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Artículo

Prices and Living Standards during the Age of Revolutions: The Río de la Plata between 1772 and 1830

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ABSTRACT

This article examines how Buenos Aires and Montevideo, two cities along the Río de la Plata whose economies were in close contact with the Atlantic markets, experienced changes in consumer prices and the purchasing power of low-skilled urban wages during the Age of Revolutions. It presents comparative evidence on costs of living and welfare ratios elaborated from primary and secondary sources for each city. The main findings are that (a) Buenos Aires and Montevideo show comparable price fluctuations throughout the period; (b) they went through an unusually intense inflationary lapse between 1811 and 1821 spurred by the "wars of independence"; (c) the purchasing power of unskilled workers, which was higher than those of Mexico, Lima, or Bogotá at the same time, and comparable to that of middle-income European cities (Allen *et al.* 2011), declined during the high inflation period, and (d) although purchasing power recovered thereafter, it failed to keep the initial levels in both cities.

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Precios y niveles de vida en la Era de las Revoluciones: el Río de la Plata entre 1772 y 1830

RESUMEN

Este artículo examina el impacto de los turbulentos acontecimientos que jalonaron la Era de la Revoluciones sobre los precios al consumo y en el poder adquisitivo de los salarios urbanos poco cualificados en Buenos Aires y Montevideo, dos ciudades del Río de la Plata cuyas economías estaban en estrecho contacto con los mercados atlánticos. Presenta datos comparativos sobre el costo de vida y las *ratios de bienestar* elaborados a partir de fuentes primarias y secundarias para cada ciudad. Los principales hallazgos son que (a) Buenos Aires y Montevideo experimentaron fluctuaciones de precios similares a lo largo del período, (b) atravesaron un período inflacionario inusualmente intenso entre 1813 y 1822 como resultado de las "guerras de independencia", (c) el poder adquisitivo de los trabajadores no calificados, que era superior a los de México, Lima y Bogotá en la misma época y comparable al de ciudades europeas de ingresos medios (Allen *et al.* 2011), disminuyó ante la presión inflacionaria, y (d) aunque el poder adquisitivo se recuperó después, no logró mantener los niveles iniciales en ambas ciudades rioplatenses.

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1. Introduction

This article studies the evolution of food prices and the purchasing power of low-skilled urban wages in the two main cities of the Río de la Plata region: Montevideo and Buenos Aires. It focuses on a transitional period that runs from 1772 to 1830, when both cities went through the turbulent Age of Revolutions. The time frame is traversed by several junctures: the end of the Spanish commercial monopoly, the opening of Atlantic markets and the sustained growth of cattle raising. An important change at the monetary level is also highlighted: the end of the old purely metallic system of the Spanish empire and the beginning of fiat currency.

This research takes part of a debate opened by recent literature about development and living standards among different regions during the past. Several Latin American regions received great attention in this discussion (Arroyo Abad *et al.*, 2012; Allen, Murphy and Schneider, 2012; Dobado, 2015; Challú and G. Galvarriato, 2015; Llorca-Jaña and Navarrete, 2015; Zegarra, 2020). The Río de la Plata economic space was not exempt from this discussion. Although it had the pioneering work of Johnson (1990) and Cuesta (2009) for Buenos Aires, new research has expanded the list of cities and historical periods analyzed (Arroyo Abad *et al.*, 2012; Gelman and Santilli, 2018; Guzmán, 2018 and 2021; Santilli, 2020a, 2020b; Schmit, 2020; Guzmán and Schmit, 2020; Djenderedjian and Martirén, 2015; Frid, 2017; Frid, Djenderedjian and Martiren, 2020; Moraes and Thul, 2018; Moraes, 2020).

Based on new evidence on prices and wages, this study proposes a comparative approach between the aforementioned cities during the transition from the *Ancien Régime* to the emergence of liberalism. It intends to analyze how the political and economic conjunctures that shaped the period 1772-1830 affected the living standards of the low-income sectors. In other words, we seek to inquire about some key questions, such as to what extent commercial openness, the invigoration of Atlantic demand, the independence processes, the crisis of the colonial monetary union, and the emergence of new fiduciary instruments, all those affected the local cost of living and the purchasing power of wage earners.

Buenos Aires and Montevideo adequately represent the main characteristics of a wide area of maritime coastline that shared particularly favorable features to adapt to the new paradigm of Atlantic trade: they had abundant resources for the production of livestock products, whose demand in the global market was envisioned as vigorous. In addition, both cities entered the era of free trade with the rest of the world at an early stage (1809).

Contrary to a deeply rooted intellectual tradition that tends to interpret Latin American history as a continuum of extractive institutions and chronic inequality from Spanish colonization to the present, this work highlights the diversity and complexity of situations within the Latin American space. As will be seen in the text, low-income workers in Buenos Aires and Montevideo had early and easy access to high-calorie food. Independence wars and high demand for livestock products put under tension a relative price system that was the backbone of the food welfare of broad sectors of the population. Nevertheless, the ongoing changes of those years did not imply a radical variation in well being trends, at least measured in terms of welfare ratios (WR), which is the methodology usually used in the international literature.

The evidence shows at least four central aspects of the Río de la Plata economy of the period: (a) that both cities experienced similar fluctuations in food prices; (b) that they had to endure an intense inflationary cycle between 1813 and 1822 due to the revolutionary context initiated in 1810; (c) that unskilled workers in both cities held a purchasing power superior to that calculated for Mexico, Lima, and Bogotá at the same time and comparable to that of European cities with medium incomes (Allen *et al.* 2011), although it was eroded during inflationary cycles; and (d) that the recovery of purchasing power in the 1820s failed to match levels from the colonial period.

2. Buenos Aires and Montevideo during the Age of Revolutions

Montevideo and Buenos Aires are two port cities that were important parts of the former Spanish overseas empire. They were the heads of a vast plain irrigated by large rivers, sparsely populated, and particularly well-suited for agricultural production, especially animal husbandry. The livestock base of their rural economies would be progressively transformed over time but would keep its characteristics throughout the period we are discussing here. As ports directly connected to Atlantic routes, the impact of commercial opening led to the reorientation of their more dynamic economic sector towards the production of exportable livestock commodities. This changed the supply of goods, replacing domestic products with imported substitutes of better quality and lower prices.

In that context, the region would be affected by turbulent circumstances, especially at the political level. Spain's participation in the war of the English colonies in North America between 1776 and 1781 was followed by a cycle of wars against revolutionary France. Among other consequences, this situation led to the British invasions of Buenos Aires in 1806 and Montevideo in 1807, which generated strong tensions in local commerce. From May 1810 onwards, Buenos Aires became the seat of the political and military insurgency against Spanish rule in the viceroyalty of the Río de la Plata, while Montevideo led the royalist resistance until 1814, being repeatedly besieged by rebel troops during those years. In 1817, Montevideo was occupied by the army of the Portuguese Empire. Four years later, in July 1821, the Portuguese formally annexed the territories east of the Uruguay River, renaming them "Provincia Cisplatina". Furthermore, between 1825 and 1828, the Provincias Unidas (which would later become Argentina) confronted the Brazilian Empire over the fate of those territories in a grueling war.

In addition to having spurred an extremely unstable institutional environment, these wars broadly compromised the supply of certain commodities and caused serious monetary distortions arising from military expenditures. The rupture of the colonial ties implied the loss of the silver mines of Potosí, which, until then, had been a fundamental driver of the Río de la Plata economy. Silver exports (which continued after 1810 despite the growing participation of hides and other livestock byproducts) decreased the volume of circulating currency, which sought to be mitigated by banning metal exports. In parallel, the financing needs of the cycle of wars that began in 1810 and lasted until 1828 drove public spending out of control, resulting in an enormous deficit. This

also led to the development of a secondary bond market that overlapped with the existing circulating currency.

These circumstances brought about monetary instability and heterogeneity.[1] The emergence of paper money in Buenos Aires, in 1821, and the diffusion of large amounts of small copper coins in Montevideo under the Portuguese-Brazilian rule (1816-1829), led to inflation by monetary oversupply (or monetary aggregates), which in Buenos Aires reached an utmost scale. These monetary changes will have noticeable effects on the general price level in these two cities. It is therefore necessary to differentiate between inflation of monetary origin and inflation strictly related to the supply and demand of consumer goods, whose presence has been to some extent hidden by the effects of monetary issuance.

3. Sources and methods

The specialized literature on price history has widely noted that constructing time series on consumer goods prices and nominal wages in pre-statistical periods is a complex task.[2] It is not always possible to access homogeneous sources, especially when dealing with periods with different levels of data availability. In this sense, the colonial period has a corpus of sources of appreciable continuity and quality, but for the period after the revolutionary wars, there is a problematic dispersion of documents on prices and wages (particularly in the private sector). Extant historiography on the colonial period of the Río de la Plata has relied on diverse sources, each with its own strengths and limitations. In contrast, due to source dispersion since 1810, subsequent research has had difficulties commissioning longer-term analyses integrating the colonial and independent periods.[3]

This research addresses the aforementioned difficulties by developing new evidence based on a large body of public and private sources. We present newly constructed time series on prices, wages, and living standards for the two cities mentioned, spanning from the 1770s to the 1820s. Our methodology involved the following steps:

a. creating annual series of food prices and low-skilled urban wages (building laborers or *peones albañiles*);

b. creating two basic consumption baskets, representative of households with different income levels;

c. calculating two weighted indexes (Laspeyres) based on the quantities indicated in both baskets;

d. estimating welfare rates (WR) according to the methodology proposed by Allen (2001), which calculates the number of basic baskets that can be purchased with the nominal wage of an unskilled worker.

Details of the collected evidence are provided below.

3.1. Current prices and nominal wages

Price history in both cities has had an uneven development, with a significant imbalance in favor of Buenos Aires. However, they share a common characteristic: the most complete time series on prices of goods and wages for both cities correspond to the late colonial period. For this reason, in a general way and not without slight variations that will be explained in each case, our time series for the colonial years were mainly collected from secondary sources, while primary sources were used for the period 1811-1830. Since price history, like any other research topic, is built by the accumulation of evidence and analysis, the price series of this research are still at an early stage and may be improved in later versions.

We developed the time series for six basic consumer goods for both cities, selected for their importance in the local diet: beef, first-quality bread, bran bread (lower quality), rice, white sugar, wine, and *yerba mate.*

Regarding Buenos Aires, information on rice, sugar, yerba mate, and wine between 1772 and 1810 were taken from Johnson (1992, pp. 155-156) and Cuesta (2009, p. 65). They collected information from the accounting books of religious institutions. When possible, missing data (and those after 1810) were completed with valuations of these goods in grocery stores *(pulperías)* contained in a vast set of probate records[4] and the accounts of the Men's Hospital in that city.[5]

To estimate bread prices, we took an unprecedented approach. We reduced the price of wheat to bread, using two tables, a first one set by the Cabildo in 1784 (that covers the period 1776-1819), and a second one, built from bread tariff data published in local newspapers (which covers the period 1820-30). The procedure laid down in the 1784 tariff provided the basis for the calculation. It can be summarized as: a fanega of wheat (225 pounds) yielded 90 pounds of flower flour (first quality) and 50 pounds of bran. Between both quantities, and reducing discards, the total yield for the miller was 115 pounds of general flour, from which the baker could produce an average of 138 pounds of bread. In other words, a 225 pound fanega of wheat produced 2,208 ounces of bread (Argentina, 1912-13, t. 1: 65).

Weight of bread (in ounces) that can be purchased with 0.5 *reales*

$$\left(\frac{(y-t)}{(p_{wheat}+b)} \right) / 2$$

Where:
— **y** is the yield of a 225-pound fanega of wheat in ounces of bread, settled by the city hall in 2,208;
— **t** is the sale tax ("derecho de vendage"), equivalent to 1/16th of the yield;
— **p** is the current price of wheat;
— **b** is the baker's profit (set at $2 or 16 silver *reales* for each wheat *fanega*).

[1] On the transformations of financial and monetary instruments in those years, see Amaral (1981); Moutoukias (2018); Wasserman (2022); Djenderedjian, Martirén and Moyano (2021).

[2] See, among others, Klein and Engerman (1990), Johnson (1990), and Romano (1992).

[3] Barba (1999), Arroyo-Abad et al. (2012), Gelman and Santilli (2014).

[4] The files are located in the "Sucesiones" collection of the Archivo General de la Nación, Argentina (AGNA, hereinafter): Boxes 3468, 3469, 3470, 3471, 3472, 3473, 3475, 3476, 3477, 3478, 3479, 3480, 3481, 3484, 3861, 3863, 3864, 3865, 3866, 3910, 3912, 3916, 3917, 3919, 3921, 3923, 3924, 3925, 4833, 4834, 4835, 4836, 4837, 4838, 4839, 4840, 4841, 4842, 4843, 4845, 4846, 4850, 5687, 5689, 5690, 5691, 5692, 5885, 5889, 5899, 5900, 5901, 5903, 5904, 5905 5906, 5907, 5908, 5909, 5910, 5911, 5912, 5913, 5914, 5915, 5916, 5917.

[5] AGNA, Hospital de Hombres, Sala IX-29-02-06; 23-03-06; 07-07-05; 15-01-23 y 24; III-35-05-11 to 17; X-40-08-09 to 10; 40-09-01 to 02; 43-09-08.

Finally, we estimated the price of beef in Buenos Aires from 1772 to 1818 based on the cost of the animal for consumption, assuming a medium-sized calf yield of 16 *arrobas* per head.[6] However, for the years 1819-1830, we collected monthly data on the price of the *arroba* of beef paid by the Men's Hospital of Buenos Aires.

In the case of Montevideo, we used Moraes (2020) data for the years 1772-1810. Except for beef, which was estimated based on the prices of live animals, this dataset was compiled from price lists published by the local Cabildo.[7] The data for the years 1814-1830 were collected from the records of the Hospital de la Caridad, which compiles daily or monthly food expenditures for the operation of this health institution.[8] Finally, we have used Montevideo's Cabildo public records (*actas* or minutes) to gather bread prices and address any missing information in the remaining goods.[9]

There were also difficulties to be addressed in the wage series. After 1810, information is scarce and scattered.[10] For this study, the nominal wages of unskilled construction workers were collected from primary and secondary sources. Considering the complexities of the labor market at the time, only cases of laborers (strictly named *peones*) were selected, from building projects of various sizes and durations.[11]

Wages from Buenos Aires for the period 1772-1826 were taken from private accounts in probate records for urban construction works performed in properties undergoing hereditary succession.[12] They generally included the wages of masters, officials (to a lesser extent), and laborers, but we only considered the records of the latter. Data from 1827 to 1830 came from the daily wages of laborers employed on renovation works of the army artillery depot and the Cathedral of the city, taken from Guzmán (2021).[13]

Regarding Montevideo, we used the daily wages of construction laborers *(peones)*. Data from the colonial period was taken from Moraes and Thul (2018), who gathered this evidence from the accounts of the Real Hacienda during the construction of the city wall (1772-1810) and the renovation of the

main church of the city, called the *Matriz* (1788-1808). The accounts record names, worked days, and daily remunerations. Atypical cases of paid slaves were excluded, as were the personnel performing forced labor (prisoners and "Indians from the Guaraní Missions").[14] In addition, we built new time series for the period 1814-1830, based on the accounts of the Charity Hospital.[15] This source registers the daily nominal wages of more than 60 workers employed between 1814 and 1830, ranging from masters, officials, and laborers to apprentices. We collected the daily average of all the laborers with a minimum of three observations per year. It is noteworthy that even though they were different works, the paid wages showed homogeneity.

The monetary unit used in the sources to express current prices and nominal wages is the Spanish silver peso of eight *reales* coined in Potosí. Since 1772, it has had a fineness of 0.902, which was reduced in 1786 to 0.895. Due to these changes, the market value of the different silver pieces in circulation began to vary significantly. From 1821 onwards, Buenos Aires adopted paper money, and Montevideo the Brazilian copper coins, nominated in *reis*. To overcome this meaningful inconvenience (and at the same time facilitate international comparisons), all values were converted to grams of silver (see Appendix for the equivalence table).

3.2. Consumption baskets

To approach the consumption of skilled and unskilled workers in the Río de la Plata societies of the time, two food baskets are proposed. They were created through an examination of the evidence provided by both secondary and primary sources. For Buenos Aires, we considered the consumption baskets published by Johnson (1990), Cuesta (2009), Santilli (2020a), and Guzmán and Schmit (2020); for Montevideo, we took into account those elaborated by Moraes and Thul (2018) and Moraes (2020). Additionally, we reviewed the books of daily expenses of the Men's Hospital of Buenos Aires and the Charity Hospital of Montevideo for the whole year 1830, and the monthly food expenses of the workers in a suburban farm in Buenos Aires between 1816 and 1817.[16]

The systematic examination of this information enabled us to select a representative list of foods consumed by urban workers in both cities. Throughout the period, beef, bread, rice or chickpeas (both generally grouped as "minestras"), wine, *yerba mate*, and sugar were pillars of food consumption that crossed social differences and hierarchies, being widely present in all the analyzed cases. In the literature, bread represented approximately 40% of total expenditure.[17] Beef, on

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[6] Beef prices between 1772-1800 according to Cuesta (2006: 568-572) and own series from probate records. Between 1801-1818 also from probate records. Yield of beef per steer according to the supply regulations published in: *Gazeta de Buenos Ayres*, "Arreglos para la venta de carne", March 25, 1818. Each arroba equals 25 pounds.

[7] Collected from rural probate records; average yield was set at 207 kilos per animal. Moraes (2020, pp. 12-13).

[8] Archivo General de la Nación (Uruguay) (AGNU, hereinafter), "Hospitales" Collection: Archivo del Hospital de Caridad, Vols. 688, 692, 694, 697, 704, 705 and 706.

[9] AGNU. Actas del Extinguido Cabildo de Montevideo. Vol. 15 (1814-1816), vol. 16 (1816-1819), vol. 17 (1819-1823), and vol. 18 (1823-1829).

[10] For Buenos Aires, see Johnson (1990, 2013), Barba (1999), Gelman andSantilli (2014, 2018), and Guzmán (2021). For Montevideo, see Thul (2016), Moraes and Thul (2018).

[11] There were very different wage relationships depending on the legal, ethnic, age, and even marital status of workers in the same occupational category.

[12] Probate records in AGNA, Sucesiones Collection, boxes 3471, 3472, 3474, 2919, 3923, 4836, 4838, 4841, 4843, 4846, 5687, 5689, 5691, 5901, 5905, 5906, 5908, 5909, 5910, 5912, 5915. Years with a lack of information (1775, 1777, 1779, 1790, 1794, 1797, 1799, 1800, 1806-08) were covered by simple interpolation.

[13] We are grateful to Tomás Guzmán for having giving us his detailed dataset for these years.

[14] Critical notes on these sources are in Thul (2016) and Moraes and Thul (2018).

[15] AGNU, Hospitales Collection, Hospital de Caridad, vols. 688, 692, 694, 697, 704, 705, 706. Wage information for 1811-1813 is not available.

[16] AGNA, Sala X, 40-09-01; AGNU, Hospitales Collection, Hospital de Caridad, Libro 709. Food expenditure in Andrés Díaz´s probate record, 1817-1819; in AGNA, Sucesiones, 5401, Exp. 5, Year 1817. It is known that the hospital and convent baskets do not represent the average consumption of low-income families; therefore, they were only considered in a general way.

[17] It corresponded to 38.6% in convents, 38% in hospitals, and 39.7% in private accounts. We do not include in these percentages the expenditure on vegetables, which was also significant in both hospital expenditures

Table 1.
Consumption baskets in Montevideo and Buenos Aires (1772-1830)

Good	Measure	Basket 1 (2,773 kcal)			Basket 2 (1,941 Kcal)		
		Quantity per person per day	Kcal	% Kcal	Quantity per person per day	Kcal	% Kcal
Beef	Pound	1.09	1,225	44.2%	1.25	1,438	74%
White Bread (High quality)	Pound	1.25	1,438	51.8%			
Bran Bread (Low quality)	Pound				0.4	451	23.2%
Rice	Pound	0.05	30	1.1%	0.05	33	1.7%
Wine	Pound	0.05	43	1.5%			
Sugar	Pound	0.02	36	1.3%	0.01	18	0.9%
Yerba-mate	Pound	0.08	2	0.1%	0.08	2	0.1%

Source: Own elaboration.

the other hand, presented significant variations between institutions and cities, with a minimum participation of 5% and a maximum of 37%.[18] In any case, bread and beef together rarely accounted for less than 60% of the food budget. Taking into account this set of elements, we propose the baskets in Table 1.

The first basket contains beef, white bread, wine, rice, sugar, and yerba mate, totaling 2,773 calories per day, which is within the range of what was considered an adequate diet for active adult males at the time.[19] The second adapts Robert Allen's (2001) "bare-bones" basket, which has a calorie intake of 1,941. It consists of beef, bran bread, rice, and a smaller amount of sugar compared to basket 1.

It is reasonable to suppose that beef had a greater weight in the diet of the population as we go down economic/social scale, due to the fact that it was the cheapest protein.[20] At the same time, another remarkable phenomenon should be noted: current prices of beef and bread used to have a mirror-like behavior. Except in special circumstances that we will refer to further, it was rare that the prices of beef and bread increased at the same time, while it was usual instead that they followed inverse paths.[21] Despite the opening of trade and the supply of new products from overseas, the pattern of the most consumed goods remained uniform throughout the period.

3.3. Food Price Indexes

We created two indexes for each city. The weighting was settled according to the quantities shown in the consumption baskets at Table 1. The price series can be found in the appendix.

Because of their compositions, index 1 would represent the cost of food in the middle sectors, while index 2 would represent the cost of food in the popular sectors. The year 1772 was chosen as the starting point because prices had not yet been influenced by subsequent climatic and war turbulences. The indexes will be utilized to identify inflationary episodes.

3.4. Welfare Ratios (WR)

In previous research, we discussed the possibilities and limitations offered by the methodology proposed by Robert Allen for pre-industrial Río de la Plata economies (Djenderedjian and Martirén, 2015; Moraes and Thul, 2018). After two decades of application in various parts of the world, the methodology has produced an array of welfare estimates that are useful for comparing regions across the world. For this purpose, to estimate the evolution of WR according to Allen (2001) and Allen *et al.* (2005), the numerator was calculated as the annual income of building laborers in each city by multiplying the daily wage in grams of silver by 250 working days. The denominator was obtained by estimating the annual cost of a survival basket based on the annual family cost of food. A non-food component was added, estimated on an aggregate basis under the assumption that it represented 30% of total household expenditure, a proportion considered adequate for the popular sectors of these economies.[22] The annual cost of this consumption basket was estimated for a household of two adults and two children.

(unfortunately, "vegetables" were recorded in grouped form as "market").

[18] AGNA, Sucesiones Collection, 5401, File 5, Year 1817.

[19] Calorie amounts calculated from Allen (2001) for bread and beef, and Moraes (2020) for rice, wine, sugar and yerba mate. Moraes (2020, p. 15-16) reported a daily caloric intake of 3000 kcal, a figure only slightly higher than that recommended by current nutritional studies for adult males of active age.

[20] There is abundant literature that has pointed out the high consumption levels of bovine meat among popular sectors of the Río de la Plata. For the case of Buenos Aires, see Garavaglia (1999). For Montevideo, the testimonies offered in De María (1947), Pérez Castellano (1968), and Larrañaga (1968), as well as the studies of Grunwald (1970) and Laborde (2017).

[21] On this subject, see Appleby (1979).

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[22] Available information for pre-industrial European economies indicates that food constituted approximately 60–70% of the household budget in the popular sectors. See Hoffman et al. (2002). Evidence on expenditures on firewood, charcoal, and candles in Montevideo and Buenos Aires is limited.

4. Food Prices and Cost of Living, 1772-1830

Laspeyres indexes presented in Figures 1 and 2 trace food prices in Buenos Aires and Montevideo, revealing differences in level but matching fluctuations. Index 1 suggests that the cost of food for the middle sectors of Montevideo tended to increase more than in Buenos Aires during almost the entire period. This difference was not very significant until 1795 but began to escalate in the first decade of the 19th century, particularly during the severe drought of 1802-1806. In contrast, index 2 suggest that food was more expensive in Buenos Aires than in Montevideo for less skilled manual workers, particularly between 1821 and 1826.

The encompassing movements of food prices in both cities suggest that they were exposed to the same events. Indeed, we applied the Johansen (1991) cointegration test to both indexes and found co-integrating equations with a confidence interval of 5%.[23] The existence of a long-run equilibrium between each pair of time series supports the hypothesis formulated in our previous research: these two cities were linked by strong and persistent economic ties (Djenderedjian, 2004; Moraes, 2016). In fact, the agrarian economies of Buenos Aires and Montevideo were exposed to the same climatic events; both cities suffered similar political upheavals and wars; and both became strongly connected to the Atlantic markets. Another common feature was the low cost of beef, which provided something like a food insurance for the population in hard times.
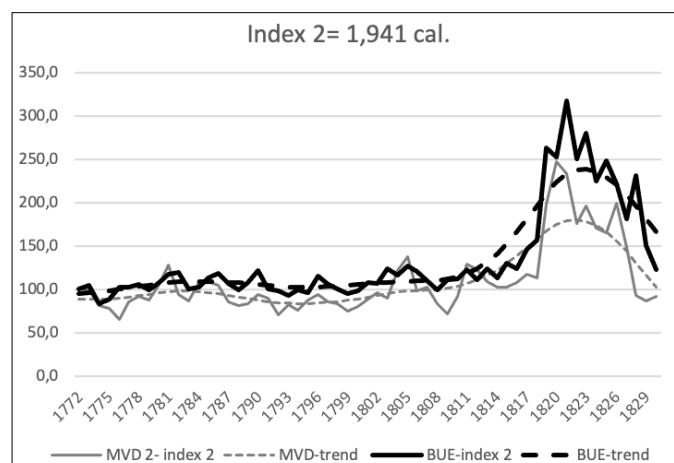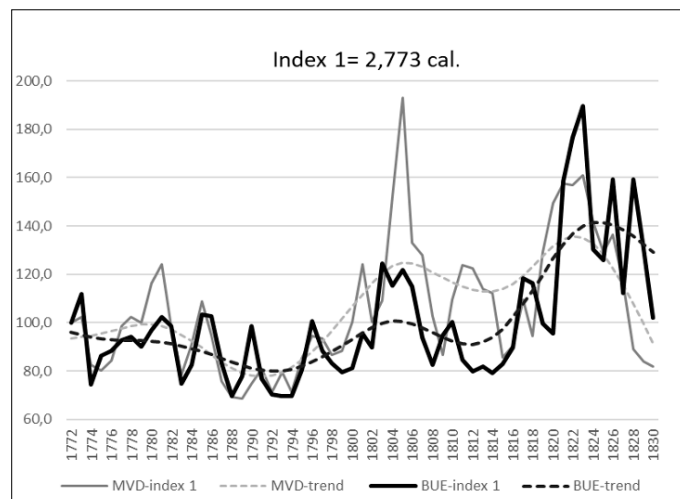
Figures 1 and 2. Food prices in Buenos Aires and Montevideo, 1772-1830 (in grams of silver) 1772=100.
Source: See Appendix. Trends obtained by a Hodrick-Prescott filter.

Table 2.
Average growth rates by periods

	Index 1			
	Annual growth rate (%)		**Coefficient of variation (%)**	
	Buenos Aires	**Montevideo**	**Buenos Aires**	**Montevideo**
1772-1810	-0.1	0.6	14.5	21.5
1811-1823	3.4	1.3	39.2	16.4
1824-1830	-1.3	-5.2	21.5	29.9
1772-1830	0.5	0.0	26.2	25.3
	Index 2			
	Annual growth rate (%)		**Coefficient of variation (%)**	
	Buenos Aires	**Montevideo**	**Buenos Aires**	**Montevideo**
1772-1810	0.5	0.4	8	15
1811-1823	5.8	4.3	39	34
1824-1830	-4.8	-7.2	12	30
1772-1830	1.0	0.3	41.2	36.5

Source: Rates were calculated on the trend of indices 1 and 2. Coefficient of variation was calculated on index 1 in Table 5 of the appendix and expressed as a percentage of the mean.

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[23] Applied to index pair 1, the TRACE test rejected the null hypothesis with a p-value of 0.080 and the Maximum Eigen value test did so with a p-value of 0.056; applied the same tests to index pair 2, the null hypothesis was rejected with a p-value of 0.000 in both tests. One co-integrating equation was found for each pair of series.

Table 2 depicts some sub-periods in the evolution of food prices in Buenos Aires and Montevideo, defined by the movements of the price indexes in both cities.

From 1772 to 1810, there was a significant price stability, as both indexes showed nearly negligible average annual changes and the lowest coefficients of variation of the three sub periods. However, it should be noted that this stability was not entirely immune to inflationary episodes that are visible in Figure 1, such as the one that occurred between 1796 and 1805. Although this price increase was influenced in part by climatic factors affecting both cities, it also coincided with the overall rise in Atlantic prices during the independence and Napoleonic wars (Fischer 1999).

The years between 1811 and 1823 were marked by high inflation and price volatility. Index 1 showed a considerable increase in average annual growth rates, but this trend was even more pronounced in Index 2, particularly in Buenos Aires. Additionally, both indexes displayed the highest volatility of the entire period. It is important to note that the inflationary process during this period was not caused by monetary factors, as would be the case in both cities after 1826 due to a glut of paper money in Buenos Aires and copper money in Montevideo.[24] The sharp inflation that started in 1811 was caused by two overlapping shocks: the definitive opening to Atlantic trade (1809) and the beginning of the independence wars (1810), with their consequent destruction of livestock, disorganization of labor and production, and trade and transport disarray. Thus, since the second decade of the 1800s, prices have become more vulnerable not only to climate shocks typical of organic economies, but also to the Atlantic markets (which mainly affected tradable goods) and to revolutionary and civil wars.

The bad harvests of 1817 and 1821 resulted in significant increases in wheat prices in Buenos Aires and Montevideo. The war also endangered the animal stock, leading to a chaotic situation in the battle territories, particularly among the rural areas of Montevideo. This led to a decrease in reproduction rates and incentives for herd liquidation. In Montevideo, the current beef price increased tenfold between the 1800s and the 1820s. Although wheat flour from overseas helped to reduce the bread price, there were no corresponding mechanisms to counterbalance the excessive rise in beef cost. For the first time, the asymmetrical price behavior of wheat and bovine meat, which allowed for substitution between them, came to a halt, leading to a significant impact on the consumption of the popular sectors that had previously been largely unaffected by inflation before 1810. Yerba mate, whose supply circuits were reconfigured after 1819, suffered a marked increase in price.[25]

Finally, the period 1824-1830 witnessed a drastic correction of the inflationary process. It also showed a moderation of volatility in Buenos Aires (not so in Montevideo), partially coinciding with Fischer's "Victorian equilibrium" (Fischer

1999, pp. 156-158). Behind what appears to be a definitive return to a past of serene prosperity, there were, however, important transformations. With respect to Buenos Aires, historians have profusely studied an inflationary process that began in 1826. The war against the Brazilian Empire from 1825 to 1828 had significant economic consequences. In response to the war, the Buenos Aires government withdrew the hard currency backing and increased money issuance, resulting in a period of intense depreciation of paper. This was the first great inflationary episode caused by monetary factors in Argentine history (Amaral 1988). However, evidence presented in the table shows that between 1824 and 1830, food prices measured in grams of silver did not increase but actually declined in Buenos Aires and Montevideo. It is worth noting that the downward correction of prices expressed in grams of silver was slower and less complete in Buenos Aires than in Montevideo, indicating that the former may have suffered side effects of paper money depreciation. This distinct evolution opens numerous and insightful questions that go beyond this article.

Regarding Montevideo, the former paradise of cheap beef began to change. Due to the war that began in 1825, the city suffered naval blockades while quickly lost control of the cattle-raising areas to the rebel forces. In the critical years of 1823 and 1826, the price of a pound of beef reached 1 gram of silver and then stabilized between 0.32 and 0.35 grams in the years 1828-1830. Significantly, the mirror-like price behavior of bread and beef mentioned above reappeared from 1822 onward, helping to compensate for this terrible blow to low-income families. In contrast to beef's rising prices, bran bread prices dropped to those of two decades earlier and even a little lower. All this occurred even at times of significant shortages in wheat production, as, for example, in 1822, when Montevideo bakers started a lock out to pressure for lower prices of wheat, leading to increasing imports of North American flours[26]. Something similar happened in Buenos Aires, where in the 1820s, bran bread prices were barely above the values of 1800.

5. Living Standards

Figure 3 shows the evolution of the welfare ratios (WR) over the period. Evidence indicates that both cities reached their highest levels during the period of greater price stability, with WR levels close to 2. The high inflation years from 1811 to 1822 started a downward trend. The 1810s, characterized by the revolutionary wars, were extremely negative. Although the cost of living dropped between 1823 and 1830, Montevideo nearly recovered its pre-1810 level, whereas in Buenos Aires it remained far below its starting point. [27] As a final comment, the purchasing power of unskilled workers in Buenos Aires was hit harder than that of their counterparts in Montevideo. It is obvious to associate this contrast to the disarray caused in Buenos Aires by the paper money depreciation. As the table shows, compared to the highest level reached, Buenos Aires welfare ratio fell by half, while that of Montevideo only lost a few points.

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[24] On the inflation caused by the inconvertibility of the paper currency of Buenos Aires see Schmit (2020). The introduction of the Portuguese copper coins in Montevideo and the economic policies to stabilize the exchange rate in Acevedo (1935).

[25] In Buenos Aires, the price of a pound of yerba went from around 2 grams of silver around 1800 to more than 12 grams around 1820. It should be noted, however, that the supply of yerba from Paraguay to Buenos Aires suffered major interruptions, so it had to be supplied with Brazilian yerba by sea since the early years of the 1820s.

[26] AGNU, Actas del Extinguido Cabildo de Montevideo. Tomo 17 (1819-1823), f. 105-107.

[27] The evolution of the welfare ratio of Buenos Aires between the beginning and the end of the period is very similar to that obtained by Santilli (2020a) for Buenos Aires between 1796 and 1818-19, which shows a loss of 58%.
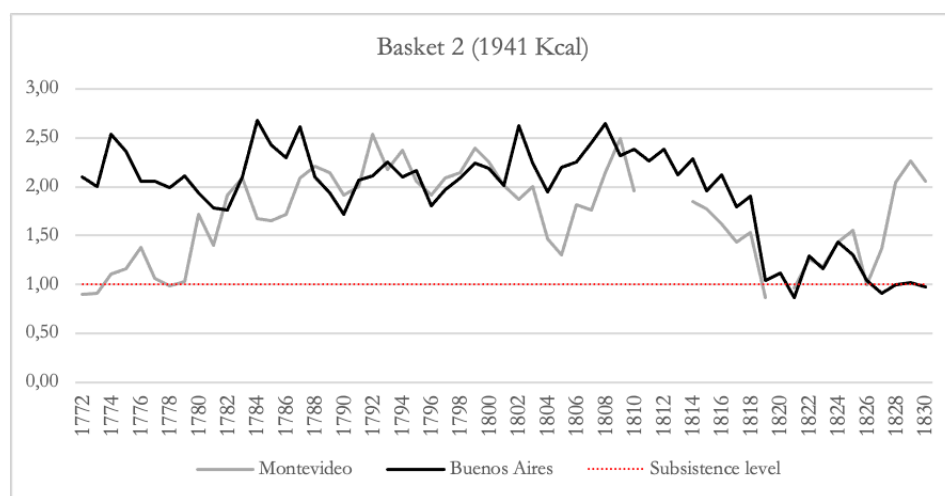
Figure 3. Welfare Ratios of building laborers (peones), 1772-1830.
Sources: Own elaboration based on price and wage series explained in Section 2.

Table 3.

Welfare Ratios in different price scenarios

	Montevideo WR	100=1772-1810	Buenos Aires WR	100=1772-1810
1. Price stability (1772-1810)	1.79	100	2.17	100
2. Inflation (1811-1822)	1.39	77.7	1.71	78.8
3. Correction (1823-1830)	1.67	93.3	1.10	50.7
4. Entire period (1772-1830)	1.77		2.02	
Buenos Aires post-metallic era (fiat paper money) (1826-1830)	1.74	97.2	0.99	45.6

Sources: price and wage series explained in Section 2.

In sum, we can say that in spite of the different downturns along the long and changing years from 1772 to 1830, the purchasing power of the laborers in the Río de la Plata main cities barely fell below the "poverty line" represented by the cost of basket 2. However, they were affected by dramatic political and economic shocks, that temporarily lowered the welfare conditions of unskilled urban workers.

From a broader comparative perspective, the position of Buenos Aires and Montevideo was always below that the so-called "high-wage" European cities: London and Amsterdam remained around a WR of 3 between 1770 and 1830. However, the Río de la Plata cities comfortably surpassed Milan and, to a lesser extent, Leipzig, cities of "middle-income Europe" (Allen *et al.*, 2011, p. 27). As for other Hispanic American cities, the position of Montevideo and Buenos Aires was better than Mexico (1.86), Lima (1.48), and Bogotá (1.58), being surpassed only by Potosí (2.2) and Santiago de Chile (2.4/2.1) (Arroyo Abad, 2012: 157; Llorca-Jaña and Navarrete, 2015).

6. Conclusions

This article analyzes for the first time and in a comparative perspective the evolution of the standard of living in the two port cities of Buenos Aires and Montevideo, during the "Age of Revolutions". The results will help us to understand some aspects of the regional macroeconomy, and the living standards of Río de la Plata's unskilled workers in turbulent times.

Buenos Aires and Montevideo were tied by demographic, geographic, and historical links from the early 18th century. However, from 1800 and over the following three decades, both cities became increasingly engulfed in political and military conflicts. Still, the analysis of prices and wages' purchasing power shows that, despite the turbulent decades of the early nineteenth century, these cities held strong links to their own past and to each other.

The evidence on prices shows that Buenos Aires and Montevideo had similar price fluctuations between the Bourbon reforms and the independence of their respective countries, despite the fact that they had different sizes and starting points. Although this parallelism had already been documented for the colonial period, this article shows that their price movements kept paired in spite of the crash of the former viceroyalty monetary and fiscal union, and the ensuing, destructive and lasting wars.

A first stage lasting until 1810, characterized by slight price movements temporarily interrupted by an inflationary cycle in the years 1790-1805, was followed by a period of high inflation between 1811-1823. The magnitude of this fledgling cycle was undoubtedly a major change at the time and must have been very disruptive for consumers. Both episodes suggest that the region was coupled to the rising price cycle of the revolutionary and Napoleonic period that the North Atlantic had been experiencing since 1790, delaying by a few years the arrival of the deflationary moment of the post-1820 peacetime.

These early inflationary impulses materialized after 1810, with the outbreak of the revolutionary and civil wars, which hiked consumer prices during 1811-1823. The pressure for financial and material resources to hold the wars took labor away from rural production, annihilated animal stocks, blocked ports, and besieged cities, distorting supply circuits and dismantling mercantile networks. In this hard situation, the control of herds became strategic for armies, not only to supply their own troops, but also to put pressure on their enemies. Thus, the wars particularly affected the poorest, not only because of the well-known cattle requisitions and army levies but also because of their impact on the price of beef, which used to be extremely low.

Estimates of the evolution of welfare ratios indicate that, contrary to the thesis of the "colonial inheritance", living standards were higher before 1810 than after, as had already been pointed out for Buenos Aires in previous research. We can now add that Montevideo was in a similar vein. The laborers of both cities enjoyed the abundance and cheapness of bovine meat resulting from the fact that animal husbandry was ubiquitous and extremely efficient.

In any case, the welfare levels of each city did not experience the same fluctuations throughout the period. By 1830, Buenos Aires had not managed to recover the welfare levels achieved during the colonial period. It had also lost its initial relative advantage over Montevideo, which had been able to recover its initial levels. The fact that the standard of living of workers in the Viceregal capital, the richer economy of the two compared here, ended the period lagging behind its Montevideo counterparts forces us to think of possible reasons, among which the monetary question seems to have been important. By 1830, Buenos Aires was trying to mitigate the imbalances of its own paper money in circulation, while Montevideo was resolutely clinging to the metallic standard. Finally, over and above these differences, a common fact emerges: the decline in the welfare rates of both cities suggests that by 1830, the position that the Río de la Plata region had held in comparison with other Latin American and European regions was no longer in force and that the gap with "high-income Europe" would have increased.

However, this change in relative position did not result in a significant welfare loss. The evidence shows that despite the profound disturbances of the decade between 1811 and 1821, welfare rates remained on average above the subsistence level in both cities. In these results, the behavior of the relative prices of beef and bread played a crucial role. The hypothesis that emerges from this work is twofold.

On the one hand, it would seem that the pattern of food price formation from the colonial period, in which beef played the role of an "equilibrium asset", a true pillar of the welfare levels already mentioned, proved to be resilient to the numerous shocks that hit these economies. This is a matter that refers to the resource balance, and productive performance of livestock farming at the time, whose explanation is beyond the scope of this article. On the other hand, it is notorious that despite the disorganization of labor markets caused by the wars (or perhaps because of this, since the demand for soldiers put upward pressure on wages), nominal wages were somehow able to keep up with fluctuations in the cost of living. This question leads us to the need to delve deeper into the survival strategies of the popular sectors during the years of the wars of independence, as well as

identify the activities that drove the economy of the Río de la Plata during those years of distress. Future research will allow us to appreciate for how long this resilience has been sustainable.

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Author's contributions

All authors have contributed equally in this article. The name order is strictly alphabetical.

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Appendix

Table A.1.

Food prices in Montevideo (in grams of silver)

Year				MONTEVIDEO			
	Beef (pound)	White bread (pound)	Bran bread (pound)	Rice (pound)	Wine (Liter)	Sugar (pound)	*Yerba* (pound)
1772	0.06	1.53	0.76	5.34	5.14	9.15	4.58
1773	0.06	1.53	0.76	5.34	6.43	9.15	4.58
1774	0.05	1.19	0.60	5.34	5.79	7.63	3.05
1775	0.05	1.19	0.60	4.58	5.14	7.63	3.05
1776	0.05	1.16	0.58	3.05	11.57	3.05	3.05
1777	0.05	1.53	0.76	4.58	7.72	9.15	3.05
1778	0.07	1.59	0.80	5.08	6.86	10.68	3.05
1779	0.09	1.63	0.81	3.81	5.79	9.91	3.05
1780	0.11	1.55	0.77	6.86	12.22	12.20	3.05
1781	0.11	1.63	0.81	9.15	10.29	12.20	4.58
1782	0.09	1.32	0.66	3.81	8.68	10.68	4.58
1783	0.11	1.02	0.51	3.56	5.36	7.63	4.58
1784	0.11	1.20	0.60	6.10	4.71	6.86	5.49
1785	0.11	1.59	0.80	6.10	7.29	7.63	4.58
1786	0.09	1.35	0.73	6.06	5.11	7.58	4.55
1787	0.05	1.07	0.53	4.55	2.98	7.58	4.55
1788	0.06	0.87	0.43	4.04	3.83	8.48	4.55
1789	0.07	0.83	0.41	4.55	3.83	7.88	4.55
1790	0.05	0.94	0.48	6.57	3.19	7.58	4.55
1791	0.08	1.14	0.57	4.55	3.83	7.58	4.55
1792	0.08	1.09	0.54	3.03	3.62	7.58	3.03
1793	0.09	1.15	0.58	4.55	4.15	9.09	3.03
1794	0.09	1.03	0.52	4.04	3.62	6.97	3.03
1795	0.07	1.25	0.61	5.05	4.68	7.58	3.79
1796	0.08	1.43	0.71	5.05	4.68	11.51	3.51
1797	0.08	1.25	0.63	4.80	9.37	9.33	3.27
1798	0.06	1.05	0.53	4.55	9.58	9.09	4.03
1799	0.07	1.25	0.63	3.03	8.94	8.48	3.27
1800	0.08	1.28	0.64	3.54	14.48	7.58	3.51
1801	0.06	1.71	0.86	4.55	17.88	8.06	3.27
1802	0.07	1.47	0.73	6.06	7.66	6.82	3.79
1803	0.06	1.80	0.90	5.05	8.30	6.06	3.03
1804	0.07	2.97	1.48	5.05	4.26	6.06	4.55
1805	0.07	3.64	1.82	5.56	11.07	9.60	4.24
1806	0.08	2.11	1.05	3.03	14.05	6.06	4.55
1807	0.05	1.90	0.95	3.03	14.05	6.06	6.06
1808	0.07	1.10	0.55	3.03	18.31	5.30	5.30

Year	MONTEVIDEO						
	Beef (pound)	White bread (pound)	Bran bread (pound)	Rice (pound)	Wine (Liter)	Sugar (pound)	*Yerba* (pound)
1809	0.07	1.19	0.60	3.03	10.22	6.06	3.27
1810	0.09	1.76	0.88	4.55	8.94	4.55	3.39
1811	0.12	1.79	0.89	3.03	7.66	6.06	9.09
1812	0.14	1.81	0.91	3.03	7.66	7.07	7.58
1813	0.16	1.73	0.87	2.85	7.21	7.60	5.70
1814	0.18	1.75	0.88	2.85	7.21	8.56	4.28
1815	0.34	0.90	0.45	2.38	7.21	8.56	4.28
1816	0.38	0.99	0.50	2.26	7.21	8.56	4.28
1817	0.42	1.52	0.76	2.15	7.21	4.40	4.28
1818	0.46	1.10	0.55	1.98	7.21	4.28	4.28
1819	0.67	1.18	0.59	1.77	6.01	4.25	12.83
1820	0.64	1.27	0.63	1.84	4.81	4.28	19.96
1821	0.90	1.68	0.84	1.86	5.21	3.99	12.83
1822	0.79	2.37	1.18	1.88	5.61	4.04	4.75
1823	1.07	2.22	1.11	1.91	6.01	2.99	3.87
1824	0.79	1.94	0.97	1.82	6.28	2.03	5.35
1825	0.66	1.60	0.80	2.12	6.55	2.88	7.13
1826	1.00	1.47	0.74	2.02	4.81	3.11	7.13
1827	0.75	1.49	0.75	1.57	5.08	3.22	4.03
1828	0.32	1.34	0.67	1.55	4.52	3.35	3.35
1829	0.28	1.28	0.64	2.03	4.50	2.93	2.88
1830	0.35	1.16	0.58	1.92	4.26	2.43	3.01

Beef:: 1772-1810 data of semiannual frequency until 1779 and of quarterly frequency until 1810, according to Moraes (2020). For the period 1814-1830: Books of daily expenses of the Hospital de la Caridad.

Baked bread (first quality): 1772-1810 and 1814: Moraes (2020). 1816-1826: Actas del Extinguido Cabildo de Montevideo, Volumes 13 to 18. 1827-1830: Estimated from the price of a quintal of "bizcocho" (a sort of cracker), according to expense books of the Hospital de la Caridad, with the equivalence 1 quintal of "bizcocho" (100 pounds) = 144 pounds of bread according to the same source.

Bran bread (low quality): 1772-1779: back projection from the ratio price of baked bread/price of *acemite* bread between 1780-1830. 1780-1814: Moraes 2020. 1816-1829: Actas del Extinguido Cabildo de Montevideo, Volumes 13 to 18.

Rice, yerba, wine and sugar: 1772-1814 prices according to Moraes (2020). 1814-1830: Expense books of the Hospital de Caridad.

Sources and comments: All original measures converted to pounds of 0.46 kg. and to liters according to the equivalence 1 flask of wine = 2.372 litres established in Alonso Criado (1877, pp. 544-551). All original current prices converted to grams of silver according to equivalences in Table 2 of this appendix. Shaded values are linear interpolations.

Table A.2.
Food prices in Buenos Aires (grams of silver)

Year				BUENOS AIRES			
	Beef (pound)	White bread (pound)	Bran bread (pound)	Rice (pound)	Wine (Liter)	Sugar (pound)	*Yerba* (pound)
1772	0.11	1.13	0.60	1.57	7.18	4.88	3.29
1773	0.09	1.39	0.73	1.57	7.18	5.04	3.29
1774	0.09	0.62	0.33	1.57	7.18	5.21	3.29
1775	0.08	0.87	0.46	1.57	7.18	5.37	3.29
1776	0.16	0.81	0.43	1.57	6.98	6.47	3.29
1777	0.16	0.94	0.49	1.46	6.96	6.95	2.93
1778	0.17	1.02	0.54	1.83	7.41	8.30	2.07
1779	0.17	0.94	0.49	1.83	8.09	5.49	2.20
1780	0.16	0.99	0.52	1.95	8.25	7.69	2.62
1781	0.16	1.10	0.58	2.32	7.43	7.26	3.05
1782	0.16	1.04	0.55	2.68	7.25	6.83	3.05
1783	0.16	0.76	0.40	2.68	5.94	5.37	1.95
1784	0.16	0.80	0.42	2.23	6.47	4.64	2.93
1785	0.16	1.18	0.62	2.20	8.00	4.88	2.75
1786	0.16	1.26	0.66	2.48	6.02	5.82	2.55
1787	0.16	0.93	0.49	2.62	5.46	5.88	2.06
1788	0.14	0.67	0.35	2.74	4.84	6.37	2.20
1789	0.15	0.79	0.42	2.55	4.05	8.73	2.44
1790	0.16	1.26	0.66	2.67	3.69	5.82	2.67
1791	0.16	0.76	0.40	2.06	4.59	5.09	2.91
1792	0.22	0.76	0.40	2.06	4.49	4.36	1.33
1793	0.20	0.75	0.39	1.76	4.39	3.88	1.58
1794	0.18	0.66	0.34	2.18	4.10	3.88	2.67
1795	0.16	0.98	0.52	1.94	4.61	4.85	1.70
1796	0.16	1.21	0.64	1.99	4.64	6.18	3.03
1797	0.14	0.86	0.45	1.94	5.82	6.79	3.51
1798	0.14	0.82	0.43	2.12	6.56	6.06	2.79
1799	0.14	0.93	0.49	2.06	5.05	5.82	1.82
1800	0.14	0.93	0.49	2.18	5.16	5.82	2.06
1801	0.13	1.05	0.55	2.19	6.23	3.64	3.53
1802	0.12	1.03	0.54	1.98	3.61	3.76	3.76
1803	0.12	1.86	0.98	2.20	3.89	3.51	2.79
1804	0.11	1.80	0.95	2.30	3.64	4.00	1.88
1805	0.12	1.73	0.91	2.59	4.87	4.18	2.91
1806	0.16	1.62	0.85	2.30	5.45	3.82	2.19
1807	0.14	1.10	0.58	2.72	7.02	4.79	2.21
1808	0.12	0.93	0.49	2.78	7.01	4.61	1.94
1809	0.14	1.15	0.61	2.45	5.52	5.57	2.42
1810	0.13	1.28	0.67	2.51	5.44	3.82	2.77

Year	BUENOS AIRES						
	Beef (pound)	White bread (pound)	Bran bread (pound)	Rice (pound)	Wine (Liter)	Sugar (pound)	*Yerba* (pound)
1811	0.16	0.97	0.51	3.80	4.48	4.00	2.71
1812	0.15	1.05	0.55	3.63	4.28	3.88	1.35
1813	0.19	0.88	0.46	3.98	5.62	3.46	2.37
1814	0.15	0.84	0.44	3.43	5.11	4.59	2.53
1815	0.21	0.90	0.48	3.83	3.70	4.33	2.70
1816	0.23	0.99	0.52	2.58	4.08	4.33	2.87
1817	0.24	1.52	0.80	2.90	4.46	4.55	3.03
1818	0.33	1.45	0.76	3.09	4.47	4.45	2.39
1819	0.42	1.10	0.58	12.80	4.26	4.36	1.69
1820	0.44	0.97	0.51	11.68	3.83	4.35	2.05
1821	0.39	2.38	1.25	14.75	3.39	4.11	1.86
1822	0.33	2.84	1.49	8.80	4.45	3.52	1.46
1823	0.43	3.04	1.60	9.28	3.08	3.25	1.58
1824	0.34	1.98	1.04	8.74	2.80	3.02	1.21
1825	0.45	1.63	0.86	9.93	5.04	3.64	1.39
1826	0.27	2.25	1.18	6.82	4.41	8.27	3.25
1827	0.19	1.60	0.84	7.11	3.10	5.43	2.20
1828	0.24	2.39	1.26	8.43	4.47	6.48	2.59
1829	0.19	2.10	1.11	3.79	3.21	2.94	1.53
1830	0.13	1.64	0.87	3.69	3.01	2.36	1.12

Beef: own estimate based on the price of cattle between 1772-1818 and monthly prices per *arroba* of beef paid by the Men's Hospital of Buenos Aires between 1818-1830. The own estimate was based on the price of beef from Cuesta (2009), Garavaglia (1995) and probate records.

Bread: Own estimate based on the current price of wheat and formula of the cabildo of Buenos Aires (see text). Current price of wheat from 1772 to 1822 according to accounts of private transactions present in probate records. 1823 to 1830 from local newspapers: *El Argos* (1822), *La Gaceta Mercantil* (1823-1830), *The British Packet* (August 1826) and *El Lucero* (November 1829 to 1830). Missing data were completed with secondary sources in 1809 from Johnson (1990) and between 1810-1813 from Garavaglia (1995: 103-104).

Rice: Johnson (1990) until 1810, probate records from 1811 to 1817 and Hospital de Hombres de Buenos Aires from 1817 to 1830.

Sugar: Johnson (1990), already cited probate records (1772-1775) (1799) (1805-1815) and Men´s Hospital of Buenos Aires (1817-1830).

Yerba-Mate: Johnson (1990), probate records (1777-1783) (1784-1789) (1796-1816) (1822-1824) and Men´s Hospital of Buenos Aires (1817-1821 and 1825-1830). Wine: Johnson (1990), Cuesta (2009) and probate records (1800-1830).

Sources and comments: All original measurements were converted to pounds and liters. The equivalence of the pound in grams according to Napp (1876: 368-9). All original current prices converted to grams of silver according to equivalences in Table A.4 of this appendix. Shaded cells are linear interpolations.

Table A.3.

Daily wages of unskilled construction workers *(peones)* (in grams of silver)

Year	Montevideo	Buenos Aires	Year	Montevideo	Buenos Aires
1772	6.1	9.2	1802	12.1	12.1
1773	6.1	9.2	1803	12.1	12.1
1774	6.1	9.2	1804	12.1	9.9
1775	6.1	9.2	1805	12.1	12.1
1776	6.1	9.2	1806	12.1	11.9
1777	6.1	9.2	1807	12.1	11.7
1778	6.1	9.2	1808	12.1	11.4
1779	6.1	9.2	1809	12.1	11.2
1780	12.2	9.2	1810	12.1	11.7
1781	12.2	9.2	1811		12.1
1782	12.2	9.2	1812		11.5
1783	12.2	9.2	1813		11.4
1784	12.2	12.0	1814	12.8	11.3
1785	12.2	11.9	1815	12.4	11.1
1786	12.1	11.8	1816	11.9	11.4
1787	12.1	12.1	1817	11.4	11.4
1788	12.1	9.1	1818	11.8	13.0
1789	12.1	9.1	1819	11.6	11.9
1790	12.1	9.1	1820		12.3
1791	12.1	9.1	1821	15.3	12.0
1792	12.1	9.1	1822	14.9	14.0
1793	12.1	9.1	1823	15.7	14.2
1794	12.1	9.1	1824	16.5	14.0
1795	12.1	9.1	1825	17.3	14.1
1796	12.1	9.1	1826	13.5	10.1
1797	12.1	9.1	1827	13.7	7.2
1798	12.1	9.1	1828	12.9	10.0
1799	12.1	9.2	1829	13.2	6.7
1800	12.1	9.3	1830	12.8	5.2
1801	12.1	9.5			

Buenos Aires: Guzmán (2021) and Probate records in AGNA, *Sucesiones* Collection, Boxes 3471, 3472, 3474, 2919, 3923, 4836, 4838, 4841, 4843, 4846, 5687, 5689, 5691, 5901, 5905, 5906, 5908, 5909, 5910, 5912, 5915. Years with lack of information (1775, 1777, 1779, 1790, 1794, 1797, 1799, 1800, 1806-08) were covered by simple interpolation.

Sources: Montevideo, Moraes y Thul (2018) and AGNU, Hospital de Caridad, Libros 688, 692, 694, 697, 704, 705 y 706. Shaded cells were covered by simple interpolation.

Table A.4.

Monetary equivalences in grams of silver

Year	Montevideo Grams of silver per $F	Buenos Aires Local currency in grams of silver[28]	Year	Montevideo Grams of silver per $F	Buenos Aires Local currency in grams of silver[28]
1772	3.1	3.1	1808	3.0	3.0
1773	3.1	3.1	1809	3.0	3.0
1774	3.1	3.1	1810	3.0	3.0
1775	3.1	3.1	1811	3.0	3.0
1776	3.1	3.1	1812	3.0	3.0
1777	3.1	3.1	1813	2.9	2.9
1778	3.1	3.1	1814	2.9	2.9
1779	3.1	3.1	1815	2.9	2.9
1780	3.1	3.1	1816	2.9	2.9
1781	3.1	3.1	1817	2.9	2.9
1782	3.1	3.1	1818	2.9	2.9
1783	3.1	3.1	1819	2.9	2.9
1784	3.1	3.1	1820	2.9	2.9
1785	3.1	3.1	1821	2.9	2.9
1786	3.0	3.0	1822	2.9	2.8
1787	3.0	3.0	1823	2.9	2.8
1788	3.0	3.0	1824	2.9	2.8
1789	3.0	3.0	1825	2.9	2.8
1790	3.0	3.0	1826	2.4	1.7
1791	3.0	3.0	1827	2.3	0.9
1792	3.0	3.0	1828	2.2	1.0
1793	3.0	3.0	1829	2.2	0.6
1794	3.0	3.0	1830	2.0	0.4
1795	3.0	3.0			
1796	3.0	3.0			
1797	3.0	3.0			
1798	3.0	3.0			
1799	3.0	3.0			
1800	3.0	3.0			
1801	3.0	3.0			
1802	3.0	3.0			
1803	3.0	3.0			
1804	3.0	3.0			
1805	3.0	3.0			
1806	3.0	3.0			
1807	3.0	3.0			

Buenos Aires: local quotations of the current currency and its conversion to grams of silver taken from the weekly values published in local newspapers: *El Argos* (1823-1826), *The British Packet* (1826-1830), *La GacetaMercantil* (1825-1830) and *El Lucero* (1829-1830).

Montevideo: quotations of the *patacon* (Brazilian silver peso, equivalent to the Spanish $F) according to *El Universal*, Montevideo, 1829-1831.

Sources and notes: $F: Spanish Peso fuerte of 8 *reales* and about .900 fineness. Official debasements of 1786 and 1812 were taken into account.

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[28] In 1821 Buenos Aires introduced the paper peso as the local currency. Conversions were made to Pesos Fuertes (Spanish pesos of 8 reales) until 1820 and since 1821 on paper pesos ($mc).

Table A.5.

Price Indexes

Year	Index 1		Index 2		Year	Index 1		Index 2	
	Montevideo	Buenos Aires	Montevideo	Buenos Aires		Montevideo	Buenos Aires	Montevideo	Buenos Aires
1772	100	100	100	100	1802	100	90	96	106
1773	102	112	100	105	1803	109	124	90	124
1774	83	74	81	83	1804	152	115	122	116
1775	80	86	78	89	1805	193	122	138	127
1776	84	88	66	102	1806	133	115	99	121
1777	99	93	85	102	1807	128	94	102	110
1778	102	94	92	106	1808	103	83	84	99
1779	100	90	87	100	1809	87	95	72	111
1780	116	97	105	108	1810	110	100	92	113
1781	124	102	129	118	1811	124	85	129	123
1782	98	99	94	119	1812	122	80	123	111
1783	79	75	86	100	1813	114	82	109	124
1784	91	83	108	103	1814	112	79	103	113
1785	109	103	109	113	1815	86	83	103	130
1786	95	103	105	118	1816	91	90	108	123
1787	76	83	86	107	1817	110	118	118	146
1788	69	70	81	100	1818	94	116	114	157
1789	69	78	84	108	1819	129	99	199	263
1790	75	99	94	122	1820	149	95	247	253
1791	81	77	90	101	1821	158	159	233	318
1792	71	70	71	99	1822	157	177	176	251
1793	80	69	82	93	1823	161	189	197	280
1794	71	70	76	99	1824	142	130	171	225
1795	85	80	88	97	1825	129	126	165	248
1796	94	101	94	116	1826	136	159	200	222
1797	93	88	86	106	1827	117	112	148	181
1798	87	83	84	100	1828	89	159	93	232
1799	88	79	75	95	1829	84	131	86	151
1800	100	81	80	98	1830	82	102	92	123
1801	124	95	89	108					

Source: Own elaboration from prices in Table A1, Table A2, and weights from Table 1.