

The structural and historical relevance of services in Uruguay. A long run approach (1870-2020)

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The structural and historical relevance of services in Uruguay. A long run approach (1870-2020).

Carolina Román * - Henry Willebald **

Resumen

Los servicios representan un papel destacado en la estructura productiva de Uruguay, constituyendo aproximadamente dos tercios del PIB. Esta observación empírica ha llevado a argumentar, tanto desde la academia como desde los hacedores de política, que Uruguay es, principalmente, una economía basada en servicios. Sin embargo, esta caracterización no es reciente. A mediados del siglo XX, el valor agregado bruto (VA) de los servicios representaba más del 55% del PIB. Además, el análisis histórico reconoce ampliamente varias actividades de servicios como motores clave del desarrollo económico ya desde el siglo XIX. Sin embargo, la ausencia de medidas sistemáticas del VA de los servicios ha dificultado los estudios sobre la evolución de estas actividades "no materiales" y su importancia para el crecimiento económico. Este artículo tiene como objetivo abordar ese vacío en la literatura proporcionando estimaciones del VA para cubrir, consistentemente, un período muy largo de la historia económica nacional: 1870-2020. Se analiza la evolución a largo plazo de los servicios y, particularmente, cómo desafían la hipótesis tradicional de los tres sectores. Además, se exploran las transformaciones al interior del sector, desde los servicios estrechamente vinculados a la producción material hasta aquellos cada vez más relacionados con la urbanización y los patrones de consumo sofisticados.

Palabras clave: cuentas nacionales; servicios; cambio estructural; crecimiento económico; Uruguay.

Código JEL: E01, E23, N16, N76

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Abstract

Services currently play a prominent role in Uruguay's productive structure, constituting approximately two-thirds of GDP. This empirical observation has led to various arguments that Uruguay is now primarily a service-based economy. However, this characterization is not recent. By the mid-20th century, the gross value added (VA) from services accounted for over 55% of GDP. Moreover, historical analysis widely recognizes several service activities as key drivers of economic development since the 19th century. Despite this historical recognition, the absence of systematic measures of the VA of services has hindered studies on the evolution of "non-material" activities and their significance for economic growth. This article aims to address this gap by providing VA estimates to cover a comprehensive period from 1870 to 2020. We analyze the long-term evolution of services, particularly how they challenge the traditional three-sector hypothesis. Additionally, we explore the sector's transformations—from services closely tied to material production to those increasingly linked with urbanization and sophisticated consumption patterns.

Keywords: national accounts, services, structural change, economic growth, Uruguay.

JEL Classification: E01, E23, N16.

1. Introduction

Services in Uruguay constitute approximately two-thirds of GDP, leading many to classify it as a service-based economy. However, this characterization is not recent. By the mid-20th century, the sector's contribution to GDP exceeded 55%, as detailed in national historiography, which underscores how various forms of services have shaped Uruguay's economic evolution since the 19th century. Activities such as wholesale and retail trade, transportation, communications, financial intermediation, and governmental expansion highlight the longstanding significance of services, dating back to at least the latter third of the 19th century.

Our initial question is why a sector that appears so significant has often been marginalized in historical national accounts and narratives. The absence of systematic measures for the tertiary sector of the economy likely serves as a primary explanation. One of the objectives of this paper is to address this gap by utilizing new estimates of the VA from these activities spanning from 1870 to 2020, thereby providing long-term analyses of the importance of services for economic growth and transformation.

Our methodological approach involves two stages. First, we undertake the systematization and estimation of annual VA series for services at both current and constant prices (1870-2020). Second, we present a sectoral analysis focusing on the long-term expansion and structural transformation within the tertiary sector.

Our main results are the followings. The three-sector hypothesis is not fulfilled in the Uruguayan case, but this is more a matter of levels than of evolution. In our exercises of structural change (working with moving year-bases), we identify a period of a reversion in the structural change of the sector –from 1912 to the end of the 1920s– followed by almost three decades of structural transformation within the services that coincided with the most intense stage of industrialization (1930-1958). The subsequent evolution was irregular, characterized by alternating periods of structural change reversion (1965-1978, 1998-2013) and phases of intense structural change (1979-1984, 1988-1997)

In this long-run trajectory, the analysis in terms of driving-forces of the structural change showed significant transformations within the tertiary sector. In the beginning of the 20th century, whole and retail trade and transport were the activities that led the changes of the macro-aggregated activities, but this changed over time. From the second half of the century, government and financial activities increased their dynamisms but this did not

sustain over time. From the 1980s onwards, more “modern” activities, such as real estate, communications, education, health, and other community, social and personal service activities became the driving-force of service activities.

We organize the paper as follows. Initially, we provide the antecedents and background of our topic (section 2) and, then, we outline our working hypotheses and describe the empirical strategy used to test them (section 3). The empirical strategy includes a labour-intensive process of constructing the data series, which we briefly describe in section 4. Then, we present our main regarding the three-sector hypothesis and structural change within the sector (section 5) and discuss these results (section 6). We close the paper offering some concluding remarks (section 7). In the appendix we provide the value added for seven sectoral services at both current and constant prices, using two splicing techniques, retropolation and interpolation (see Appendix online).

2. Background

Services are the “result of a production activity that changes the conditions of the consuming units, or facilitates the exchange of products or financial assets”. A key characteristic of services is that that they “cannot be traded separately from their production. By the time their production is completed, they must have been provided to the consumers” (United Nations et al., 2008, p. 96).

Tradition literature identifies three major macro-aggregated productive sectors: primary, secondary, and tertiary (Hoffmann, 1931, 1958; Clark, 1938; Fisher, 1939; Kuznets, 1961, 1971). Services fall into the tertiary sector, and this literature argues that one of the stylized facts of economic development is the tertiarization of the economy (Krüeger, 2008). This process involves an increasing share of services in the internal generation of economic value, initially because of the decline in primary production with the expansion of manufacturing, and, later, a reduction in secondary production.

In Uruguayan´s production structure, the predominance of services is evident. The share of services in the recent Uruguayan production matrix is substantial, accounting for 66% of the total VA (average from 2011 to 2020; with VA expressed at factor cost). This evidence has led to the characterization of Uruguay as a “service economy”, a perspective supported by academic research (Antía, 2005), political discourse and public policy analysis (Vaillant, 2008; World Bank, 2010).

Although the prevailing view is that this process became evident relatively recently (for example, since the 1990s), the contribution of services has been significant for several decades. Uruguay's official National Accounts data, which began in 1955, show that during the five-year period from 1955 to 1959, the service sector accounted for 57% of the total value added. This indicates that by the mid-20th century, services already represented a substantial share of the total value generated in the economy. However, historically, services have often been characterized as occupying a subsidiary role, in many cases, a marginal one, within the Uruguayan economy.

Indeed, based on historical national accounts, Uruguay was characterized as a clear and defined agro-export economy from the 19th century until the 1920s (Millot & Bertino, 1991). Subsequently, the economy took on an increasingly industrial profile through a process of import substitution industrialization (ISI), which became evident during the second half of the 1930s, although this trajectory showed clear signs of decline starting in the end of 1950s (Bértola, 1991; Arnabal et al., 2013). The absence of services in this characterization is striking, as research and academic studies, and Uruguayan historiography in general, demonstrate that services have always been a constitutive—and significant—part of the country's economic structure.

When Reyes Abadie et al. (1966) characterized 19th-century Uruguay¹ as "prairie, border, port," they highlighted the economic nature of a region that served as a boundary between two "giants"—first the Spanish and Portuguese empires, and later, from the mid-19th century, Argentina and Brazil. Uruguay's economy was defined by the abundance of a particular natural resource—land—and its role as an export gateway for the production of the entire River Plate region to international markets. In these terms, the economic origins of Uruguay lie not only in its land but also in its capacity to transfer value, position it in foreign markets, and act as a successful intermediary for a wide region of the Southern Cone. This reality created and was associated with various conditions that were clearly expressed through service activities.

In Uruguay, during the second half of the 19th century, a powerful commercial elite—the Montevidean *alto comercio* (Sala & Alonso, 1986)—driven by the thriving business of a transshipment port (*entrepôt*), significantly influenced the national economic evolution (Barrán & Nahum, 1971). By the end of that century, Uruguay had one of the densest rail

¹ Strictly, Reyes Abadie et al. (1966) refers to *Banda Oriental*, a region east of the Uruguay river that roughly corresponds to present day Uruguayan territory. In this book, the *Banda Oriental* was characterized as the combination of *pradera, frontera, puerto*.

networks in Latin America (Díaz, 2017; Herranz, 2011), second only to Argentina, and a strong presence of major international banks. Uruguay was also a leader in urbanization within Latin America, contributing to the creation of a domestic market that set it apart from other countries in the region (except for Argentina) (Bulmer-Thomas, 2003). These processes were closely linked to a growing division of labor, increased productive diversification, and the expansion of services, leading to significant differences from other Latin American countries. Even in the early 20th century, the export of services was part of national discourse. It is well-documented that, supported by the government under the first *Batllismo*, authorities viewed tourism as a promising source of income for Uruguay, as reflected in various declarations, measures, and public policies (Bertino et al., 2005)

Finally, it is important to note the expansion of the public sector beginning in the early 20th century. The State gradually assumed more functions in both productive and social spheres, increasing its scope, employment levels, and capacity to generate economic value. Public expenditure grew significantly, transforming its structure and introducing specific components such as those related to social welfare (housing, health, education), social security, and workers' rights (Azar et al., 2009), leading to the establishment of a 'social and welfare state' (Figueira, 1995). Over the course of the century, a true 'entrepreneurial state' emerged (Bertino, 2015), which gave rise to a wide network of public companies and decentralized services in diverse areas such as electricity, fuel, railways, air navigation, telecommunications, postal services, and insurance, among many others.

Therefore, it is pertinent to question why productive activities related to services, which have presumably been significant historically as value-generating activities, have remained in the background or occupied subsidiary roles in national economic history accounts based on sectoral activity. The main reason for this is the absence of systematic and rigorous measurements of services.

The official national accounts began in 1955 (BROU, 1965), and several efforts have been made to address the period before this. The first attempts to create homogeneous and long-term series were made by Arocena and Graziani (1987, 1992), who estimated nominal and real outputs along with some sectoral components. Subsequent studies by Bértola et al. (1998) and Bertino and Tajam (1999) provided new estimates that have since become the reference series for studying the period prior to the development of the official System of National Accounts (SNA).

Bértola et al. (1998) produced a series of GDP estimates from 1870 to 1936 based on the production approach, calculating the VA of seven activities: livestock, crops, manufacturing industry, construction, public administration, water, electricity and telegraph, and transport. Their methodology involves developing physical volume indices for sectoral production and then deriving the VA for the economy. They calculated sectoral physical volume indices using the Divisia index method, which does not require a base year but instead weights components according to their shares in the preceding year. The total VA was calculated based on each sector's weight in 1936. Values at current prices were obtained for all series, using a Divisia-type price index based on 1913 and a physical volume index also based on 1913. One limitation noted by the authors is that some sectors, such as private services, transport, and trade, might be underrepresented. Additionally, some sectoral estimates should be expanded to include new branches like banking, insurance, leather industry, minor transportation, and various commercial activities. This publication presents GDP estimates covering the period from 1870 to 1996, combining their results (1870-1936) with the BROU (1965) series for 1936-1955, adjusting manufacturing figures using Bértola's (1991) estimates.

A contemporaneous effort with a similarly significant accounting contribution is Bertino & Tajam (1999), who developed GDP estimates for the period 1900-1955 based on the VA of eight sectors: livestock, crops, communications, electricity, gas and water, manufacturing industry, construction, transportation, and public administration. The authors initially calculated a series of gross production values (GPV) at current prices for each sector. To obtain values at constant prices, they used 1925 as the base year, multiplying the volumes by that year's prices (utilizing a Laspeyres-like index). The VA for each sector was derived by subtracting the inputs or raw materials from the GPV. They then projected the sectoral VA series backwards using the 1955 national accounts figures (BROU, 1965). A significant limitation of this GDP estimate is that it does not cover all activities. According to the authors, their estimate encompassed 56% of GDP in 1955, leaving 44% unaccounted for, primarily in services such as wholesale and retail trade, finance, real estate, and some activities within manufacturing and transportation. Finally, they extended their VA time series up to 1998, using data from BROU after 1955 and later from the BCU.

Bértola (2016) systematized and corrected the available historical estimates, offering a new GDP series at constant prices for the period 1870-2014. This series includes sectoral indicators for total and per capita GDP at constant prices, and the results are closely aligned with previous systematizations (such as Bonino et al., 2012). The sectors covered

include livestock, crops, manufacturing, construction, transportation, electricity, gas, water, communications, and general government services. Although these estimates are more refined than previous ones, they still face limitations in fully capturing all service-related activities.

Román and Willebald (2021) made an initial effort to address these limitations. Their paper focused on analyzing structural change over the long term and required a more disaggregated structure of sectoral VA to obtain more representative results. They proposed new estimates for sectors not covered in existing historical estimations, using various proxies to serve their objectives. This effort enabled them to work with 13 production sectors, including proxies for the evolution of several service-related activities: agriculture, manufacturing, construction, utilities (electricity, gas, and water), transport, government, fishing and sea hunting, mining, communications, financial intermediation, wholesale and retail trade, real estate activities, education, health, social work, and other community, social, and personal service activities. The authors discussed their data construction methods and emphasized the need for improving estimates of services in the future. Recent calculations of sectoral value-added (Román et al., 2023) provide new or revised estimates for seven service activities: wholesale and retail trade, transport, communications, financial intermediation, real estate activities, public administration, and other services (private education and health, business services, personal services, and others). For the period 1955-2020, the construction of the series involved collecting, systematizing, and harmonizing official information on sector activities, as described in Román and Willebald (2024).

One of our aims is to propose a new set of VA estimates for services from 1870 to 1955 that are consistent with the official series—ensuring time consistency—and aligned with estimates of other sectors—ensuring transversal consistency. This will facilitate long-term and representative analyses of the structural transformation of the economy since the 1870s.

Antecedents of estimations of services for other countries are scarce and form part of recent statistical construction efforts. One notable initiative is undertaken by the Groningen Growth and Development Center (GGDC) at Groningen University, The Netherlands, through its research program on Historical National Accounts (see Smits et al., 2009). This program publishes sectoral VA data in a disaggregated form for several countries, though few provide data before the 1940s. Specifically, for the 19th century, information is available for only nine European countries, two Asian countries, and one

American country. What does this information lead us to think about Uruguay? Comparatively, in economies rich in natural resources like Sweden, the share of services in VA reached 46% between 1870 and 1900. For open economies acting as trading hubs in Europe, such as Belgium (Antwerp) and the Netherlands (Amsterdam), the ratios were 43% and 44%, respectively. These economies varied significantly in relative development compared to Uruguay, where GDP per capita notably exceeded Sweden's, was comparable to the Netherlands', and was considerably lower than Belgium's during the same period.² This evidence suggests that, in the case of Uruguay, significant shares can be anticipated, which may challenge or modify some of the traditional interpretations of long-term productivity performance.

3. Hypotheses and empirical strategy

This paper begins by addressing two research questions and proposing two working hypotheses. The first research question is: Has Uruguay historically been a 'service economy'? Based on the considerations outlined in Section 2, the proposed hypothesis is that services have indeed been significant to the Uruguayan economy, at least since the late 19th century. Their shares were likely comparable to that of agriculture and significantly exceeded that of manufacturing, at least until the 1930s, when the economic growth model shifted. We expect to find service ratios similar to those observed in other comparable economies (see above). In other words, and referring to one of the more widely accepted concepts of structural change, the three-sector hypothesis may not apply to Uruguay.

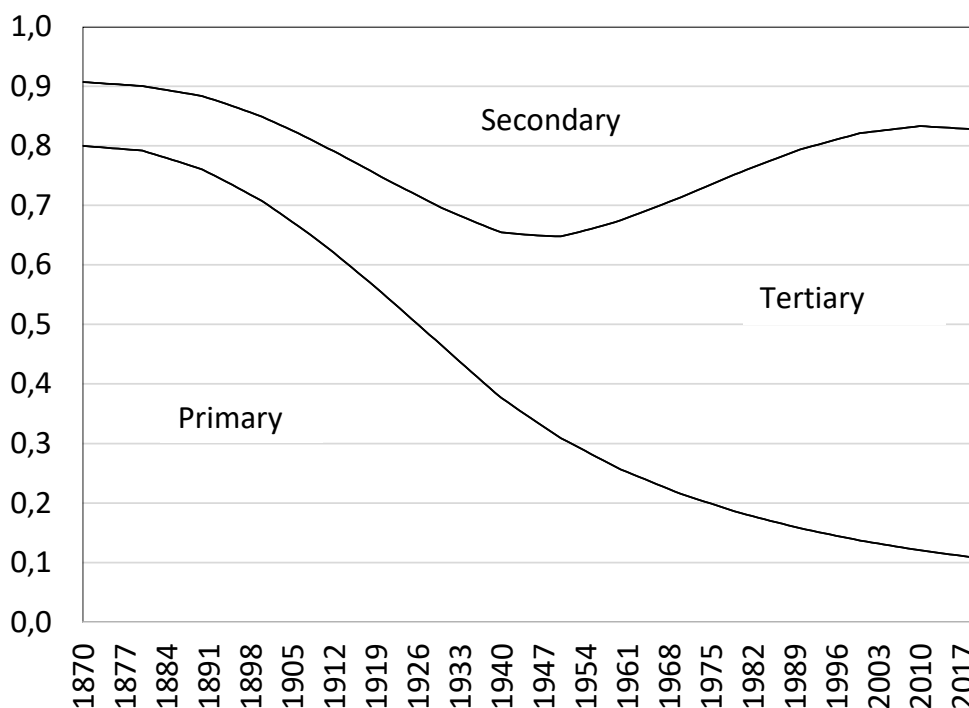
The three-sector hypothesis (Fisher, 1939; Kuznets, 1957, 1966, 1973; Kongsamut et al., 2001) suggests a systematic progression in the development of the three main economic sectors.

Initially, the primary sector dominates both in terms of employment and value added, while the secondary and the tertiary sector contribute only a small portion of total employment and VA. With industrialization, the secondary sector starts to increase in importance at the expense of the primary sector, while the tertiary sector remains relatively stagnant. As economic development progresses, labour and VA begin to shift

² The ratio between the GDP per capita of each of the countries and that of Uruguay is the following: Sweden: 0.72; The Netherlands: 1.08; Belgium 1.34 (average 1870-1900; Maddison Project, 2018).

from the primary and secondary sectors to the tertiary sector. Eventually, most of the employment and VA is concentrated in the tertiary sector (Figure 1).

Figure 1
The Three-Sector Hypothesis



Source: own elaboration.

To test this hypothesis, we will proceed through two empirical stages:

- (i) Construction of a new VA database for seven economic activities related with services (see the next section for details on the methodological decisions and how we addressed various challenges).
- (ii) Calculation of those three macroeconomic aggregates (primary, secondary and tertiary sectors) and graphical comparison of the theoretical evolution with our estimates.

In any case, the significant role of services in the 19th century economic structure and their expansion during the 20th century did not imply a uniform trajectory within the sector. This brings us to the second research question: Has the structure of the service sector remained largely unchanged over the long run? We propose a negative answer. Our working hypothesis is that during the initial decades of the period –likely until the sector’s expansion became evident– the services that dominated were those closely tied

to business performance, mining, and processing activities (typically wholesale and retail trade and transportation). As the century progressed, with increased economic diversification, urbanization and the consolidation of the domestic market, other services –such as real estate and business activities, government, financial and community, social and personal services– may have gained a larger share in the macro-aggregated productive sector.

To test this second hypothesis, we will proceed through two additional stages:

- (iii) Calculation of a Structural Change Index (Dobrescu, 2011; Vikström 2001) for the service sector (SCIS) to evaluate the varying sectoral impact.
- (iv) Identification of those economic activities that were the driving-forces behind structural change within the tertiary sector, and analysis of how these forces evolved over time.

The literature offers several approaches to conceptualize and statistically describe changes in the sectoral structure of an economy. We propose an indicator that summarizes the changes in sectoral composition between two points in time; our SCIS is designed to measure the similarity between a given structure and a reference point. Various indicators could be applied (see Dobrescu, 2011, for a discussion on incongruity and permutation rule), but we have chosen the cosine index due to its simplicity, clear economic intuition, and priori use in historical analysis, which aids in making comparisons (Vikström, 2001; Lindmark & Vikström, 2003; Román & Willebald, 2021).

Following Moore (1978), the output structure can be represented as a vector where the coordinates are the shares of sector-based output. Moore’s measure of structural change is then defined as the cosine of the angle between two vectors considered at two different points in time. The angle θ is the one that satisfies equation (1):

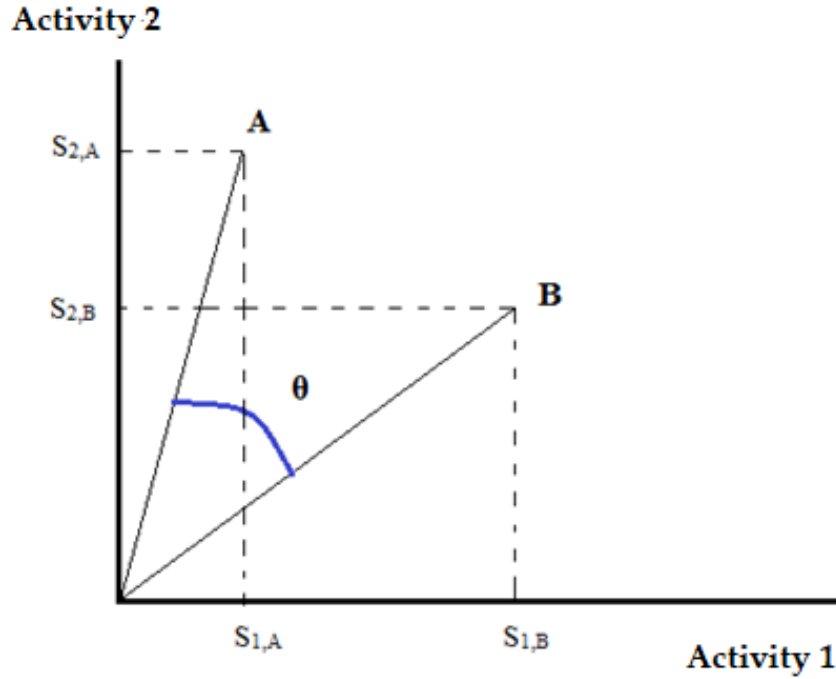
$$\cos(\theta) = \frac{\langle A, B \rangle}{\|A\| \cdot \|B\|} \quad \text{where } 0 \leq \theta \leq \pi \quad (1)$$

The symbol “ $\langle . \rangle$ ” represents the inner product of two vectors, while “ $\|.\|$ ” represents the Euclidean norm of a vector.

In the specific case of an economy with two sectors –or a sector with two activities–, the economic structure and its change between two points in time, A and B, can be illustrated as in Figure 2.

Figure 2

The principle for the angular measure of structural change



Source: Vikström (2001).

Then, in this case, considering that the two vectors are $A = (s_{1,A}, s_{2,A})$ and,

$B = (s_{1,B}, s_{2,B})$ the angular measure of structural change would be calculated as follows:

$$\cos(\theta) = \frac{\langle A, B \rangle}{\|A\| \cdot \|B\|} = \frac{\langle (s_{1,A}, s_{2,A}), (s_{1,B}, s_{2,B}) \rangle}{\|(s_{1,A}, s_{2,A})\| \cdot \|(s_{1,B}, s_{2,B})\|} = \frac{s_{1,A} \cdot s_{1,B} + s_{2,A} \cdot s_{2,B}}{\sqrt{(s_{1,A})^2 + (s_{2,A})^2} \cdot \sqrt{(s_{1,B})^2 + (s_{2,B})^2}} \quad (2)$$

Vikström (2001) suggests that the angular measure of structural change can be calculated in two ways, either as a year-to-year change or as a change relative to a base year. The yearly measure captures the short-term dynamics of structural change but can be misleading when assessing long-term evolution, as year-to-year changes may not indicate permanent transformations in the structure. An alternative approach is to compare each year's structure with that of an initial year (1870 in our case). However, an intermediate option is also feasible: considering periods longer than one year, which are long enough to reflect more permanent structural changes. We propose using periods of varying lengths (10, 20, and 30 years) as a robustness check

Measure (2) can be generalized for n-activities, as it is stated below. In our case, we can then use vectors in a 7-dimensional space (since the tertiary sector includes seven economic activities) and the structural transformation between periods A and B is:

$$\cos(\theta) = \frac{s_{1A} \cdot s_{1B} + s_{2A} \cdot s_{2B} + s_{3A} \cdot s_{3B} + s_{4A} \cdot s_{4B} + s_{5A} \cdot s_{5B} + s_{6A} \cdot s_{6B} + s_{7A} \cdot s_{7B}}{\sqrt{(s_{1A})^2 \cdot (s_{2A})^2 \cdot (s_{3A})^2 \cdot (s_{4A})^2 \cdot (s_{5A})^2 \cdot (s_{6A})^2 \cdot (s_{7A})^2} \cdot \sqrt{(s_{1B})^2 \cdot (s_{2B})^2 \cdot (s_{3B})^2 \cdot (s_{4B})^2 \cdot (s_{5B})^2 \cdot (s_{6B})^2 \cdot (s_{7B})^2}} \quad (3)$$

$$\cos(\theta) = \frac{s_{1A} \cdot s_{1B}}{\sqrt{\cdot} \cdot \sqrt{\cdot}} + \frac{s_{2A} \cdot s_{2B}}{\sqrt{\cdot} \cdot \sqrt{\cdot}} + \frac{s_{3A} \cdot s_{3B}}{\sqrt{\cdot} \cdot \sqrt{\cdot}} + \frac{s_{4A} \cdot s_{4B}}{\sqrt{\cdot} \cdot \sqrt{\cdot}} + \frac{s_{5A} \cdot s_{5B}}{\sqrt{\cdot} \cdot \sqrt{\cdot}} + \frac{s_{6A} \cdot s_{6B}}{\sqrt{\cdot} \cdot \sqrt{\cdot}} + \frac{s_{7A} \cdot s_{7B}}{\sqrt{\cdot} \cdot \sqrt{\cdot}} \quad (4)$$

The Structural Change Index for Services (SCIS) is, by design, a weighted index of sectoral dynamics, making it possible to calculate the contribution of a specific activity i to the structural transformation.

$$Incidence_i = \frac{\frac{s_{iA} \cdot s_{iB}}{\sqrt{\cdot} \cdot \sqrt{\cdot}}}{SCIS} \quad (5)$$

In this relationship, all values will be positive, and the higher they are, the greater the contribution of the i th productive activity to the structural change in the services sector. The trajectory of the indicator itself will provide insights into the dynamics of these contributions over time, which will be the focus of the analysis in the following section.

4. Measurement of VA in Services

We provide estimates of value-added, both at current and constant prices, spanning from 1870 to 2020 (annual series), for seven sectors (see the Appendix):

- 1) Wholesale and retail trade.
- 2) Transportation.
- 3) Communications.
- 4) Financial intermediation.
- 5) Real estate activities.
- 6) Public administration and defence, compulsory social security
- 7) Education, health, and other community, social and personal services.

For the period 1955-2020, we utilized the VA series compiled by Román & Willebald (2024) with data from official sources. These authors employed interpolation to splice the time series and obtain total GDP. Instead, in this article, we applied retropolation

methodology for 1955-2020 as we are studying a longer period (1870-2020) and using historical estimates before 1955 where interpolation techniques could not be applied.

Consequently, we have two versions of the VA for services for the analysis. We will present the results based on retropolation and include exercises based on interpolation in the appendix. The historical estimates up to 1870, are derived from Román et al. (2023), which will be briefly described below.

4.1 Wholesale and retail trade

In BROU (1965), this activity includes the intermediation of goods for industrial, agricultural and imported origin, corresponding both wholesale and retail trade. Its output is measured by the value of the associated inputs and intermediation margins. We adopted the same structure for current-price commercial VA of 1955, calculating historical figures through retroactive projections based on the evolution of Agriculture (26 percent) and Manufacturing (52 percent) VA, and imports (22 percent; Román, 2022).

Similarly, we employed the structure of constant-price commercial VA from 1955 to calculate historical figures, aligning them with previous estimates of Agriculture (25 percent) and Manufacturing (50 percent) VA, and available estimates of total imports (25 percent; Román, 2022).

4.2 Transportation

The VA estimates for 1870-1955 include three categories: railway transport (passenger and goods), road freight (large motor vehicles like trucks, starting from 1922) and urban passenger (only for Montevideo) (see details in Román et al., 2023).

The VA of rail transport was estimated using the income approach, by aggregating wages, profits (the difference between operating expenses and income), and maintenance expenses for the railway tracks (as a proxy for depreciation). The sources used corresponded to financial statements (which included the balance sheet and the income statement) that allowed for the aggregation of data on income and operating expenses (Memorias of Central Uruguay Railway Company, of Ferrocarril Central del Uruguay, and of Administración de Ferrocarriles y Tranvías del Estado; Díaz, 2017; Bertino et al., 2015). The difference between these two variables represents the companies' profits. To the profits, we added expenses in two items: salaries and capital invested in railway network maintenance.

For road freight transport, volumes were measured by truck and body imports, while prices were determined using the unit value of rail transport adjusted for the evolution of automobile fuel prices (gasoline) (Bertino & Tajam, 1999). Urban passenger transport includes three modes: horse-drawn trams, electric trams, and buses. The production approach was used, considering the total revenue of the companies, and adjusting for different technical coefficients of the input-to-production value ratio calculated for a sequence of years.

4.3 Communications

The estimates for the period 1870-1900 are consistent with those proposed by Bertino & Tajam (1999) and include postal and telecommunications activities (telegraph and telephone).

For the postal service, we used the evolution of posted letters (Arocena & Graciani, 1992) as the volume indicator. We applied this series to calculate backwards from the 1900 figure (Bertino & Tajam, 1999) to obtain a series at constant prices. Price data are scarce; the initial reference is the unit price per letter for 1900 (calculated as the ratio between the total production value of the postal service and the letters sent). We obtained unit prices for three additional years (1872, 1890, 1895) from secondary sources. To fill in the gaps, we used linear interpolation, except for 1870-1871, where we maintained the 1872 level. We estimated the evolution of the VA in current prices for the entire period using the number of letters sent and the prices

The evolution of telegraph activity was approximated by the number of telegrams sent and service prices. We calculated the evolution of output using the number of telegraph messages from 1882 to 1900 (Arocena & Graciani, 1992). To complete the data for the period before 1882, we used population growth figures (Nathan, 2014; Pellegrino, n/d), assuming the number of messages per capita remained constant from 1870 to 1882. Using this series, we projected backwards from the 1900 figure and obtained a series at constant prices. Although we obtained unit prices for several years from secondary sources, specific prices for Uruguay were unavailable, so we used the average price charged for telegrams across the Argentine provinces (1873, 1877, 1878, 1883, 1886, 1899: Berthold, 1921, p. 15; 1875: Mulhall & Mulhall, 1892, p. 418). To fill in the gaps, we applied linear interpolation, except for 1870-1874, where we maintained the 1875 level

Finally, for telephone services, we used the information on the number of subscribers from two telephone companies available between 1886 and 1900. We used the physical

volume to project backward from the 1900 level and obtained the series at constant prices. From secondary sources, we estimated the revenues of the telephone service, taking advantage of the fact that there was a uniform monthly charge per subscriber in 1892 (Mulhall & Mulhall, 1892, p. 598), which is consistent with the unit prices for 1900. We calculated prices for 1893-1899 using linear interpolation and maintained the 1892 price for the preceding period.

We added these three-gross value of production (GVP) –respectively, in current and constant prices– and obtained the total value added using the same technical coefficient applied by Bertino & Tajam (1999) ($VA/GVP = 0.80$ for both current and constant prices).

4.4 Financial intermediation

This division includes activities related to the acquisition and redistribution of funds, namely deposits, financial leasing, and other credit concessions. Commercial banks and other financial intermediaries earn explicit commissions for the services they provide, but most of their income comes from credit operations. In Roman et al. (2023), the estimates of the VA of banking and insurance businesses are presented considering two components: financial intermediation services indirectly measured (FISIM) and direct expenses and income.

The estimated financial VA includes, on one hand, the activities of private and public banks (Banco de la República Oriental del Uruguay, BROU; and Banco Hipotecario del Uruguay, BHU) and, on the other hand, private and public insurers (Banco de Seguros del Estado, BSE). Furthermore, the strategy followed for the banking sector separates the estimation for commercial banks (private banks and BROU) from that of the BHU, understanding that the latter institution operates differently from the rest of the banking sector.

FISIM is the difference between the interest received (the total loans multiplied by the lending interest rate) and the interest paid (the total deposits multiplied by the deposit interest rate), while direct expenses and income were estimated from the balance sheets of a representative set of banks. In the case of insurers, the income approach was used, accounting for profits, salaries, and the net change in reserves.

Total credits and deposits derive from several sources (Acevedo, 1933, 1934; Díaz, 2019; newspapers; Banco Central del Uruguay, 1971), which required various efforts in systematization and harmonization of series. The active interest rate was estimated from

secondary sources (Statistical Yearbooks, Bulletin of the Stock Exchange, and El Siglo newspaper, 1870-1920) and primary sources (balance sheets and income statements; implicit interest rates, 1939-1955). The estimation of the passive interest rate combines information from newspapers (1870-1920), extrapolation of private interest rates based on the movement of the interest rate of an official bank (1922-1937), and maximum legal levels (1938-1955).

For the insurance business, the VA estimate of the official insurance agency from 1912 to 1955 used the income approach. Available information about profits (Statistical Yearbooks) is combined with estimates of net variation in reserves and wages of the agency. The BSE was created in 1912 and gradually gained a monopoly on the insurance market. Previously, private firms—mainly British capital—participated in the business and later coexisted with the BSE in certain types of insurance. When there was information, included private firms (1909-1943) and used as a proxy the difference between premiums collected and claims paid by private insurance companies (Statistical Yearbooks, Acevedo 1934 a, b).

4.5 Real estate activities

The VA corresponds to the value of housing services –either self-provided or provided by other agents– minus the intermediate consumption. We estimated the value of housing services by applying average rent to the occupied dwellings. The intermediate consumption was estimated based to the value of maintenance and repair expenditures for housing, insurances, and rental administrative expenses, calculated as a constant share of the 1955 figure (see details in Román & Willebald, 2021).

To obtain values back to 1889, we used information on the rent of a one-room house for 1889 (Acevedo, 1933), 1908 (Housing's Census), 1914, 1937 and 1962 (Ministerio de Industrias, 1927; Ministerio de Industrias y Trabajo, 1946; Dirección General de Estadística y Censos, 1970). To fill in the gaps, we used the evolution of the consumer price index (Bértola et al., 1999) and the housing price index (Nahum, 2007; Instituto de Economía, 1969) for 1889-1913 and 1914-1955, respectively, and re-scaled according to those levels. Information about occupied dwellings is from two sources: 1908 (Population Census); and 1910, 1920, 1930, 1940, 1950 (CIDE, 1967). To complete the series, we used changes in the population (Nathan, 2014; Pellegrino, n/d.). Finally, to obtain figures going back to 1870, we considered the household size (Population Census, 1908 and 1889, and linear interpolations to fill the gaps between the two) and real estate contribution (tax) (for the remaining period).

The VA at constant prices was obtained by deflating the series at current prices using the housing price index from 1913 onwards and the CPI for 1870-1913.

4.6 Public administration and defence, compulsory social security

This item considers activities of a governmental nature, typically performed by the public administration. This includes the promulgation and judicial interpretation of laws and their regulation, as well as the administration of programmes based on them, legislative activities, taxation, national defence, public order and security, immigration services, foreign affairs, and the administration of government programmes. This activity also includes compulsory social security activities. We corrected previous estimates (Bértola et al., 1998; Bertino & Tajam, 1999) with new available information from budget surveys (Siniscalchi & Willebald, 2018) and recent studies (Martinez, 2019) (see details in Marmissolle & Willebald, 2021).

The series in constant prices was constructed considering the movement of the total number of public servants, starting from the values for 1955 and projecting backward.

4.7 Education, health, and other community, social and personal services

This heterogeneous sector includes a wide range of activities including private education, human health, veterinary activities, social work activities, sewage and refuse disposal, sanitation and similar activities, recreational, cultural, and sporting activities, and other services. Several of these activities correspond to services provided collectively but which are consumed by individuals while benefitting society as a whole.

According to BROU (1965), this sector is divided into five sub-sectors: (i) services consumed by households (private education, private medical and sanitary services and other services); (ii) services provided to business activities (legal advice and other technical advisory services, other commercial and professional services); (iii) recreational services (production, distribution and exhibition of films, theatres and other services); (iv) personal services (household domestic staff such as maids, cooks, waiters, valets, butlers, laundresses, hairdressing, photographic activities); (v) other services.

First, we used proxies for each type of service and projected backward from 1955 to 1899. Clearly, the quality of services available in the markets changed significantly over this long period, so we adjusted the volumes using quality indexes (Prados de la Escosura, 2017). We applied specific sectoral indexes for private education and health (see below) and utilized certain characteristic of other services for this adjustment. Since many of

these activities involve goods that are provided collectively and are demanded by a large portion of the population, we adjusted the estimates based on the evolution of the urban population (Nathan, 2014; Pellegrino, n/d, and Klein Goldewijk & Van Drecht, 2006) and wages (Bértola et al., 1999). Specifically, we adjusted services provided to business activities, recreational and personal services, and other services using a proxy related to the evolution of the "market size".

(i) Services consumed by households were proxied through two main components: private education and private health (Román et al. 2023). VA in private education was calculated by multiplying the total number of students –at primary and secondary levels (Statistical Yearbooks; MEC, 2014)– by the price of the service (Instituto Crandon Archive) adjusted by a technological coefficient corresponding to inputs over several years (Statistical Yearbooks, relating to public education). We used the evolution of public expenditure (expressed in real terms) per student in public education centers as quality index; this correction is considered because increasing public expenditure in education is a good proxy for general improvements in educative quality. VA in private health was estimated based on the number of professionals and technicians in the sector (census data and professional taxes; university graduate in health areas) and the evolution of the index of consumption prices (Bértola et al., 1999). For the quality index, we used the evolution of public expenditure on health (expressed in real terms) per bed available in the public system, justified similarly to the approach used for education.

(ii) Services provided to business activities were approximated by the evolution of real estate transactions, as activities processed by public notaries can measure changes in this sector (Román & Willebald, 2021). Although there is no information on notary fees, we assumed that the fee was calculated as a percentage of the transaction and remained relatively stable over time. Historically, notaries authenticated a wide variety of contracts and legal agreements, but real estate transactions were particularly common, and we used them as a reference point. The Statistical Yearbooks provide data on the number of registrations, properties, area (hectares), and value (in pesos) of sales and partitions (1915-1955), sales (1910-1914), and sales of buildings (1899-1914).

(iii) Recreational services were measured by the local taxes on public entertainment (theatres, cinemas, racecourses) in Montevideo (Consejo Departamental de Montevideo, Bulletin) (Román & Willebald, 2021).

(iv) The evolution of personal services was approximated by laundresses and photographic activities (Román & Willebald, 2021). We have the output of these activities for 1955 and data of total wages for 1955, 1936, 1919 and 1908. We used the 1955 share to weight the estimates for the earlier years. Then, we calculated annual data by interpolation and re-scaling between the figures. For this purpose, we calculated an indicator that combines the evolution of urban population and retail prices. We considered the urban population because it is reasonable to think that personal services depend on urban population growth; we used retail prices to measure changes in prices per unit.

(v) The VA of other services is the result of combining the evolution of the other four activities with an upward trend for the sub-sector, according to the average growth rate of its share between 1955 and 1963 (BROU, 1965).

Second, to fill in the 1884-1899 period, we used information about the business license tax. Presa (2022) presents information about the number of business licenses (*patentes de giro*) and the corresponding taxes classified by economic activity and province for 1884-1890 and 1893-1899 (we obtained 1891 and 1892 by interpolation). We only considered those activities included in the sector and reinterpolated the previous estimate with this indicator.

Third, we estimated the 1870-1884 series based on urban population growth and the evolutions of wages, which represent the potential demand for these services.

We estimated the series of the aggregated activity at constant prices deflating the series at current prices using the CPI (Bértola et al., 1999; Instituto Nacional de Estadística, webpage).

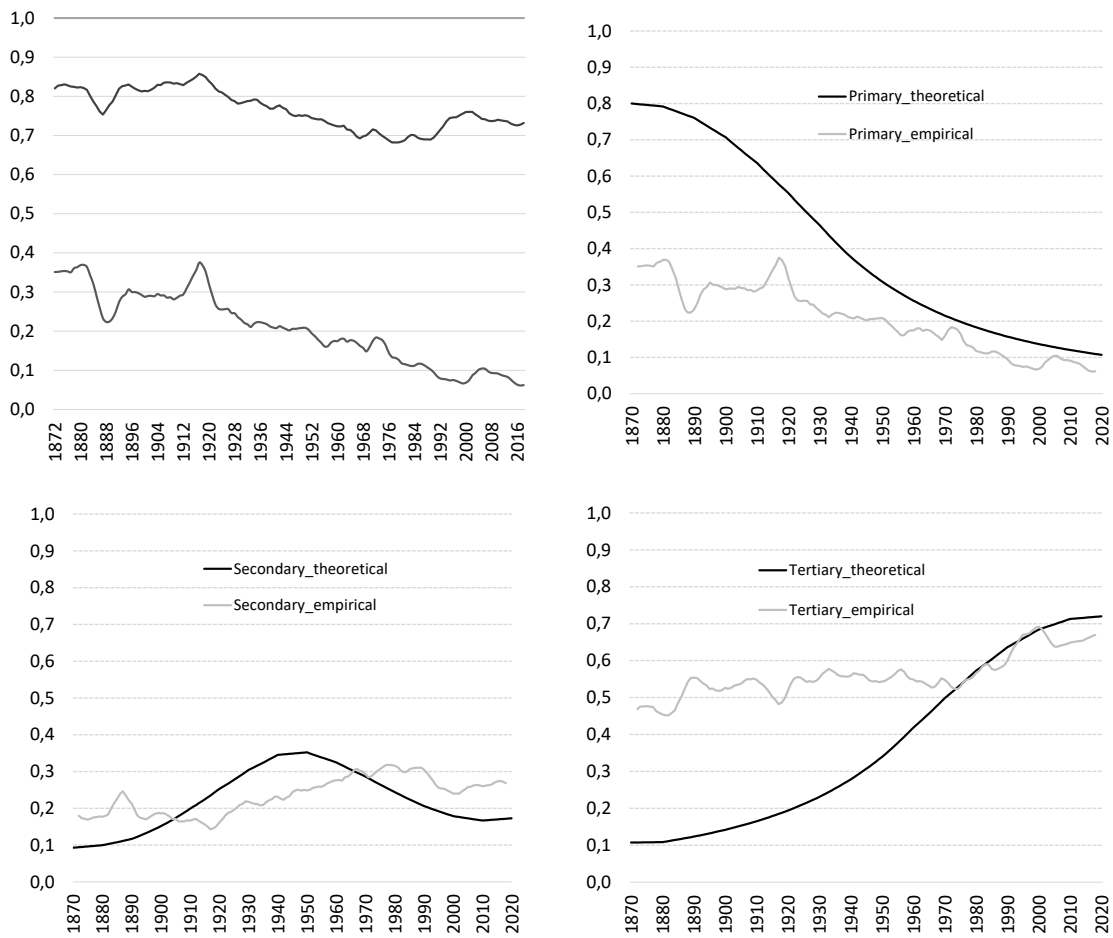
5. Evolution of services in the long run

5.1 The three-sector hypothesis

As we constructed our series, we considered previous estimates of the other sectors (Román & Willebald, 2021) and then aggregated the activities in three large sectors (in current prices): Primary –agriculture, fishing, and sea hunting–; Secondary –mining, manufacturing, construction, and utilities (electricity, gas and water)–; and Tertiary: the remaining sectors.

Figure 2 displays the long-term evolution of the shares of each sector in total VA and compare the empirical data and the theoretical trajectories, as illustrated in Figure 1. It is evident that Uruguay does not fulfil the three-sector hypothesis.

Figure 3
The Three-Sector Hypothesis in Uruguayan case
5-year average (centred)



Source: own elaboration.

Initially, the primary sector was not dominant in terms of VA shares. In the 1870s, both the primary and tertiary sectors had approximately double the share of the secondary sector. However, throughout the entire period, the tertiary sector's share exceeded that of the primary sector. Industrialization in Uruguay only began to show clear signs in the 1930s, coinciding with a period when the secondary sector started to gain importance at the expense of the primary sector, with a slight decrease or stagnation in the tertiary

sector's share (this change began in the 1920s during a period of infant industry development). Subsequently, from the 1980s onwards, VA began to shift from the primary and secondary sectors toward activities in the tertiary sector, and by the end of the 20th century, the theoretical and empirical curves converged.

Thus, the three-sector hypothesis does not apply to Uruguay, a situation more attributed to initial sector levels than to the dynamics of the process itself. This observation is crucial for understanding the long-term evolution and transformation of the Uruguayan economy, as the “standard” depiction of developmental stages—such as the “agro-export model,” “import substitution industrialization,” and “non-traditional exports and economic opening” (Bértola, 2008; Oddone, 2010)—is not straightforward or evident. The agro-export model required a service structure to enable the realization of natural wealth in international markets, and in fact, services contributed more to the economy than agriculture. After the 1930s, import substitution industrialization competed with and absorbed resources from agriculture, but the tertiary sector remained significant. Finally, the non-traditional exports and economic opening from the 1970s onwards solidified the increasing share of services and the definitive decline of “material production.”

5.2 Structural change within the service sector

In the case of Uruguay, economic history identifies three phases of development patterns (Bértola, 2008; Oddone, 2010). During the first globalization period, from the late 19th century until the 1920s, growth was driven by the progressive consolidation of the domestic market (Bulmer-Thomas, 2003) alongside an expanding export sector based on a few primary commodities (Bonino et al., 2015). During this time, Uruguay achieved high income levels in international comparative terms (Willebald, 2007).

The Crash of 1929 and the Great Depression prompted a shift towards inward-looking policies and import substitution industrialization (ISI) (or state-led industrialization) to stimulate growth (Jacob, 1981; Bértola, 1991). The secondary sector's importance increased, reaching almost one-third of total GDP, while agriculture's contribution declined. The post-World War II decade saw rapid growth led by the manufacturing industry, continuing until the second half of the 1950s (Arnabal et al., 2013). However, the 1960s brought a prolonged period of stagnation and high inflation (Astori, 2001), which persisted until the 1970s. In this new pattern, significant economic and political changes emerged, including increased openness, financial liberalization, and regional

trade agreements (Oddone, 2010). A new strategy focused on expanding “non-traditional” exports was implemented, leading to high growth rates (Notaro, 1984).

The liberalization process continued in the 1980s and 1990s, under the “Washington Consensus,” resulting in a dramatic reduction in the manufacturing sector's contribution to the economy. This period has been described by some authors as one of deindustrialization (Bértola & Bittencourt, 2005; Bértola, 2008). During these decades, Uruguay experienced two severe crises, in the early 1980s and the 2000s. From 2003-4 to 2020, Uruguay has undergone a prolonged expansionary cycle, suggesting the beginning of an income convergence process with developed countries (Paolino et al., 2014), which contrasts with the divergent trajectory observed from the 1960s until the end of the 20th century.

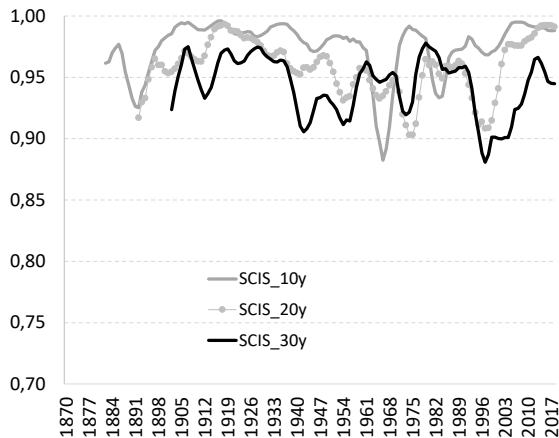
The evolution of our indexes (10, 20, and 30-year moving averages) is similar (Figure 4, Panel a). To summarize the trajectory, we calculated the mean of the three indicators (Panel b). As expected, the tertiary sector did not exhibit clear signs of structural change until the second half of the 1920s. This process continued through the 1930s and 1940s, and intensified during the first half of the 1950s, with the indicator showing an upward trend starting in 1957. This period coincided with the most intense stage of industrialization in Uruguay. The significance of this year is emphasized in national historiography as marking the “end of ISI” (Import Substitution Industrialization) in 1957-1958 (Arnábal et al., 2013). From the early 1960s, the sector experienced an irregular trajectory, alternating between periods of structural change reversion (1965-1978, 1998-2013) and periods of intense structural change (1979-1984, 1988-1997).

Figure 4

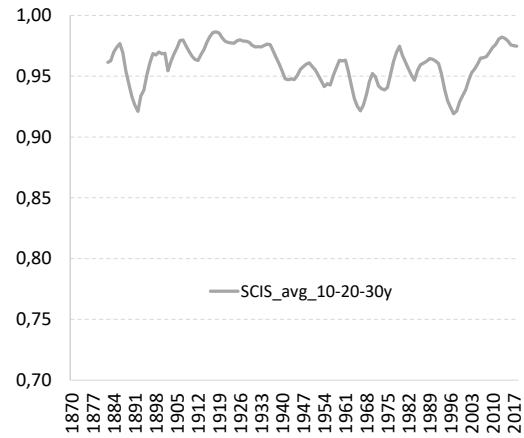
Structural Change of Services in a long-run approach

10, 20 and 30-year moving production structure indexes (centred 5-years average), and average index, 1870-2020

Panel (a)



Panel (b)



Source: Own elaboration based on diverse sources (see Section 4).

In any case, the most intense period of structural transformation within the services sector lasted three decades, from 1926 to the decline of the industrialization process in the mid-1950s (the lowest value corresponds to 1956). During this time, as the entire economy underwent significant structural change marked by an increasing share of industrial sectors in total GDP, the services sector also transformed, indicating sectoral complementarity relationships.

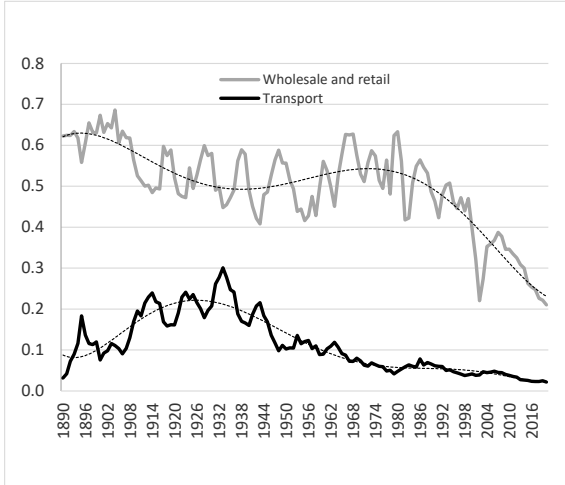
The evolution of economic activities within the tertiary sector reveals diverse realities. To identify different trajectories, we calculated the contribution of each activity to structural change within the sector (using equation 5). We focused on the SCIS corresponding to the 20-year moving indicator, as it correlates most closely with the average.

Figure 5

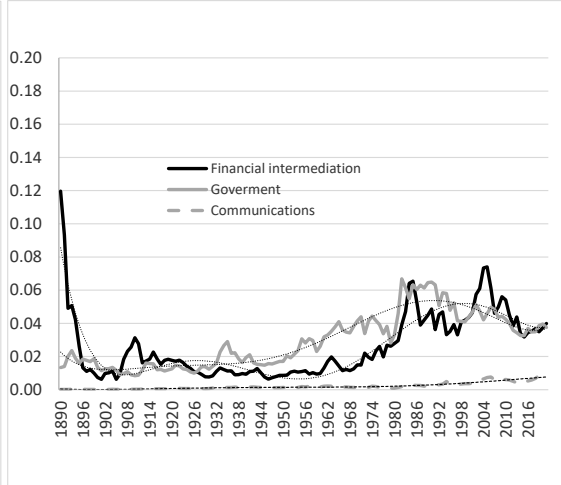
Structural Change Index of Services, 20 year-moving indicators

Incidence by subsectors, 1870-2020

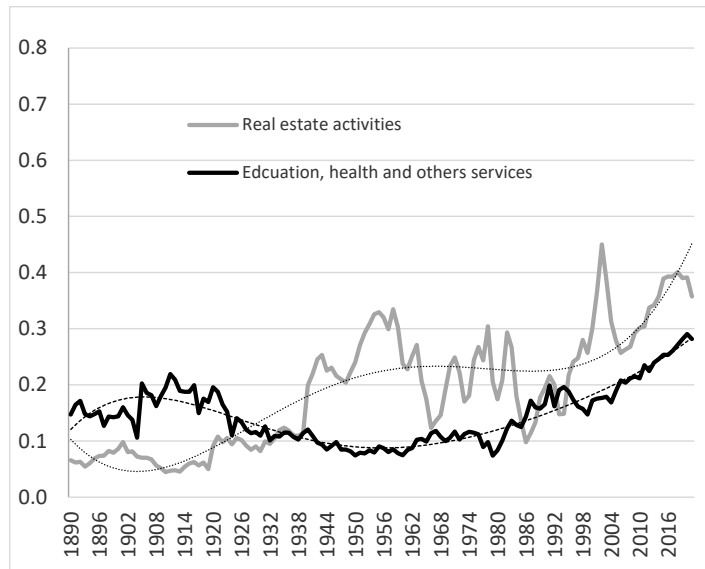
Panel (a)



Panel (b)



Panel (c)



Source: own elaboration (see Section 4).

The main economic activity is wholesale and retail trade, which, due to its size and dynamics, has been the driving force of the sector (Panel a). The sub-sectoral incidence increased modestly from the 1930s to the 1960s, but since the 1970s, the trend has been decreasing, albeit with a very irregular trajectory. Transport followed a growth trajectory from the beginning until the 1930s, a period first characterized by the expansion of the

railroad and then by a significant "automotive revolution" starting in the 1920s (Bertino et al., 2005). However, in the postwar period, this trend steadily declined, reaching very low levels in the early decades of the 21st century, even lower than those of the smallest subsectors of the activity.

Financial intermediation in the 19th century made relatively high contributions (note that the scale of Figure 5, Panel b, has been adjusted to better illustrate these changes). This reflects the impact of the financial bubble in the later half of the 1880s (Presa, 2022; Nahum, 2011), and the significance of financial activities during that period. In the first half of the 20th century, the contribution reduced and stabilized, only to rise with the expansion of fund intermediation activities in the 1950s and 1960s, as well as the economic boom of the 1970s. The sector experienced two notable adjustment processes in the second half of the 1980s and the 21st century, coinciding with the post-crisis periods (following the collapses of 1982 and 2002). Government activity followed a similar pattern to financial activities but with an earlier trajectory. Its contribution increased starting in the 1930s, peaked in the 1980s, and has since shown a sustained and gradual decline. Communications had a minimal impact on the index until the 1980s when technological advancements began driving a modest but growing trend in the sector.

Finally, the two activities with a distinctly upward trajectory, which became the driving force behind the transformation of the tertiary sector starting in the 1980s, were real estate and education, health, social work, and other community, social, and personal services (Panel c). Real estate showed a growing contribution until the 1950s, driven by urbanization and industrialization, but it declined in the 1960s and only regained its dynamism from the 1980s onward. The other services had a promising start, particularly due to the expansion of social and personal activities, but this trend did not persist. In fact, their impact remained relatively low and stable for most of the 20th century, becoming increasingly significant only from the 1980s onward. Both are typical economic activities that accompany the economic modernization of societies. The sophistication of consumption that characterizes a growing economy includes the demand for services that are usually absent in more traditional societies.

6 Discussion

At the start of the 20th century, whole and retail trade, along with transport, were leading activities driving sectoral transformation. However, this changed in the following decades. From the 1950s onwards, government and financial activities increased their dynamisms, but this trend slowed, and by the 1980s, more “modern” activities -such as real estate, communications, education, health, and other community, social and personal service activities- became the driving-force behind this long-run process. This evolution aligns with the expected patterns of structural transformation.

From a global perspective, the mass markets that surged in the 19th century -driven by industrialisation, machine-based transport, telecommunications and rapid urbanisation- displaced local services with even longer histories. As a result, industrial society had already initiated a transformation of what became known as “service industries” (Miles, 2019). However, further transformations occurred at an even faster pace. By the mid-20th century, many new services emerged, particularly in public and business services, leading to the expansion of diverse occupations in the labour market. Large enterprises, often multinational, in retail commerce, hospitality and catering, and various other services significant transformed much of the small-scale and local business of the past. As Broadberry & Ghosal (2005), p. 438, put it, this “occurred during the transition from customised, low-volume, high-margin business organised on a network basis to standardised, high-volume, low-margin business with hierarchical management from the 1870s. This development was dependent on technologies that improved communications and information processing.”

International service firms have existed since the rise of mercantile capitalism centuries earlier, primarily to facilitate the West’s access to resources from colonised regions (Barbier, 2010). Industrial capitalism created markets for standardised commodities, and by the mid-20th century, multinational companies were prominent in services as well as in other fields of “material” production. Mid-century service activities often followed lines, though they were supported by technologies and innovations -such as machines, modalities of transport and communications- developed mainly in the early decades of the century.

Large-scale fast-food chains and coffee shops represent classic examples of the “industrialisation of services”, characterized by mass production and various forms of

standardisation and mass customisation. Supermarkets combined product standardization and wide product variety with self-service model. Simultaneously, the widespread of consumer goods -from mechanical items like motor vehicles, refrigerator, dishwasher to the electronic devices such as record players, televisions and home computers- led to a shift. Consumers increasingly substituted home and leisure services with public transport, laundry services, and out-of-home entertainment. Sociocultural and legal changes accompanied this transformation. The liberalization of opening hours and new lifestyle patterns related to women's employment and family structures became prominent well before the end of the 20th century

There have also been significant changes in the workforce and work patterns across the economy (Miles, 2019). Managers and professionals, have increasingly incorporated tasks into regular routines that were previously handled by assistants and technicians. As a result, the proportion of secretarial staff in the workforce has declined, with remaining positions often requiring more advanced computer software skills. Additionally, some tasks have become more repetitive, with data entry and routine information-processing work being outsourced to lower-wage areas within the country or to developing countries.

All these changes rested on a series of technological and organisational transformations, enabling the growth of large firms in various service sectors –particularly financial and trade services (such as banks, insurance, wholesale, retail)– where digitalisation played a crucial role. Workers and technicians across diverse fields, including those in professional and creative services like architecture, accountancy, engineering and legal services, began routinely using tools such as computer-aided design, online databases, and forms and templates for correspondence and presentations (Miles, 2019).

A major role in these new transformations was the adoption of the Internet and the creation of the World Wide Web, along with the development of browsers and search engines. These innovations opened up access to a vast range of online services, which the expansion accelerating during the 1990s. The long-term evolution of these types of activities has been the focus of many scholars over the last 50 years. As early as the 1970s, discussions about the emergence of a “post-industrial society” (Bell, 1974) extended into the social sciences, humanities and philosophy. In simple terms, the dominant idea was that as economies grow, new needs arise, leading to increased demand for services and, consequently, more service workers and greater value added. In fact, this notion is

grounded in “Engel’s Law”, which states that as household become richer, they spend a smaller proportion of their budget on basic needs and a larger share on services. This assertion can be extended in two ways. First, scholars have inferred that as societies become wealthier, the proportion of the budget spent on services will rise. While this is plausible, it is not a guaranteed outcome (see Gershuny, 1977 for a critique). Second, this concept helps explain changes within the service sector itself, where more sophisticated, specialized and personalized services -less dependent on the production of goods and thus “more immaterial”– have increased their shares of the total value added.

This story aligns well with the evolution observed in developed countries but is less evident in developing economies. Our results support these expectations, revealing significant changes within the service sector. However, the “stylized facts” of developed countries do not always apply to other regions due to differences in timing and overlapped processes. Our evidence for Uruguay indicates that while this narrative corresponds well with the macro-aggregate components of the GDP, further research is needed to improve our understanding. Specific sectoral studies and microeconomic evidence will be particularly valuable for this purpose.

Our first result, which highlights the high share of services in the economy prior to the industrialization process, indirectly aligns with recent literature on urbanization and structural change. Gollin et al. (2016) argue that economies can, and do, urbanize not only through industrialization but also by expanding their natural resource exports. Their study, covering from 1960 to 2010, suggests that resource rents can drive urbanization as effectively as industrial development. However, the cities that grow in resource-exporting countries differ from those in industrialized nations.

In resource-exporting countries, the urban labor force is allocated differently compared to countries that do not rely on resource exports. More workers are employed in non-tradable services (such as personal services and commerce) and fewer are in tradable sectors (like manufacturing, finance, insurance, and real estate). Additionally, evidence suggests that living conditions in these 'consumption cities' differ from those in the 'production cities' of non-resource-exporting countries.

Our evidence supports these findings and provides a historical perspective on a related field. Historically, Uruguay has specialized in exporting natural resources and, by the early 20th century, had levels of urbanization comparable to several European countries.

In 1908, 37% of the total economically active population was employed in services, and this ratio increased to 44% when considering only wages and salaries earners (Siniscalchi, 2020). This evidence is consistent with a long-term economic evolution where “the dynamics of resource-led urbanization [explains] the process of development” (Gollin et al., 2016, p. 86). On the flip side, though not addressed in this article, the production structure is notably dominated by services, which constitute a significant portion of the economy.

7 Final remarks

Our main findings are as follows.

First, the three-sector hypothesis does not hold in the case of Uruguay, but this is more an issue of levels than of evolutionary trends. The tertiary sector started the period with a substantial share of total VA –around 47% (1870-1874), which was higher than agriculture at 35%. As a result, the subsequent evolution was constrained by this high initial level, leaving limited room for structural transformation in terms of the three macro-aggregated sectors.

Second, we proposed exercises of structural change within the service sector using three moving-base indicators (10, 20 and 30-year) and considered their average evolution. We identified a period of reversion from the early 1890s to the early 1920s, followed by a phase of structural transformation within the services sector that coincided with the most intense stage of industrialization (1926-1956). During the 1960s and early 1970s, not only did the overall economy stagnate –showing virtually no growth– but the service sector also exhibited minimal changes. With the re-globalization process and economic opening from the 1970s onwards, the trend of the indicator became irregular, marked by alternating periods of structural change and reversion.

Third, the service sector experienced significant transformations. At the beginning of the 20th century, wholesale and retail trade, along with transport, were the leading activities driving macro-aggregated changes. However, this shifted over time. From the latter half of the century, government and financial activities increased their dynamisms but, starting from the 1980s, more “modern” activities -such as real estate, education, health, and other community, social and personal service activities- became the driving-force of the sector.

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Appendix

[See appendix online](#)