

A WAR WITHOUT INFLATION: THE CASE OF ARGENTINA 1865–1870

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ABSTRACT

Although paper note issuance increased dramatically in Argentina during the Triple Alliance War, inflation was not significant. This occurred because only a fraction of the increase in paper bills led to an expansion of the money supply, the rest being currency substitution. On the other hand, an increase in the demand for money for transactions was generated by rapid economic growth.

Keywords: inflation, Argentina, war, Paraguay

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RESUMEN

Aunque la emisión de billetes aumentó drásticamente en Argentina durante la Guerra de la Triple Alianza, la inflación no fue significativa. Esto ocurrió porque sólo una fracción del aumento del papel moneda condujo a una expansión de la oferta monetaria, existiendo al mismo tiempo sustitución de moneda. Por otro lado, el rápido crecimiento económico generó un aumento en la demanda de dinero para transacciones.

Palabras clave: INFLACIÓN, ARGENTINA, GUERRA, PARAGUAY

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1. INTRODUCTION

Major unexpected military conflicts, whether external or internal, tend to generate large increases in public spending, forcing governments to maximise sources of funding. Usually, they impose new taxes and/or raise new debt. Since these sources of funding are sometimes not enough to cover the expenses, governments frequently resort to printing money which inevitably generates high inflation (Rockoff 2016). This was the experience of Argentina before 1860, particularly during the war with Brazil (1825–1828), two international conflicts with France and England, which resulted in the blockade of the port of Buenos Aires (1838–1840 and 1845–1849), and a civil war that lasted from the 1850s until the early 1860s. In all cases, money was printed generating inflation that reached more than 500% between 1820 and 1860. Given this history, the War of the Triple Alliance (1865–1870) that united Argentina, Brazil and Uruguay against Paraguay was the perfect context for high inflation to reappear in Argentina. However, it is striking to find that the country did rely on printing money, prices remained relatively stable during the war and, incredibly, convertibility was adopted in 1867 and maintained for almost 10 years.

The story told here fits well with the quantity theory of money which states that prices are determined by the supply of money, measured here very simply as the monetary base. Also, the impact on prices is affected by the demand for bills for transactional purposes.¹ This factor can be very important for an economy with rapid economic growth since empirical studies show that the income elasticity of demand for money can be high (Mulligan *et al.* 1992). The argument used here is that (a) although paper note issuance increased dramatically in Argentina during the war, only a fraction of this increase led to an expansion of the money supply, the rest being currency substitution; (b) to a great extent an increase in the demand for money for transactions compensated the expansion in the money supply. Currency substitution and high economic growth in Argentina are the main differences from other countries that experienced higher inflation during violent conflicts caused by monetary financing. The vanquished political units in conflicts of the 1860s—such as Paraguay² and the American Confederate States—ended up experiencing hyperinflation.

¹ Prices are also influenced by the velocity of circulation, which we will consider constant over the period.

² Between 1865 and 1870 the Paraguayan peso devalued 1500% with respect to gold. See Frescura (1942, p. 74).

2. THE WAR OF THE TRIPLE ALLIANCE

The bloodiest war in the history of South America began in 1864 when Paraguayan dictator Francisco Solano Lopez decided to invade the Brazilian territory of Matto Grosso. Soon after, he requested Argentina's permission for his troops to traverse the province of Corrientes to assist the Uruguay government, under attack by a revolution backed by the Brazilian army. Since Argentina did not give permission, the city of Corrientes was invaded and occupied in April 1865, thus initiating the confrontation. After some months, Argentine forces arrived in Corrientes and the invaders were expelled, the conflict continuing on Paraguayan territory. The greatest battle ever fought in South America—*Tuyuti*—which took place in 1866, resulted in an approximate death toll of 10,000. The Paraguayans were not totally defeated until 1870, suffering incredibly high losses (more than a third of their male population). Argentina, for its part, suffered about 10,000 military casualties (dead or injured), a number that can be doubled or tripled if death by yellow fever spread by returning troops is included.³ For Argentina, the war meant creating an army of 20,000 by 1866, reduced to about half that number in 1867 and 1868 and to 7,000 in 1869. Paying wages to this force was not the only cost, since they had to be uniformed, transported, armed and fed. Total public expenditure related to the war was probably around 55 million silver pesos (a silver peso being equivalent to a silver dollar).⁴ The direct fiscal cost of the war was equivalent to about 42% of the Argentine GNP for 1865 (see Appendix A).

It is relevant to compare the situation of Argentina with the Northern States during the American Civil War. Both conflicts took place in the same decade (1861–1865 and 1865–1870), were fought mainly in enemy territory, and led to a large increase in public spending. For the Union, total expenditure was roughly equivalent to GNP (Ransom 2001). To finance these expenditures both countries imposed new taxes on trade and raised foreign debt. They also increased the monetary base; Argentina, apparently, by 122% and the Union by 260% (see Rockoff 2016). In both cases, such an increase was used to cover military expenses. Not surprisingly the Union saw prices more than double during the war, leading to the suspension of convertibility in 1862. Argentina, surprisingly, experienced a completely different situation; prices remained relatively stable, and the country returned to convertibility in 1867, 3 years before the end of the war.⁵

³ The war probably claimed a total of 200,000 lives (Bethell, 1996, p. 1).

⁴ This is a crude estimate based on fragmentary information. On debt and other economic aspects of the war, see Garavaglia (2016).

⁵ It would have been interesting to include Brazil in the analysis. Unfortunately, the available economic series are ambiguous or contradictory. Brazil appears to have experienced higher inflation than Argentina and a significant devaluation of its currency, at least between 1865 and 1869.

TABLE 1
EVOLUTION OF CONSUMER PRICES, EXCHANGE RATE (GOLD), PRICES OF EXPORTABLE GOODS AND RURAL WAGES. 1,864 = 100

Year	64	65	66	67	68	69	70
Consumer prices	100	97	103	103	103	106	120
Exchange rate	100	95	85	87	87	87	87
Price of exportables	100	90	82	84	84	80	83
Wages	100	76	105	98	82	90	119

Source: Consumer process and wages: Cuesta (2012) and Cuesta and Cuk (2021). Exchange Rate: Sabato (1990), pp. 248–249. Exportables: Williamson (1995).

3. PRICES

The scant information existing on the behaviour of prices over the war years indicates general stability (Table 1). The consumer prices series, for instance, did not alter much between 1864 and 1868. In 1869 and 1870 some inflation appeared, accumulating an increase of 20% (with respect to 1864). Workers' wages also show no clear trend, with years of increase and decrease, with a relatively small increase for 1869 and 1870. For its part, the exchange rate initially reflects a revaluation of the peso. After 1867, when convertibility was imposed, it remained constant. The local prices of exportable goods show a falling trend due mainly to the decrease in international wool values, after the high levels attained for this product during the American Civil War. The general picture for Argentina, then, is one of no major inflationary pressures during the period 1865–1870.

4. MONEY SUPPLY

During the 1860s the Argentine economy functioned without an official national currency. In practice, the Bank of the Province of Buenos Aires had the monopoly in the issue of paper notes and operated as a quasi-official institution serving the financial needs of the national government.⁶ This was a strange set up, since the bank was controlled by provincial political authorities able to impose limits on the demands made by the federal government. Paper bills were not the only type of money circulating in Buenos Aires, since also gold coins—such as the English sovereign⁷—were used for economic transactions (Mulhall and Mulhall 1869, p. 75).

⁶ On the monetary and fiscal history of the period see the excellent studies by Cortés Conde (1994), Irigoin (1995) and Panettieri (1980).

⁷ With a value of one pound or five silver pesos.

These encompassed export–import operations, debt and commercial payments, and even real estate leases.⁸ The Provincial Bank received deposits in specie, and paid interest on these funds (Cuccorese 1958, p. 190). In the rest of the Argentine territory, silver coins from Bolivia or Chile were in common usage.

By 1863 the stock of paper currency issued by the Province of Buenos Aires Bank amounted to around 11.3 million silver pesos. The priority of the authorities of the province was to avoid a repetition of the experience of 1859–1861 when circulation had increased abruptly and caused inflation. By 1863 projects had been presented in the provincial parliament to decree the prohibition of additional money printing and to declare the convertibility of the peso to gold at a fixed rate. In practice, the projects implied adopting the gold standard rules and putting a cutting limit the increase of notes without backing.

Some of the deflation that can be detected for the years 1864 and 1865 must be attributed to the reduction of the monetary base generated by the decision to sterilise in 1863 and especially in 1864 part of the inflationary bills issued between 1859 and 1862.⁹ Given the existence of sticky prices in wages and services, the immediate impact was felt mainly on the exchange rate and in a dramatic increase in the discount rate, from 9% to 15% (Banco Nación 1941, p. 97). This generated a repressed deflation that surely had a negative effect on price levels in 1864 and 1865.

In 1865 paper money circulation started to increase and by 1870 a total of 12.8 million pesos had been added to the money stock. By this last year, 30% of the money in circulation was composed of gold-backed bills originating in the Convertibility Office established in 1867. The rest was paper money printed before 1864 or the new metallic bills, with a face value in silver pesos, but without metal backing. The non-backed bills derived from the demand for funds on the Provincial Bank made by the national government to finance military spending; a total of 4.8 million were issued by 1870. Total money in circulation increased from 10.5 million pesos in 1864 to 23.3 million in 1870. About 40% of the increase in high-powered money can be directly attributed to the war.

One reason why inflation did not appear after the outbreak of the war is that once the Convertibility Office was established in 1867 it offered to exchange English gold coins for gold-backed pesos at a price greater (+14%) than market parity. This was an incentive for businessmen and individuals to exchange the metal they used for transactions for the newly issued paper bills. Consequently, part of the (specie) monetary

⁸ President Bartolome Mitre, in a letter to Norberto de la Riestra in 1862, remarked dramatically that most medium and large payments were made locally in specie and not paper money. See Cuccorese (1958, p. 392).

⁹ See Sanucci (1993, p. 138).

base was taken out of circulation and replaced by gold-backed notes. The pesos issued to replace the foreign gold coins, therefore, did not increase the money supply. Part of the increase in the money supply was, then, a currency substitution. If this substitution were to be perfect, about 50% of the paper bills created from 1867 to 1870 did not increase the money supply.¹⁰

5. MONEY DEMAND

As a factor stabilising prices was an increase in the demand for money between the years 1864 and 1870. It is not surprising that in a context of strong economic growth such as that which took place in Argentina during the war, there was a continuous need of cash by merchants, entrepreneurs and consumers. The abundance of fertile land allowed a permanent expansion in exports of animal products, such as wool, hides and tallow. The 10% annual change in the value of foreign trade is one good indicator of this high economic growth. Another is the 17% increase in the revenue collected by the stamp tax (on the value of legal contracts, financial documents, petitions to the government, and property titles transferred), which mirrored the evolution of business activity. The revenue from the postal service (*Correo*), also increased by 13% per annum, evidencing greater communications.¹¹ Short-term credit (Discount) awarded by the Buenos Aires Bank grew at 22% per year (Valencia 1997, p. 170). All these indicators suggest a significant economic expansion as well as a greater turnover of commercial transactions. Both would have absorbed at least part of the increase in the stock of paper currency. It is noteworthy that in the United States, during the war, the economy of the North grew at a slower rate (21% between 1860 and 1865)¹² suggesting a much more moderate increase in the demand for money (Table 3).

¹⁰ By how much did the total monetary base increase during the war if the gold in circulation were added to the currency issued? If it is estimated that in 1867 the economic agents exchanged 50% of the gold available, then the total amount of gold in circulation in 1865 could have been about 9 million silver pesos (considering the smaller size of the economy in this year). The total money in circulation, adding this figure to the currency issued, would have been about 20 million strong pesos in 1865 (and not the 11.6 million mentioned in Table 2). Is it reasonable to think that the amount of gold coins equalled the issue of paper money? There is no estimate of this stock, but this seems to have been the proportion in the American British colonies (Smith, 1988, p. 22). If this were the proportion for Argentina, the monetary base would have been around 34 million silver pesos in 1870 (23.3 million in paper currency plus an additional 10 million pesos in gold in circulation). This would mean that the total monetary base possibly grew by about 70% or somewhat less (if the amount of gold circulating did not increase that much).

¹¹ On the other hand, the population, 1.79 million in 1869, was increasing annually at about 3.5%, immigrants (net) accounting for about 20% of this growth.

¹² According to the evolution of Industrial production in the US. See Davis (2004).

TABLE 2
BILLS IN CIRCULATION 1864–1870. IN MILLIONS OF SILVER PESOS

	64	65	66	67	68	69	70
Pre 1862 unbacked pesos	10.5	11.6	13.7	11.7	11.2	11.7	11.5
Gold-backed pesos				3.5	5.3	5.9	7
Metallic unbacked notes			0.9	2.8	3.1	3.9	4.8
Total	10.5	11.6	14.6	18	19.6	21.5	23.3

Source: Based on Cortés Conde (1989), pp 42 and 95.

TABLE 3
BILLS IN CIRCULATION 1864–1870. IN MILLIONS OF CURRENT PESOS

	64	65	66	67	68	69	70
Pre 1862 unbacked pesos	305.1	296.3	296.6	291.7	280.6	292.4	288.3
Gold-backed pesos				87.8	132.5	146.9	175
Metallic unbacked notes			20.3	70	77.5	97.5	120
Total	305.1	296.3	316.9	449.5	490.6	536.8	583.3

Source: Based on Cortés Conde (1989), pp 43 and 95.

6. CONCLUSIONS

Argentina's unification was achieved in 1862. The first president, Bartolomé Mitre, held orthodox economic views, valuing price stability and balanced budgets as prerequisites for modernisation and growth. These ideas were also shared by many politicians and the authorities of the Province of Buenos Aires, which controlled the provincial bank which in practice had a monopoly in the issuance of paper currency for the entire country. Correspondingly, in 1864 the Provincial parliament voted a law that forbade the printing of paper money and established convertibility. However, the war with Paraguay, an unexpected event, forced a continuous increase in the money supply.

Given the increase in paper currency that occurred during the war, the question is why this did not undermine convertibility and lead to high inflation. A confluence of factors must be taken into account. First, the printing of non-backed bills was relatively limited. Part of the bills generated—the gold-backed bills—were exchanged for gold by individuals. Since gold was also used for business transactions, to a great extent this was a currency substitution and not an expansion of the monetary base. In the second place, there was an increase in the demand for money due

to the very high economic growth and also initial deflationary inertia due to the destruction of bills around 1864, just before the war started. The impact of these factors gradually waned. In the last 2 years of the war, inflation increased, indicating that the absorption of money increase had reached a limit.

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Appendix A

The Argentine economy around 1865

What was the dimension of the Argentine economy in 1865? Given the absence of GNP estimates we will propose a figure that we believe reasonable and compatible with other information: a total of 130 million silver pesos in 1865, with an income per capita of 82 pesos. The earliest calculation of GNP is given by Cortés Conde (1994) for 1875, a total of 260 million pesos. Since between 1865 and 1875 trade doubled, and supposing GNP moved accordingly, it would have been half that number. This amount implies half US income per capita at the time, which is consistent with Angus Maddison's estimates for the two countries (on the US see Lindert and Williamson 2011 and the Maddison Data Base). Also, these relative magnitudes are similar to the differences in nominal wages of farm workers. In the US the daily wage was about a dollar and in Argentina, it was 50 cents. A GNP of 130 million pesos would indicate an openness of the economy (exports plus imports over GNP) of 43% a magnitude similar to many other countries also very open to global trade at the time.¹³

¹³ The openness of the Argentine economy of around 40% was similar to the rate for Great Britain, Australia and Germany. See Table 11 in Baldwin and Martin (1999).