation, economic progress, and national modernization. The administrations of Mitre, Sarmiento, and Avellaneda came to be described as the foundational phase of national development, often referred to as the era of

the “historical presidencies.” This narrative emphasized political stability, territorial expansion, and the expansion of infrastructure as markers of national progress. Alberdi’s thesis appeared increasingly incompatible. Over time, Mitre’s narrative shaped the way subsequent generations interpreted the economic and institutional history of the country, leaving little room for alternative views.

Modern Interpretations

Twentieth-century and early twenty-first-century historiography largely ignored Alberdi’s thesis and advanced a more linear interpretation of Argentine nineteenth-century development, treating the period 1862–1913 as a homogeneous whole. In that conventional view, the decisive institutional problem was solved in the early 1860s. Once national unity was effectively consolidated after the battle of Pavón (1861) and the presidency of Mitre (1862–1868), Argentina entered a sustained phase of political consolidation and economic growth that would continue, with fluctuations, until the outbreak of the First World War.

This interpretation is now deeply embedded in both narrative and quantitative accounts of Argentine economic history. Its classic formulation appears in Díaz Alejandro (1970), who explicitly identifies the decade starting in 1860 as the starting point of sustained economic growth. A more recent example of this view appears in Cavallo and Cavallo Runde (2018). This consensus is reinforced by recent quantitative work.

Della Paolera, Irigoin, and Bózzoli (2003) constructed a macroeconomic performance index that takes into account the burdens “inherited” from previous periods to rank presidencies from 1853 to 1999. The governorship of Pastor Obligado of Buenos Aires (1853–1857) ranks second (after Menem’s first presidency, 1989–1995), Mitre’s

presidency (1863–1868) third, and Sarmiento’s (1869–1874) fifth. All presidencies between 1880 and 1913 receive lower rankings. These results indirectly shed light on Alberdi’s thesis. First, the strong performance recorded under Obligado reflects the advantages enjoyed by the Province of Buenos Aires, which controlled the customs house and the provincial bank while waging economic—and eventually military—war against the Confederation. This outcome reflects the extractive dualism Alberdi criticized, not the 1853 institutional framework he championed. Second, the high rankings of Mitre and Sarmiento suggest that the 1862–1880 period was macroeconomically superior, by this index, to every administration between 1881 and 1913—a result that contradicts Alberdi’s thesis. The ranking of Roca’s first presidency (1881–1886) is particularly noteworthy because it corresponds to the period immediately following the federalization of Buenos Aires.

More recent works have supported Alberdi’s hypothesis. Garavaglia (2010, 2013 and 2014) has shown that the political conflicts of the mid-nineteenth century were, largely disputes over fiscal revenues rather than merely constitutional disagreements. In his account, control over customs duties was the central fiscal stake in the struggle between Buenos Aires and the Confederation, and the outcome of that struggle shaped the material basis of state formation. He also stresses that the surviving fiscal evidence is fragmentary because much of the Treasury archive of the Confederation was dispersed or lost after Pavón, which makes indirect reconstruction unavoidable. This documentary loss introduces an unavoidable degree of uncertainty into quantitative reconstructions, reinforcing the need to rely on indirect demographic and commercial indicators such as those presented above.

Recent quantitative studies have emphasized the importance of technological change and falling transport costs in shaping Argentina's late 19th-century development. Fajgelbaum and Redding (2022) show that declining international and domestic transport costs enabled major shifts in export composition, including the emergence of refrigerated meat exports and cereal production. These mechanisms are consistent with Alberdi's institutional framework, which emphasized that secure property rights and national fiscal capacity were prerequisites for sustained capital investment and infrastructure development.

Rediscovery of Alberdi's Contributions to Economic Thought

Economists have been more sympathetic to *Estudios Económicos* than historians but have focused their attention exclusively on Alberdi's theoretical contributions. Gondra (1932) identified him as one of the first economists to examine "deeply and thoroughly the pernicious effects of monetary inflation," and clearly saw "the peculiar character of South American crises" and the "historical significance and the political and social upheavals" of Argentine crises. Olivera (1967), one of Argentina's foremost economists, considered the ideas that Alberdi developed in *Estudios Económicos* "an undeservedly omitted chapter in the history of economic thought". More recent contributions have revisited Alberdi's broader economic ideas, emphasizing his focus on capital accumulation, immigration, and institutional guarantees as foundations for development (Villanueva 2009). Despite these efforts, Alberdi's institutional interpretation of Argentina's 19th-century development has remained largely unexamined.

4. Data Sources and Construction

Output and Population Data

Estimates of real output per capita are taken from the Maddison Project Database (Bolt and van Zanden, 2020). These series provide annual estimates of GDP per capita expressed in international dollars at constant 2011 prices. The MDP is widely used in comparative historical research and offers the longest consistent time series available for the countries included in this study. Population data are also drawn from the MDP. These estimates are used to convert aggregate export series into per capita measures, ensuring comparability across countries and over time. The use of consistent demographic estimates is essential for evaluating changes in relative economic performance and trade intensity.

A limitation of the MDP for Argentina is that for the period 1820-1875 it only includes four estimates. To construct a complete series, the MDP benchmark level for 1820 was extended using the annual growth rates reported by Orlando J. Ferreres y Asociados (2004) in *Dos siglos de economía argentina* which provides a complete series for the period 1810-2018. The resulting series preserves the MDP benchmark levels while incorporating the short-run growth dynamics implied by the Ferreres estimates.¹

Export Data

Export data are based primarily on the international trade database compiled by Federico and Tena-Junguito (2016). These series provide annual export values for Argentina, Chile,

¹ By construction, the reconstructed series matches the MDP benchmark values for 1850, 1870, and 1875, which reflects the fact that Ferreres' historical national accounts rely in part on Maddison benchmark estimates.

Brazil, Mexico, Peru, and selected non-Latin American economies. The original Federico–Tena export series are reported in current U.S. dollars. In this study, export values are converted into per capita measures using population estimates from MDP. This conversion allows direct comparison across countries with different population sizes and facilitates the analysis of long-run growth dynamics. In addition to Argentina and Chile, export series are constructed for Brazil, Mexico, and Peru to create regional comparison groups. Export series for Australia, Canada, and the United States are included as reference benchmarks representing resource-rich economies that were strongly integrated into global markets during the nineteenth century.

European Import Data

To evaluate the external integration of Argentina and Chile, this study constructs an aggregate measure of European import demand using historical trade data for a group of representative European economies. The countries included in this aggregate are the United Kingdom, France, Sweden, the Netherlands, and Portugal, the only European economies for which continuous import series are available for the period 1820-1913. For each year, total imports from all sources are summed across these five countries to construct a measure of aggregate European import demand. Export shares for Argentina and Chile are then calculated by dividing the exports of each country by total imports of the European group. This measure approximates the share of European import demand supplied by each exporting country. Because the United Kingdom and France accounted for a large proportion of European trade during the nineteenth century, this aggregation provides a reasonable proxy for the external markets most relevant to Argentine exports.

Relative Export Measures

Several comparative indicators are constructed to evaluate Argentina's performance relative to other countries. The principal regional comparison uses the ratio of Argentine to Chilean export shares. This ratio measures Argentina's relative position within European markets and provides a useful benchmark because Chile represents a comparable South American export economy exposed to similar external demand conditions but operating under different institutional arrangements.

As an additional regional robustness indicator, Argentina's export performance is also evaluated relative to a broader group of Latin American exporters, including Brazil, Mexico, Peru, Colombia, Cuba, Uruguay, and Venezuela. Argentina's exports are divided by total exports of this regional group to measure changes in Argentina's relative export position within Latin America.

Although Argentina's share in total Latin American exports provides a useful regional indicator, it is not used as a baseline variable in the segmented trend analysis because the composition of the Latin American group changes substantially over time and reflects heterogeneous political and economic conditions. This heterogeneity introduces additional volatility unrelated to Argentine institutional performance. Instead, this indicator is used as a robustness measure to verify that the main results do not depend on the specific choice of European import denominators.

Export Measures in Current and Per Capita Terms

Export series are analyzed primarily in current U.S. dollars. The use of nominal values reflects the financial and commercial environment faced by governments and investors during the period under study. To account for population growth and to facilitate cross-country comparison, export values are also converted into per capita measures using Maddison population estimates. This allows identification of long-run trends in export intensity and relative economic performance. Where available, supplementary export series expressed in constant 1913 dollars are used as robustness checks to verify that long-term patterns are not driven by price-level changes.

Financial Market Data

Financial market data are drawn from the bond price series reported by Investors Monthly Manual (IMM), which provides detailed quotations for bonds issued by the national government (1871) the Province of Buenos Aires (1870 and 1873). Price data was used to evaluate changes in investor perceptions before and after the federalization of Buenos Aires in 1880. Although both national and provincial bonds carried nominal coupons of 6 percent, their amortization structures differed. The Argentine national bond included an annual sinking fund of 2.5%, whereas the Province of Buenos Aires bonds amortized at about 1% annually. This implies the national government faced a higher annual servicing burden. Consequently, observed price differences should be interpreted with caution. Additional provincial bonds issued by Entre Ríos (1872) and Santa Fe (1874) were also traded in London (Nash, 1883, 354). However, these issues had a higher coupon (7% vs. 6%) and had a relatively small size (Entre Rios £226,800 and Santa Fe £300,000). As a

result, they were thinly traded. IMM's data shows substantial gaps in the monthly observations.

Lack of Complete Fiscal Data for Confederacy

Several limitations affect the interpretation of nineteenth-century fiscal and trade data. As emphasized by Garavaglia (2010, 2013, 2014), significant portions of fiscal archives from the Confederacy for this period are lost. This loss complicates direct reconstruction of reliable revenue flows and fiscal balances.

5. Empirical Strategy

Institutional Breakpoints

The empirical analysis evaluates whether major institutional changes in 1853, 1862, and 1880 correspond to observable changes in Argentina's long-run economic trajectory. These dates reflect historically defined institutional transitions rather than statistically determined breakpoints. The Constitution of 1853 established a framework favoring internal and external trade and national authority. The political settlement of 1862 consolidated national government but preserved the concentration of fiscal power in Buenos Aires. The federalization of Buenos Aires in 1880 aligned political authority with fiscal control by establishing an autonomous national capital. The analysis treats these dates as structural turning points dividing the sample into four periods: 1820–1852, 1853–1861, 1862–1879 and 1880–1913.

Segmented Trend Framework

To evaluate changes in economic performance across institutional regimes, linear time trends are estimated separately for each of the four periods defined above. This segmented trend approach allows the identification of changes in the direction and intensity of long-run growth associated with institutional transitions. The objective is not to estimate precise causal effects, but to determine whether changes in economic trajectories coincide with historically defined institutional shifts. All estimations are conducted using logarithmic transformations of the variables to allow interpretation of coefficients as proportional growth rates. Standard errors are corrected for serial correlation using heteroskedasticity and autocorrelation-consistent methods.

Variables Used in the Analysis

The empirical analysis uses four primary indicators: 1) GDP per capita measures aggregate economic performance using annual estimates from MDP, 2) export performance is measured using export values per capita constructed from the Federico–Tena database combined with MDP population estimates, 3) Argentina’s share in European import markets measures international market penetration. This variable is calculated as Argentina’s exports divided by total imports of the selected European economies, 4) relative export performance is evaluated by comparing Argentina’s market share with that of Chile and with a broader group of Latin American exporters. These indicators capture complementary dimensions of economic development: domestic output, external integration, and relative competitiveness.

Hypotheses to Be Tested

The empirical tests evaluate four predictions derived from Alberdi's institutional framework.

- Hypothesis 1: Growth performance improves after 1853 relative to the preceding period.
- Hypothesis 2: Absolute growth continues after 1862, but the pace of *relative* convergence toward the Western Offshoots and of market-share gains in exports moderates compared with the 1853–1861 acceleration.
- Hypothesis 3: Growth strengthens after 1880 relative to the period 1862–1879.
- Hypothesis 4: Argentina's relative participation in international markets improves after 1880.

These hypotheses are evaluated using segmented trend estimates across multiple indicators.

6. Results

This section presents the segmented trend estimates for the principal indicators of economic performance described in the previous section. The results focus on identifying changes in long-run trajectories associated with the institutional breakpoints defined in Section 5.

6.1 Output and Trade Performance

GDP per Capita Trends

The estimated trends in GDP per capita (Appendix Table 1, Figure A1) show continuous acceleration across all three institutional regimes, rising from 0.5% per year (1820–1852)

to 1.3% (1853–1861), 1.9% (1862–1879), and 2.4% (1880–1913). This pattern is consistent with Alberdi’s emphasis on Argentina’s exceptional natural advantages, which permitted sustained expansion even under imperfect institutional arrangements. However, the relative performance metrics tell a different story. Convergence toward the United States and the Western Offshoots (Appendix Tables 2–3 and Figures A2, A3 and A7) accelerated sharply after 1853 but then slowed markedly during the 1862–1879 “dualism” period before resuming at a faster pace after federalization. The same pattern appears in export-intensity and European market-share indicators (Appendix Tables 4–6 and Figures A4 and A5). Thus, while absolute growth never decelerated, “dualism” appears to have slowed Argentina’s relative progress until the 1880 reforms aligned fiscal capacity with national authority. A simple back-of-the-envelope comparison reinforces this interpretation. The ratio of Argentine to U.S. GDP per capita shows little or no convergence between 1862 and 1880, whereas it rises clearly between 1881 and 1899. This suggests that whatever growth Argentina achieved during the dualism period did not translate into relative catch-up vis-à-vis the United States, in contrast with the decades following federalization.

In the relative income specifications reported in Appendix Tables 2 and 3, the 1862 breakpoint is not included because preliminary tests failed to identify a statistically meaningful shift in trend at that date. This result does not contradict the observed slowdown in relative convergence during the dualism period but rather suggests that its effects were gradual and cumulative rather than occurring as a discrete structural break.

Export per Capita Performance

Export per capita data show strong long-run expansion beginning in the mid-nineteenth century, reflecting the increasing integration of Argentina into global markets. The segmented trends indicate that the rate of export expansion varies across institutional periods. The period following 1853 displays a marked increase in export growth rates relative to the preceding decades. Between 1862 and 1879, export performance improved at a slower rate. After 1880, export growth accelerates significantly.

Argentina's Share in European Import Markets

This variable shows gradual expansion throughout the entire period, with distinct changes in slope corresponding to the institutional breakpoints identified earlier. After 1853, Argentina's export share begins to increase at a faster pace than in the preceding period. Between 1862 and 1879, the rate of increase in export share moderates relative to the previous period. Following the federalization of Buenos Aires, export shares increase more rapidly, indicating improved integration into European markets and stronger participation in global trade networks.

Relative Performance: Argentina and Chile

During the early decades of the nineteenth century, both countries display relatively stable shares in European markets (see Appendix Table 7, panel E and Figure A5). After 1853, Argentina's export share begins to increase relative to Chile, reflecting improved trade capacity. Between 1862 and 1879, the relative advantage of Argentina stabilizes, indicating

limited divergence between the two countries during this period. After 1880, Argentina's relative position strengthens significantly.

The comparison between Argentina and Chile is particularly revealing given the profound transformation of the Chilean economy after 1880. Following the War of the Pacific (1879–1883), Chile acquired the nitrate-rich territories of the Atacama Desert, triggering a major export boom that lasted until 1913. With the restoration of peace in 1881, rising European demand and favorable prices led to a rapid expansion of nitrate exports, which increased sharply within a few years and became the principal source of government revenue (Brown, 1963; Bulwer-Thomas, 1994). Yet despite this powerful export stimulus, during this period Argentina did not lose ground relative to Chile; on the contrary, its relative export position strengthened. This reinforces the interpretation that Argentina's post-1880 improvement reflects institutional consolidation rather than favorable external shocks alone.

6.2 Evidence from the Bond Market

Bond price differentials between the Province of Buenos Aires and the National Government provide an independent measure of investor perceptions of fiscal credibility and institutional strength. Unlike fiscal aggregates or trade statistics, bond prices reflect forward-looking assessments formed by market participants under uncertainty. This section examines the relative pricing of the Buenos Aires provincial bond issued in July 1870 and the comparable national bond issued in April 1871. A second comparison uses the provincial bonds issued in December 1873 against the same national bond of 1871 (because this bond began trading in 1874, the comparison period starts in January 1874). Although both provincial bonds carried coupons of six percent, their amortization

schedules differed: the national bond included a sinking fund of 2.5 percent annually, whereas the provincial loans amortized at 1 percent (see Appendix Table 8A, 8B, 8C, 9 and 10).

At issuance, according to Nash (1883) the Argentine national bond of 1871 carried a yield of 7.5%, roughly 4.25 percentage points above UK consols, whereas the Buenos Aires provincial loans of 1870 and 1873 were issued at yields estimated at 7.05% and 6.91%, respectively, in both cases at lower implied spreads (see Table 8A). These data suggest that despite the more investor-friendly amortization schedule of the national bonds, the province of Buenos Aires was able to borrow at lower spreads, which is consistent with the hypothesis that investors viewed it as a more solid credit.

National and Provincial Bond Prices as Indicators of Institutional Confidence

Monthly quotations are drawn primarily from the *Investors Monthly Manual* (IMM), a contemporaneous London financial publication widely used by investors. The IMM series is generally consistent with the historical tables published by Agote (1884). This variable provides a direct measure of investor perceptions regarding the relative fiscal strength of the national and provincial governments. During the late 19th century, Argentine public debt was actively traded in London. Agote (1884) and *Investors Monthly Manual* (IMM) provide monthly prices for bonds issued by the national government and by the Province of Buenos Aires in 1870, 1871 and 1873.

The Provincial Premium Before Federalization

Between May 1871 and June 1880, the Buenos Aires provincial bond traded on average at a premium relative to the national bond. Over this period, the mean premium was 1.46 percent, with a median of 1.3 percent. The distribution of observations shows substantial volatility, with values ranging from –9 percent to 30 percent (see Appendix Table 8B). The existence of a persistent provincial premium indicates that investors regarded the Province of Buenos Aires as fiscally stronger than the national government. This pattern is consistent with Alberdi’s thesis.

Crisis Episodes and Institutional Risk

Short-term fluctuations in the premium correspond closely to major political and financial shocks. During the Mitre rebellion of September–December 1874, the provincial premium temporarily narrowed and turned slightly negative. The mean premium during this episode was –0.58 percent, suggesting a temporary decline in investor confidence in the Province of Buenos Aires. The most dramatic divergence occurred during the financial crisis of 1876, when Argentina approached default. Between May and October of that year, the provincial premium averaged 15.52 percent, reaching a peak close to 30 percent. During this period, the national government relied heavily on financial support from the Banco de la Provincia de Buenos Aires, reinforcing the perception that provincial institutions remained stronger than those of the national state. These episodes confirm that bond prices responded rapidly to political instability and fiscal stress.

Federalization and the Repricing of Risk

The federalization of Buenos Aires in 1880 represents the most important institutional break in the series. President Avellaneda announced the federalization initiative in late 1879, introduced legislation in July 1880, and secured congressional approval in September of that year. Final acceptance by the provincial legislature in December 1880 completed the process. Bond prices reacted during the transition period. Between July and December 1880, the provincial premium averaged -1.86 percent, indicating that provincial credit advantages were already diminishing as institutional reforms progressed (see Figure A6). After federalization, the relationship between provincial and national creditworthiness changed substantially. Between January 1881 and December 1883, the average provincial premium became negative, with a mean value of -1.28 percent and substantially lower volatility than in the preceding period. A comparison of means confirms that the decline in the premium after federalization is statistically significant. The difference between the pre- and post-1880 periods amounts to approximately 2.74 percentage points, with a t-statistic of 3.98 (see Table 9). This shift indicates that investors revised their assessment of institutional strength once the national government acquired direct control over the capital and its fiscal base.

6.3 Summary of Results

Summary of Empirical Patterns

Across all indicators, the segmented trend results display a pattern consistent with Alberdi's thesis. The period following 1853 is characterized by improved growth trajectories. The estimated trend change associated with 1862 is not statistically

distinguishable from the preceding period. This result is consistent with Alberdi's argument that economic expansion continued under the institutional dualism established after 1862. His claim was not that growth ceased, but that it proceeded under institutional constraints that limited the full realization of Argentina's economic potential. The period after 1880 displays renewed acceleration across multiple indicators. These patterns are consistent across GDP per capita, export performance, and international market participation. Detailed numerical estimates of segmented trends and statistical significance levels are reported in the tables in the Appendix.

A possible objection is that the greater monetary stability observed between 1862 and 1880—particularly during the convertibility regime of 1867–1876—may be interpreted as evidence of stronger institutionalization relative to the period 1853–1861 (see Newland, 2022). However, this apparent stability reflected the concentration of monetary authority in the Province of Buenos Aires rather than the consolidation of national institutions. Because paper-money issuance remained under provincial control, the national government lacked independent monetary capacity and was forced to rely on provincial credit to finance internal and external wars. Alberdi explicitly questioned this anomalous arrangement, arguing that it reinforced the very dualism that weakened national authority. After 1872, economic and political dualism produced a parallel monetary dualism, in which the provincial bank competed with emerging national banks—effectively creating two banks and two currencies within the same economy. He regarded the convertibility regime introduced in 1867—a hybrid of Peel's Act of 1844 and the Lamanski reform in Russia (1862)—as fundamentally flawed. It failed to prevent monetary expansion—the national government routinely borrowed banknotes from the provincial bank—and its apparent

stability was sustained artificially through foreign borrowing. When this regime collapsed, it amplified the domestic effects of the global crisis that had started in 1873, revealing the fragility of the institutional arrangement.

A related objection concerns the War of the Triple Alliance, which might be interpreted as an exogenous shock affecting economic performance during the 1862–1880 period. From Alberdi's perspective, recurrent internal and external wars were not independent disturbances but endogenous responses to institutional dualism. The need to finance large military expenditures led to large-scale foreign borrowing in the London market. The resulting capital inflows were channeled through the banking system, particularly the provincial bank. This process contributed to a massive monetary and credit expansion that fueled unprecedented levels of speculation. The global crisis of 1873 and the revolution of 1874 exposed the fragility of this system and marked the beginning of the end of dualism.

Summary of Financial Evidence

The bond price data provide strong evidence that investor perceptions of fiscal risk were closely linked to institutional structure. During the 1870s, provincial bonds frequently traded at a premium relative to national bonds. Crisis episodes in 1874 and 1876 amplified these differences, highlighting the vulnerability of the national government. Following federalization in 1880, price differentials narrowed, indicating increased confidence in national fiscal capacity. These financial market results complement the trade and output evidence presented in Section 6 and provide an independent test of Alberdi's thesis. A second comparison using the provincial 1873 bond confirms this interpretation. This bond was not nationalized after federalization. Its average premium remained negative both

before and after 1880, and the change in its mean value is statistically insignificant. This contrast supports the interpretation that markets distinguished between liabilities that benefited from federal backing and those that remained provincial obligations

7. Robustness and Alternative Indicators

Alternative Measures of Export Performance

The baseline results presented in Section 6 rely on export performance measured on a per capita basis and on Argentina's share in European import markets. To verify that the observed patterns do not depend on a single metric, additional export indicators were constructed using alternative definitions of relative performance. Export ratios were calculated comparing Argentina's exports with those of a representative group of Latin American economies, including Brazil, Mexico, Peru, Colombia, Cuba, Uruguay, and Venezuela. These ratios provide an alternative measure of Argentina's relative position within regional export markets. The results obtained using these regional ratios display patterns broadly consistent with those identified in the baseline export share measures. Export performance improves after 1853, displays relative moderation after 1862, and strengthens again after 1880. The similarity of these trajectories across different indicators suggests that the observed changes are not driven by the specific choice of European market data. These findings strengthen the interpretation that institutional transitions influenced Argentina's long-run export performance across multiple market environments.

Additional robustness tests comparing Argentina's export performance to that of Australia—another resource-rich settler economy exposed to similar technological and

trade shocks—show a statistically significant strengthening of Argentina’s relative export performance after 1880, consistent with the baseline results (see Figure A7).

Technological innovations in maritime transport represent a potential alternative explanation for the acceleration of Argentine exports after 1880. In particular, the introduction of refrigerated shipping in the mid-1880s made possible the large-scale export of chilled and frozen meat to European markets. This innovation undoubtedly contributed to the expansion of Argentina’s export capacity in the late nineteenth century. However, its diffusion occurred several years after the federalization of Buenos Aires in 1880, and the segmented trend estimates indicate that the acceleration in export performance begins around the institutional break rather than in the later years when refrigerated exports became commercially dominant. Moreover, the institutional reforms of 1880 created the fiscal and legal environment that facilitated large-scale investment in infrastructure, railroads, and export-oriented production, suggesting that technological adoption and institutional consolidation operated as complementary rather than competing forces.

Current-Dollar and Constant-Dollar Comparisons

The primary export series used in the analysis are expressed in current U.S. dollars. This choice reflects the financial and commercial environment faced by governments and investors during the nineteenth century. However, nominal values may be influenced by price-level fluctuations and changes in international commodity markets. To address this concern, supplementary export series expressed in constant 1913 dollars were examined where available. These constant-price series provide an additional check on long-run trends by removing the effects of price variation. Comparison between current-dollar and

constant-dollar export measures shows that the principal turning points identified in the baseline analysis remain visible under both specifications. In particular, the relative strengthening observed after 1880 appears consistently across alternative price definitions. This consistency indicates that the estimated structural shifts reflect real changes in trade performance rather than nominal price effects.

Relative Performance Against Chile

The comparison between Argentina and Chile provides a particularly useful robustness test because both countries were resource-based exporters with access to international markets but operated under different institutional arrangements. Export share ratios between Argentina and Chile were recalculated using alternative denominators, including both European import totals and regional export aggregates. In both cases, Argentina's relative position displays modest change prior to 1862, stabilization during the period 1862–1879, and significant divergence after 1880. The persistence of these patterns across alternative constructions supports the interpretation that Argentina's improved performance after federalization reflects institutional change rather than short-term fluctuations in global demand.

Robustness of Financial Market Data

The bond price results are robust to alternative data sources, sample partitions, and benchmark definitions. Monthly quotations used in this study are drawn primarily from IMM. These series were cross-checked against the historical price tables published by Agote (1884), which display close agreement across most observations. Minor discrepancies between sources occur on isolated dates but do not alter the observed pattern

of provincial premiums before 1880 and convergence thereafter. The results are also robust to alternative period definitions around the federalization event. Using July 1880, September 1880, or December 1880 as transition dates yields the same qualitative result: the provincial premium declines sharply and becomes persistently negative after federalization. Finally, comparisons using alternative provincial bonds (notably the Buenos Aires 1873 issue) produce similar post-1880 convergence patterns. This consistency indicates that the observed shift in investor perceptions reflects institutional change rather than bond-specific factors.

Endogenous Structural Break Tests

To verify that the structural changes identified in the baseline analysis are not driven solely by historically imposed breakpoints, Bai–Perron multiple structural break tests were estimated. Across the main series the estimated breakpoints cluster closely around 1853, 1862, and 1880. Confidence intervals for the estimated breaks overlap with the constitutional reform of 1853, the institutional settlement of the early 1860s, and the federalization of Buenos Aires in 1880. In the bond premium series, the principal structural break is detected during the months surrounding the federalization crisis of 1880. These results suggest that the structural changes identified in the baseline analysis are statistically detectable even when break dates are not imposed ex ante.

Stability of Results Across Indicators

Taken together, the robustness checks confirm that the principal empirical patterns identified in Section 6 remain stable across alternative specifications. Changes in growth trajectories after 1853, relative moderation after 1862, and renewed strengthening after

1880 appear consistently across GDP per capita, export performance, market share indicators, and relative export ratios. These recurring patterns across independent data sources provide strong support for the reliability of the segmented trend framework. Rather than depending on any single dataset, the results emerge from the convergence of multiple indicators measuring different dimensions of economic performance.

8. Conclusion

The empirical results presented in this paper provide support for Alberdi's thesis described in *Estudios Económicos*. Across multiple indicators—output, export performance, relative market share, and financial market behavior—the data reveal a consistent pattern of acceleration after 1853, relative moderation after 1862, and renewed growth after 1880.

These findings are consistent with Alberdi's central claim that Argentina's economic trajectory was shaped not only by its natural advantages but by the institutional arrangements governing the functioning of a national government, property rights, freedom of navigation, trade openness, and immigration. The Constitution of 1853 created such framework. This institutional shift corresponds closely with the observed strengthening of growth trajectories in the subsequent years.

The results also support Alberdi's more controversial argument regarding the economic effects of dual political structure established after 1862. Contrary to later historical interpretations that portray the period following national unification as one of uninterrupted institutional consolidation, the evidence suggests that relative convergence slowed.

Financial market evidence reinforces this interpretation. The persistent premium observed for provincial securities issued by Buenos Aires during the early 1870s indicates that investors perceived the province as fiscally stronger than the national government. This pattern is consistent with the continued concentration of trade and financial resources in the port and customs system of Buenos Aires. The narrowing of this premium following the federalization of Buenos Aires suggests that investors interpreted the reform as strengthening national fiscal authority.

These results also clarify the significance of the institutional transformation associated with federalization. The reforms completed in 1880 aligned political authority with fiscal capacity. The strengthening of export performance and the improvement of relative market shares observed after this transition are consistent with Alberdi's argument.

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Appendix — Statistical Tests, Tables, and Figures

All baseline estimations are performed using segmented linear trend models with predetermined institutional breakpoints. All variables are estimated in logarithms. Standard errors are Newey–West HAC estimators with three lags. Institutional break dates are historically determined rather than statistically estimated.

Table 1. Structural Breaks — Argentina GDP per Capita

Variable	Coefficient	Std. Error	p-value
Time trend	0.005	0.001	<0.001
Trend × Post-1853	0.008	0.005	0.081
Trend × Post-1862	0.006	0.006	0.326
Trend × Post-1880	0.005	0.005	0.328

Implied annual growth rates

Period	Rate
1820–1852	0.005
1853–1861	0.013
1862–1879	0.019
1880–1913	0.024

Observations: 104 R²: 0.975

Table 2. Convergence — Argentina vs United States

Variable	Coefficient	Std. Error	p-value
Time trend	-0.006	0.001	<0.001
Trend × Post-1853	0.009	0.003	0.010
Trend × Post-1880	0.004	0.004	0.335

Implied annual relative trends

Period	Rate
1820–1852	-0.006
1853–1879	0.003
1880–1913	0.007

Observations: 94 R²: 0.438**Table 3. Convergence — Argentina vs Western Offshoots**

Variable	Coefficient	Std. Error	p-value
Time trend	-0.021	0.002	<0.001
Trend × Post-1853	0.027	0.004	<0.001
Trend × Post-1880	0.005	0.004	0.270

Implied annual relative trends

Period	Rate
1820–1852	-0.021
1853–1879	0.006
1880–1913	0.011

Observations: 94 R²: 0.725

Table 4. Argentina — Share in European Import Market

Variable	Coefficient	Std. Error	p-value
Time trend	0.010	0.012	0.379
Trend × Post-1853	0.022	0.029	0.453
Trend × Post-1862	-0.019	0.023	0.394
Trend × Post-1880	0.026	0.006	<0.001

Implied annual trends

Period	Rate
1820–1852	0.010
1853–1861	0.032
1862–1879	0.013
1880–1913	0.039

Observations: 94 R²: 0.743

Table 5. Argentina vs Chile — Relative Market Share

Variable	Coefficient	Std. Error	p-value
Time trend	0.007	0.010	0.498
Trend × Post-1853	0.062	0.028	0.026
Trend × Post-1862	-0.049	0.022	0.029
Trend × Post-1880	0.008	0.005	0.128

Implied annual relative trends

Period	Rate
1820–1852	0.007
1853–1861	0.069
1862–1879	0.020
1880–1913	0.028

Observations: 94 R²: 0.790

Table 6A. Period-Specific Trend Estimates — Argentina Share in European Imports

Period	Slope	Std.Err	t-stat	p-value	R ²
1820–1852	0.014	0.010	1.440	0.160	0.063
1853–1861	0.094	0.039	2.412	0.047	0.454
1862–1879	0.048	0.014	3.445	0.003	0.426
1880–1913	0.211	0.015	14.516	<0.001	0.868

Table 6B. Period-Specific Trend Estimates — Argentina / Chile Market Share Ratio

Period	Slope	Std.Err	t-stat	p-value	R ²
1820–1852	0.001	0.002	0.792	0.434	0.020
1853–1861	0.023	0.006	3.521	0.010	0.639
1862–1879	0.013	0.003	4.151	<0.001	0.519
1880–1913	0.029	0.003	9.097	<0.001	0.721

Table 7. Robustness Tests — Alternative Break Dates**Panel A — Argentina GDP per Capita**

Variable	Coefficient	Std. Error	p-value
Time trend	0.004	0.001	<0.001
Trend × Post-1852	0.008	0.005	0.101
Trend × Post-1860	0.005	0.006	0.381
Trend × Post-1878	0.006	0.004	0.142

Panel B — Argentina vs United States

Variable	Coefficient	Std. Error	p-value
Time trend	-0.005	0.001	<0.001
Trend × Post-1852	0.008	0.003	0.018
Trend × Post-1878	0.004	0.004	0.214

Panel C — Argentina vs Western Offshoots

Variable	Coefficient	Std. Error	p-value
Time trend	-0.021	0.002	<0.001
Trend × Post-1852	0.026	0.004	<0.001
Trend × Post-1878	0.007	0.004	0.099

Panel D — Argentina Market Share of European Imports

Variable	Coefficient	Std. Error	p-value
Time trend	0.010	0.012	0.417
Trend × Post-1852	0.022	0.034	0.522
Trend × Post-1860	-0.018	0.026	0.487
Trend × Post-1878	0.024	0.007	<0.001

Panel E — Argentina vs Chile

Variable	Coefficient	Std. Error	p-value
Time trend	0.006	0.011	0.602
Trend × Post-1852	0.065	0.032	0.043
Trend × Post-1860	-0.048	0.025	0.057
Trend × Post-1878	0.005	0.005	0.351

Table 8A – Yield to maturity at issue price

Issue	Date of Issue	Issue Price	Yield at Issue	Yield on UK Consol	Spread at issue
Provincial 1870	July 1870	88.00	7.05%	3.365%	3.69 pp
National 1871	April 1871	88.50	7.50%	3.253%	4.25 pp
Provincial 1873	Dec 1873	89.50	6.91%	3.263%	3.65 pp

Source: Nash (1883), Corporation of Foreign Bondholders (1877) and Bank of England. Provincial yields are estimated using issue prices, coupon rates, and contractual amortization schedules. Applying the same method to the national bond yields an estimate of about 7.3 percent, close to the 7.5 percent reported in Nash (1883).

Table 8B – BA Province Bond of 1870 vs. Republic of Argentina Bond of 1871 — Premium Summary Statistics (IMM)

Period	N	Positive Premium (%)	Median (%)	Mean (%)	Std. Dev.	Maximum (%)	Minimum (%)
May 1871–Dec 1880	116	47.4	0.50	1.46	7.96	30.00	-9.00
Jan 1881–Dec 1883	36	22.2	-1.50	-1.28	1.86	3.00	-4.00

Table 8C – BA Province Bond of 1873 vs. Republic of Argentina Bond of 1871 — Premium Summary Statistics (IMM)

Period	N	Positive Premium (%)	Median (%)	Mean (%)	Std. Dev.	Maximum (%)	Minimum (%)
Jan 1874–Dec 1880	84	33.3	–2.50	–1.96	6.84	25.00	–10.00
Jan 1881–Dec 1883	36	8.3	–2.00	–2.23	1.73	1.00	–5.00

Table 9. Difference in Means — Provincial Price Premium Before and After Federalization

Period	Mean	Std.Dev	N
Pre-1880 (May 1871–Jun 1880)	1.46	7.96	116
Post-1880 (Jan 1881–Dec 1883)	-1.28	1.86	36

Mean difference: 2.74

Welch t-statistic: 3.98

p-value: <0.01

Table 10. Variance Comparison — Provincial Premium

Period	Variance	Std.Dev
Pre-1880	63.36	7.96
Post-1880	3.46	1.86

Variance ratio (F-test): 18.32

p-value: 0.00000

Table 11. Bai–Perron Structural Break Tests

Series	Break 1	Break 2	Break 3
Log GDP per capita	1854	1863	1879
Argentina share in European imports	1852	1861	1881
Argentina / Chile ratio	1855	1862	1880
Provincial bond premium	—	—	1880

Notes: Breakpoints estimated using Bai–Perron multiple structural break tests allowing up to three breaks with trimming parameter 0.15. Confidence intervals for estimated break dates overlap closely with historically defined institutional events in 1853, 1862, and 1880.

Table 12 — Argentina vs Australia Export Performance**Segmented Trend Estimates**

Variable	Coefficient	Std. Error	p-value
Time trend	0.004	0.002	0.041
Trend × Post-1853	0.006	0.003	0.058
Trend × Post-1862	-0.003	0.004	0.422
Trend × Post-1880	0.011	0.004	0.008

Implied Relative Growth Rates

Period	Annual Rate
1820–1852	0.004
1853–1861	0.010
1862–1879	0.007
1880–1913	0.018

Observations: 94

R²: 0.71

Figure A1. Argentina GDP per Capita, 1810–1913

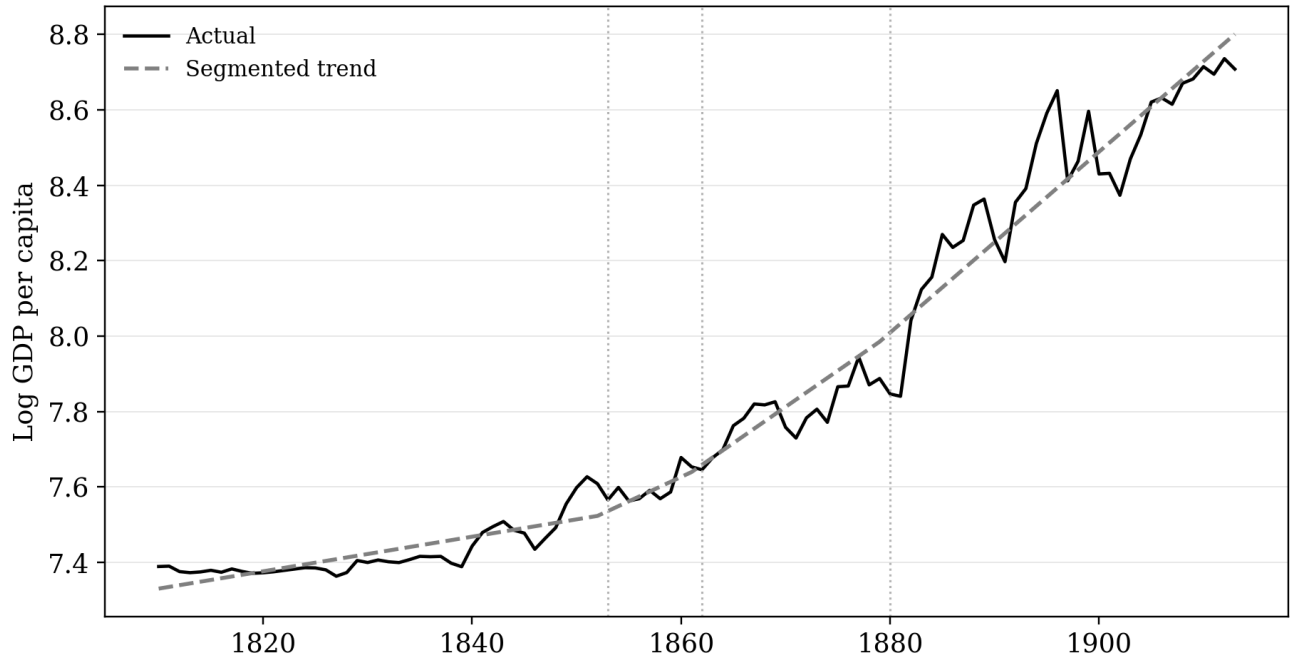


Figure A1. GDP per capita, Argentina (log scale)

Figure A2. Argentina Relative to the United States, 1820–1913

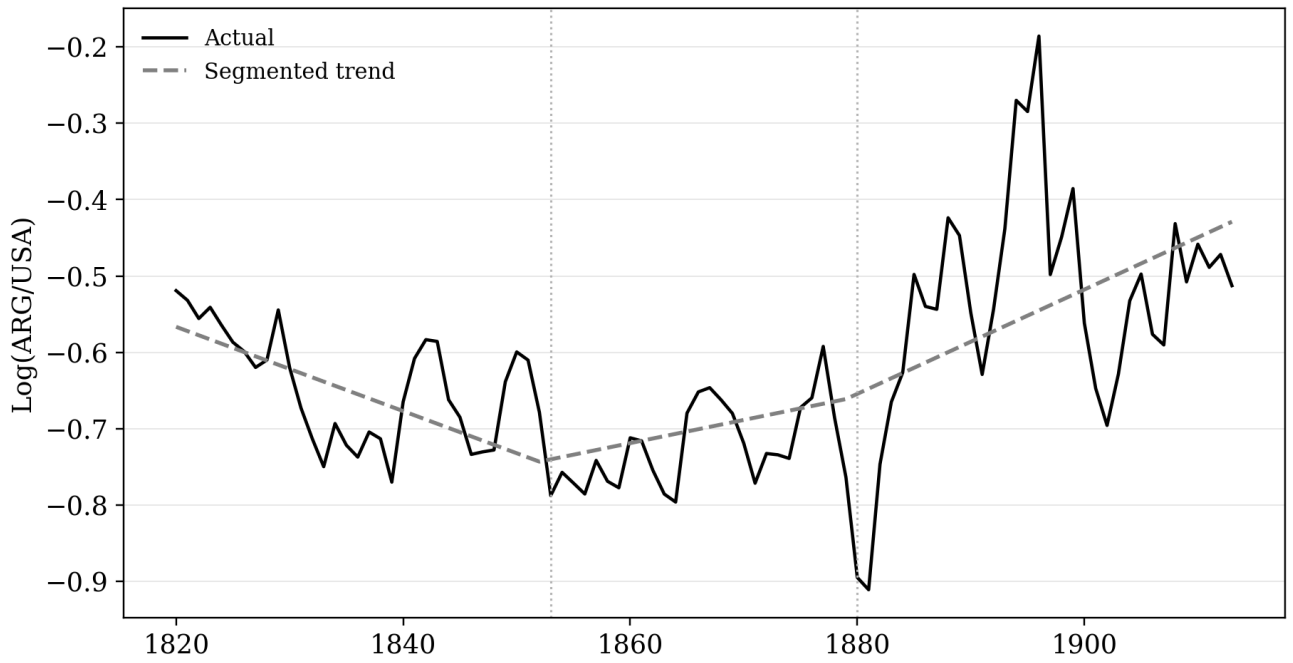


Figure A2. Argentina vs. United States

Figure A3. Argentina Relative to the Western Offshoots, 1820-1913

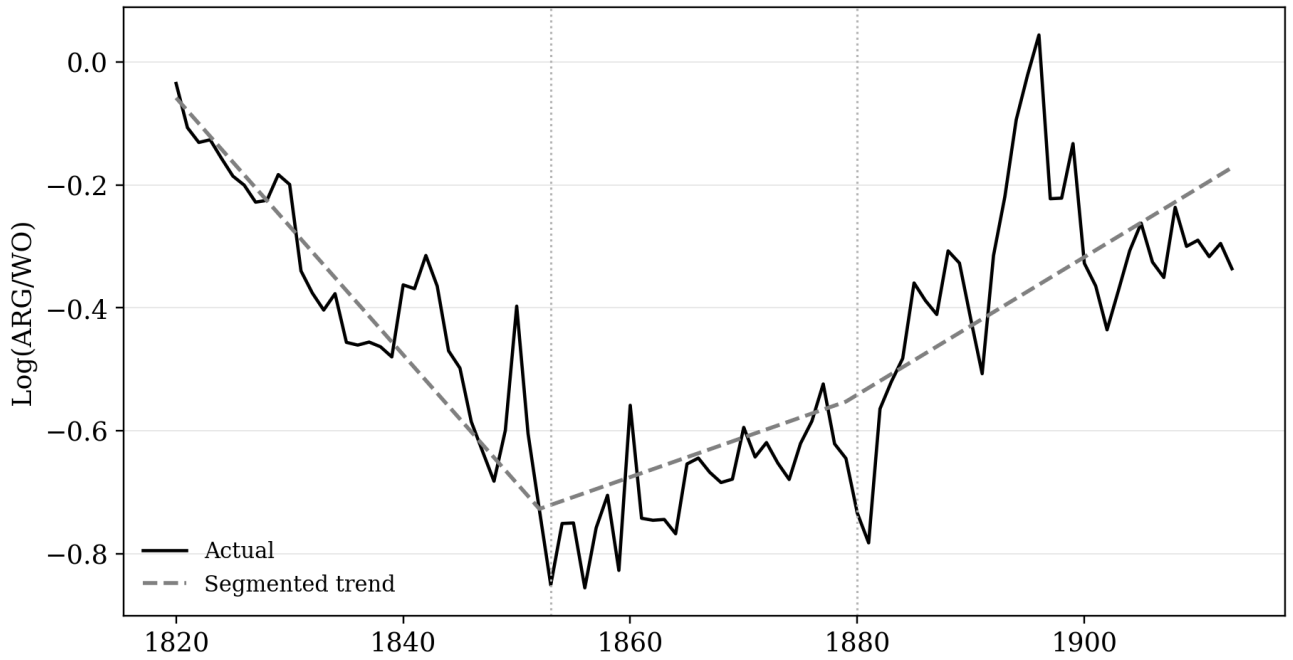


Figure A3. Argentina vs. Western Offshoots

Figure A4. Argentina Share in European Import Market, 1820-1913

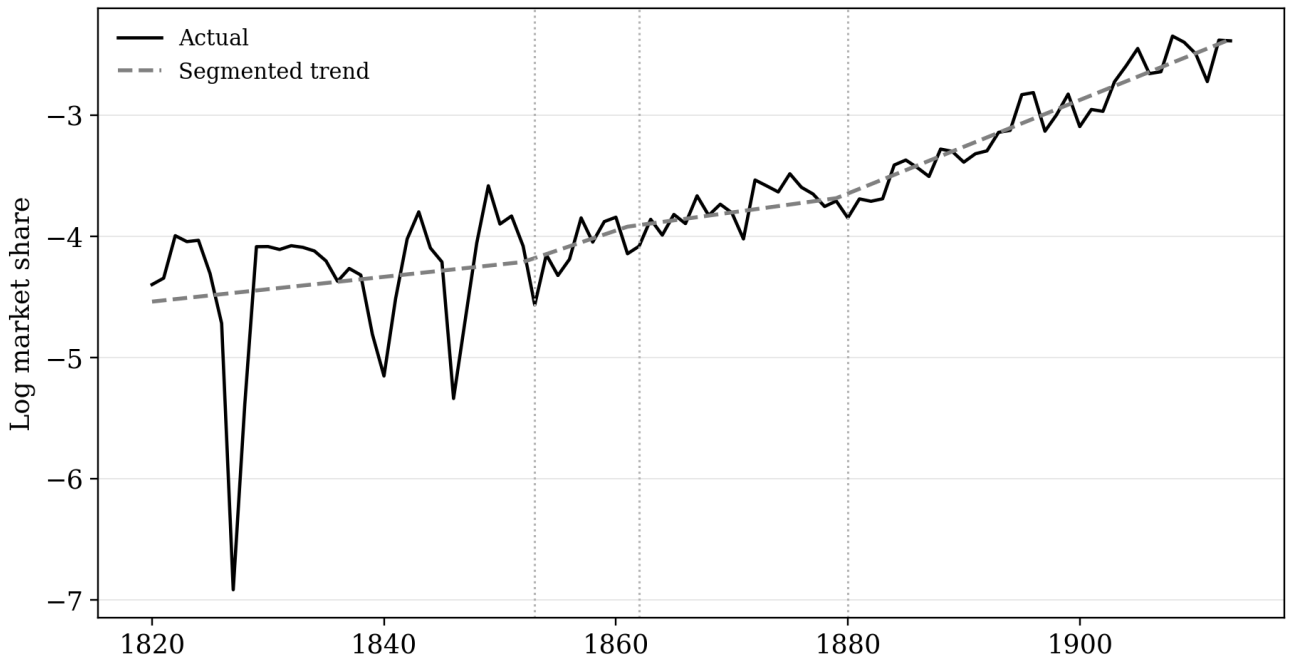


Figure A4. Argentina Share in European Imports

Figure A5. Argentina Relative to Chile in European Markets, 1820-1913

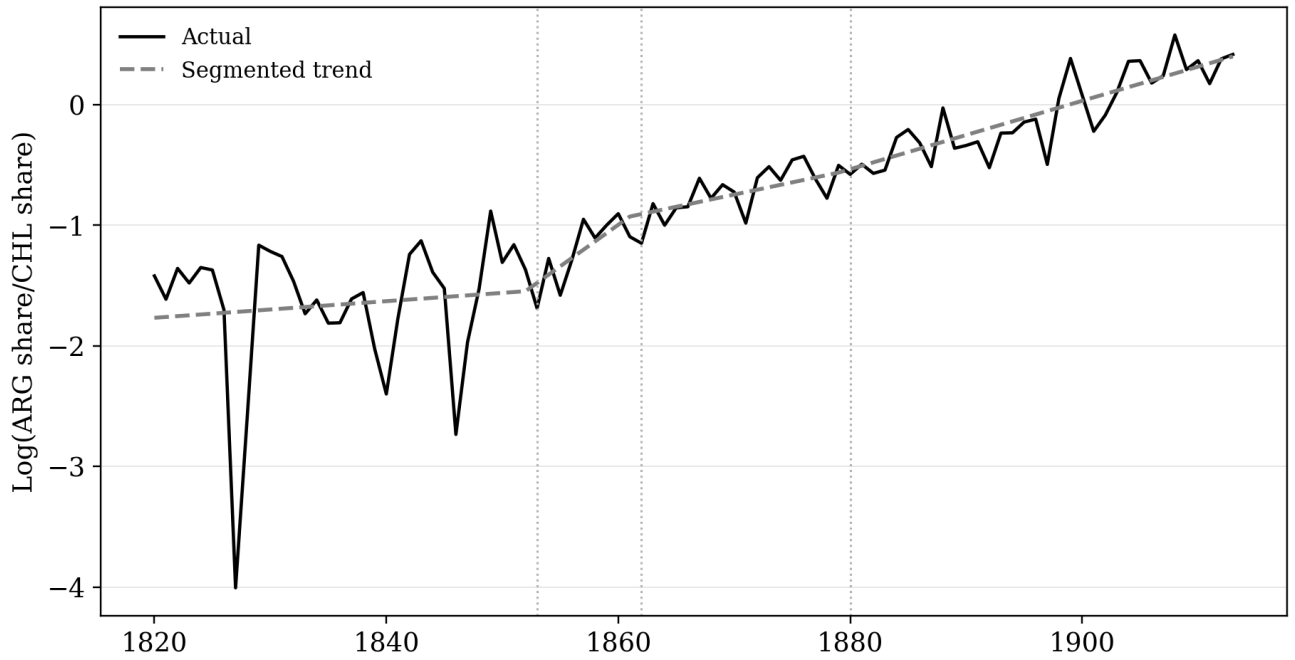


Figure A5. Argentina vs Chile

Figure A6. Provincial Bond Premium Relative to National Bond, 1871-1883

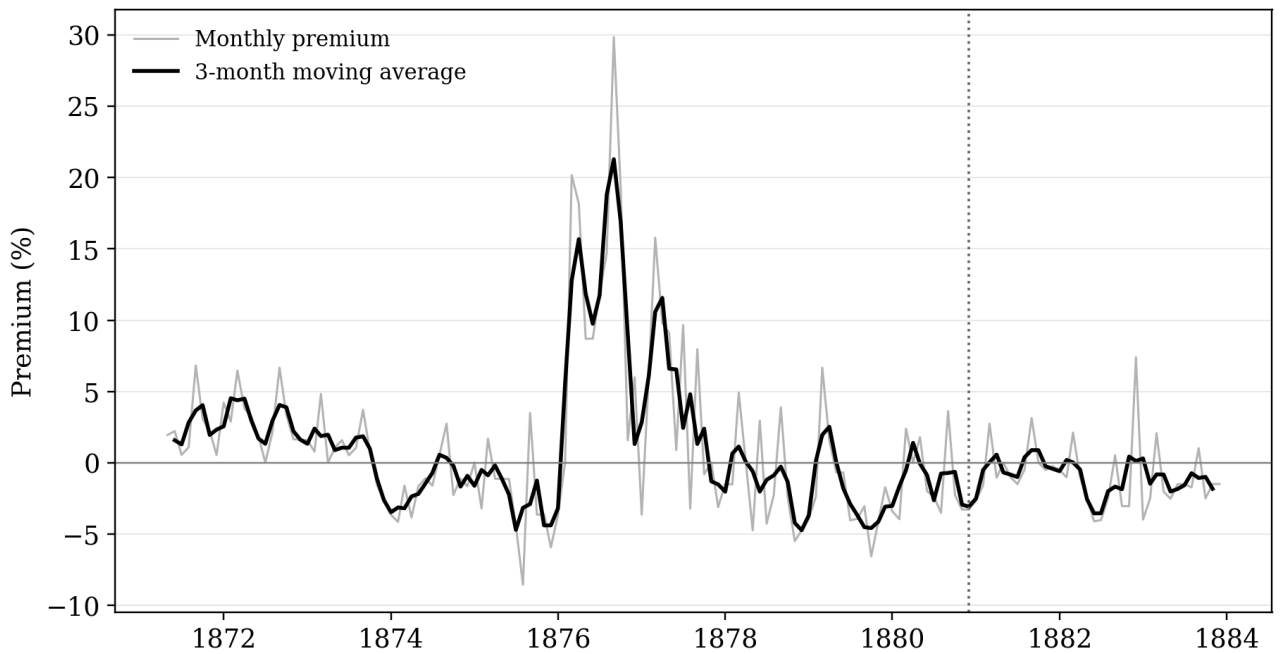


Figure A6. Provincial Bond Premium

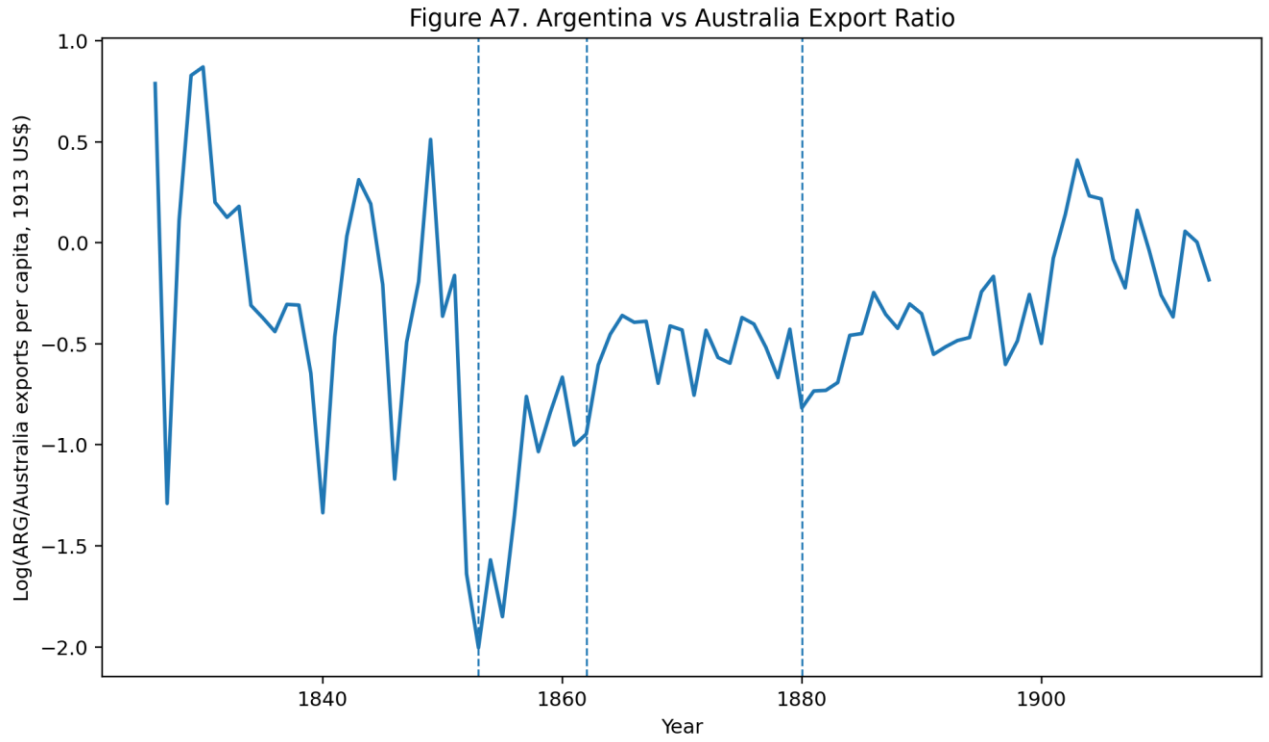


Figure A7. Argentina vs. Australia