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Shortages of Small Change in Early Argentina *

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Abstract

In this note I review evidence suggesting that shortages of small change occurred in the territory of Argentina during the end of the eighteenth and the beginning of the nineteenth centuries. For the colonial period (until 1810) the main pieces of evidence are: (i) the widespread use of informal means of payment, (ii) the difficulties faced in retiring from circulation low quality subsidiary coins, and (iii) the numerous official resolutions banning the exporting of fractional money from the colonies. For the period from 1810 to 1825, the episodes surrounding the introduction of copper coins in 1821 and the issuing of low denomination circulating bank notes in 1823 appear as the main supporting evidence.

Journal of Economic Literature Classification Numbers: N10, N16, E40

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1. Introduction

In the literature on monetary history, it has now been well documented that a number of economies, during the early stages of their monetary development, experienced sporadic relative shortfalls of small denomination means of payment. These shortfalls created frictions in the consummation of everyday domestic transactions. Sometimes trade did not take place because the parties involved lacked the necessary small change needed to finalize the transaction. In other words, the relative supply of small denomination means of payment was insufficient to support a desired amount of commercial activity. This kind of episode has been called in the literature “a shortage of small change.” Pathological situations like these are often useful for improving our understanding of the fundamental principles behind the widespread use of money in modern societies. Hence it is important to collect and analyze as much evidence as possible on these issues.

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Sargent and Velde (2002) review in great detail the evidence on shortages of small change in the monetary history of Europe (see Rolnick and Weber, 2003, for a good summary). Hanson (1979) provides an interesting review of the evidence for the British colonies in North America. The purpose of this note is to present some evidence of similar events occurring in the early monetary history of Argentina. The material presented here is narrative in nature and is based on previous accounts by economic historians. In general, these studies were attempts to discuss the overall monetary history of Argentina. However, along the way, the historians came across specific episodes indicating the existence of acute shortages of small change in the Río de la Plata region at the turn of the eighteenth century. This note provides a description of those episodes.

The period covered here goes from colonial times to the second decade after the 1810 Revolution. The main two sources for the colonial period are the papers by Prebisch (1921) and Elía (1942a). Prebisch (1921) is a thorough review of the book by Piñero (1921). When possible, I will refer to Prebisch's article since it is of easier accessibility. Prebisch (1921) quotes Piñero heavily and also provides valuable extra information which in several cases is coming directly from what appear to be the actual sources used by Piñero (1921). Elía (1942a) provides a more complete history of the monetary situation during the colonial period, extending in several dimensions the work by Piñero and Prebisch. Finally, Bonura (1992) provides some interesting additional evidence related to the shortage of small change in the Colonies of the Río de la Plata.

For the period after the Revolution, Bonura (1992) provides an extensive review of Argentinean monetary affairs during the decade of the 1810s. Elía (1942a) and Prebisch (1921) are also useful sources for this period. Elía (1942b) describes in some detail the process that resulted in the creation of the Bank of Buenos Aires in 1922 and the misfortunes of its short life. Prebisch (1921) provides additional insights, especially about the economic thinking predominant at the time.

Before turning full attention to the specific evidence that is the subject of this note, a general comment seems pertinent. When reading the historical accounts, one needs to be especially careful to differentiate the specific scarcity of certain (low denomination) means of payment from the general scarcity of resources prevailing in the area. The confusion between these two different phenomena was not uncommon at the time (for example, official resolutions would sometimes associate the general scarcity of resources with the inability to issue coins).¹ The territory of Argentina was relatively poor at the end of the eighteenth and the beginning of the nineteenth centuries and it relied on imports from Europe for many essential needs. Furthermore, the recurrent military conflicts at the beginning of the 1800s only contributed to further reduce the availability of economic resources. The general lack of resources is not the main subject of this note. Instead, I will report evidence that indicates that the scarcity of *fractional* money was a

¹ Supple (1957, pp. 244-245) reports that this kind of confusion was also common in seventeenth century England. Sargent and Velde (2002, p. 125) discuss the alleged European "bullion famine" in the context of their model and conclude that talking about general shortages of coins is difficult to rationalize. Instead, they maintain that the monetary anomalies of the time were the consequences of shortages of small change.

problem in itself. This evidence involves issues related to the indivisibility of the available means of payment and the inconveniences that such indivisibility can cause when conducting everyday transactions that required fractional money (see Wallace and Zhou, 1997). These are important issues that have attracted renewed attention in the recent empirical and theoretical monetary literature (see Sargent and Velde, 2002, and Wallace, 2003). I believe that the evidence from Argentina presented here provides additional motivation for these studies.

The article is organized as follows. In the next section I report evidence from the colonial period (the period prior to the 1810 Revolution). The use of informal means of payment, the difficulties faced by the Spanish Crown when trying to retire from circulation low quality subsidiary coins, and some official resolutions banning the export of fractional money appear as the main evidence from that period. In Section 3 I review the period from 1810 to 1825. Three pieces of evidence are important for this period. First, right after the Revolution there was a return to the widespread use of informal means of payment in order to settle domestic ordinary transactions. Second, during the entire period there were extensive discussions on the issuing of token coins that eventually concluded with the introduction of *minor* (low denomination) copper coins in 1821. Third, in 1823 the Bank of Buenos Aires started issuing low denomination circulating bank notes even though they had been originally banned in the legislation that created the bank. In Section 4 I provide some final remarks and conclude.

2. Evidence from the Colonies of the Río de la Plata

Spanish settlers were in the area of the territory of Argentina since the mid-1500s. For the early period of the Colonies of the Río de la Plata, the available evidence indicates that there was no widespread monetary exchange occurring in the region and that instead barter was the predominant way of exchange (Prebisch, 1921, p. 193 and Elía, 1942a, p. 416). Since the beginning of colonization, Spain implemented a system of international trade restrictions in the colonies. The port of Buenos Aires could only trade with Spain and such trade was subject to heavy taxation. These restrictions significantly slowed down economic development for more than two hundred years. Only in 1776, the Viceroy Ceballos, the first representative of the King in the region, declared free trade from the port of Buenos Aires.² As a consequence, a significant increase in the level of trade took place in Buenos Aires and its area of influence.

During most of the colonial period Buenos Aires had a trade deficit with Spain. This deficit resulted in a constant outflow of gold and silver (in the form of coins, bars, and silverware). Coins came to Buenos Aires from the north, the Upper Peru (area occupied today by Bolivia and Peru), where there were important exploitation of silver mines, an official mint, and a large center of economic activity. Smuggling of European linen and relatively inexpensive Brazilian products was common in the port of Buenos Aires. Some of these products were taken to the Upper Peru where they were sold in exchange for gold and silver coins. The coins, especially gold and high-quality silver, were then taken

² Before 1776, the Colonies of the Río de la Plata were under the control of the representative of the King residing in the Peruvian area.

out to Europe via Buenos Aires.³ The permanent outflow of coins from the port of Buenos Aires created significant liquidity shortages for domestic exchange within the area of the Río de la Plata (Elía, 1942a, pp. 420-421). There are numerous episodes that are indicative of the shortages of gold and silver coins. For example, in October 1618 the King of Spain passed a resolution ordering that the colonies of the Río de la Plata be allowed to use products of the land (instead of gold and silver coins) for paying the “Indies taxes” (Elía, 1942a, p. 418).⁴



Silver pesos minted in Potosí between 1767 and 1770
Source: <http://www.historiadelpais.com.ar/>

The official monetary system in the colonies of the Río de la Plata resembled that in place in Spain at the time. Basically, there were gold and silver coins minted in Spain or in the area of Peru.⁵ The gold coins had a relatively high purchasing power that made them uncommon in domestic everyday transactions. They were mostly used for international trade. The silver coins were the main domestic mean of payment in the colonies. There were the “silver peso” (*peso plata*), also called “hard peso” (*peso fuerte*), the “silver real” (*real plata*) with a nominal value of one-eighth of the *peso plata*, and the “*cuartillo de real*” which was equivalent to one-fourth of a silver real. There were also coins of half, two, and four *reales* (Elía, 1942a, p. 432). Bonura (1992, p. 39) points out that the lowest denomination coins (the *cuartillo*) had a relatively high purchasing power and finds puzzling that no lower denomination coins were issued. To get an idea of the purchasing power of the peso, note that for example a rural slave would normally get an

³ In 1622, in an attempt to stop the outflow of precious metals from the Upper Peru, the Spanish Crown created the customs of Cordoba, an inland customs that was supposed to control all trade between the port of Buenos Aires and the northwest regions. But smuggling was very common.

⁴ Redish (1984) gives an alternative interpretation to similar evidence from the Canadian colonies. She argues that the common complaints about the *general* shortages of specie were due to a misperception originating from the fact that “good coins” tended to be driven out of circulation. In other words, the “shortage” was really only a shortage of *high quality* coins.

⁵ At the time, there were two main mints in the Spanish colonies of South America, one in the city of Lima and the other in the city of Potosí. Most of the coins circulating in the territories of the Río de la Plata were minted in Potosí (Elía, 1942a, 429). According to Bonura (1992, pp. 39-40) billon coins (the *vellón*, a coin made with a mixture of copper and silver, with silver in a lower proportion than copper) did not circulate much in the region. They were not minted there because of its high minting costs and because people were generally reluctant to accept them (see also, Cortés Conde and McCandless, 2001, p. 384). However, Prebisch (1921, pp. 196-197) quotes an early well-known source (Juan Augustín García) that seems to suggest that the *vellón* did circulate in the city of Buenos Aires during the colonial period (even against explicit orders from the Spanish Crown). The discrepancy between these two accounts could be the consequence of differences in terminology. It could be that García (and then Prebisch) use the term *vellón* to refer to all non-full-bodied silver coins (including the *macuquina*), and not just to refer to those with less than 50 percent silver content.

allowance of 1 real per week to buy “soap and tobacco.” Also, rough estimates indicate that in 1786 the annual cost in food for a rural worker was around 4 pesos and 4 reales, and the average annual wage was around 50 pesos (Amaral, 1987, p. 271-272). This annual wage implies a daily wage of around six units of the lowest denomination coin (the cuartillo).⁶ Hanson (1979, p. 283) reports that a similar situation took place in Pennsylvania and Massachusetts (British colonies) in 1742: The lowest denomination coin represented about three day’s wages for an unskilled laborer of that time.

SILVER COINS
Peso (8 reales)
Medio Peso (4 reales)
2 Reales
Real
Medio Real (1/2 real)
Cuartillo (1/4 real)

The lack of small denomination coins resulted in the appearance of unofficial means of payment that were used in everyday transactions (Bonura, 1992, p. 40). One of these instruments became very popular: the issuing of small metal (tin) discs with the initials of the issuer printed on them (Elía, 1942a, p. 428 and Prebisch, 1921, p. 199). These discs were called “*contraseñas*” (passwords). In everyday transactions, when one individual (a merchant) sold goods to another individual (a buyer), the buyer could make a payment in two possible ways. One way was to pay using *contraseñas* previously issued by the particular merchant involved in the transaction, in which case the transaction would terminate with the payment. The other way was for the buyer to pay in large denomination silver coins. In this case, when necessary, the change resulting from the transaction would be provided in *contraseñas* issued by the seller. Sometimes, even the *contraseñas* issued by a third party were used for change. In general, the third party was a well-known merchant in the area and the individuals in the transaction were holding his *contraseñas* as a result of previous transactions. The use of *contraseñas* did not, of course, solve all the problems. In fact, their extensive use resulted in widespread fraud and falsification. Later on, the *contraseñas* were gradually substituted with private IOUs issued directly on paper. These IOUs were inconvertible and also circulated widely in the region (Prebisch, 1921, p. 199). They are the precursor for the inconvertible paper money that was introduced more than a decade after the 1810 Revolution.⁷

⁶ Back of the envelope calculations tell us that if we take the current average annual wage for an unskilled worker to be 25,000 dollars (which amounts to 100 dollars a day) a cuartillo would be equivalent to about 16 dollars of today’s nominal values.

⁷ Butlin (1953, pp. 26-27) describes the privately issued *promissory notes* that circulated in Australia during the colonial period, and the rampant forgery that the system was subject to. In colonial Mexico it was popular to use for payments small wooden disks with the name of the issuer (a merchant) printed on them. These disks were called *tlacos* and they developed as a response to the recurrent shortages of small change that took place in the Mexican territory during the eighteenth century (Romano, 1998, p. 137). Hanson (1979, p. 285) convincingly argues that the origin of paper currency in the colonies in North America was the result of the persistent shortages of low-denomination coins. He provides evidence of the issuing of private circulating notes by merchants early in the process. Sargent and Velde (2002, p. 203) discuss evidence from 1577 France which documents the surge on the use of private IOU’s as a response to a

Another way people went around the problem of dealing with the lack of small change was by developing an even simpler credit arrangement. Basically, customers would build up a debit in the community store until it was possible to settle the payment using larger denomination coins which were more readily available (Schmit, 2003, p. 265). Clearly the use of this kind of arrangement was limited to cases where the two parties were certain to engage in a long run relationship.

There is also evidence indicating that there was insufficient provision of coins with the *existing* small denominations (medio real and cuartillos, for example). Certainly, the creation and popularity of contraseñas constitute suggestive evidence in this respect. But even more direct evidence is available. During the period 1770-1800 there were several attempts by the Crown to stop the outflow of fractional money from the colonies. In 1773, after receiving complaints from the colonists about the shortages of small change, the King of Spain banned the extraction of small denomination coins from the area.⁸ In 1789, as a response to the persistence of the problem, the order was reiterated and mint houses in the area were explicitly asked to increase the minting of cuartillos (Elía, 1942a, p. 425). At the time, there was also in circulation a type of coin of mediocre quality (hammered coins, with variations in their thickness, weight, and shape) called “*macuquina*” (cobs).⁹ The macuquina was heavily used in domestic transactions. Its irregular shape made it more susceptible to clipping, creating potential problems for its circulation. In general, however, for domestic transaction these coins were accepted at par value, even though their intrinsic content was quite uncertain (Elía, 1942a, p. 425). In 1784 the King banned the use of the macuquina, ordering that the coins be sent back to the mint for reminting.¹⁰ The order was not effective and in 1789 it was reissued, with a fixed period of two years for completing the process of reminting. After those two years the Viceroy Arredondo postponed the recovery period with no explicit time limit. It seems safe to infer that the need for domestic means of payment explains the reluctance in the colonies to remint these coins. During the same period, the Viceroy Arredondo proposed the creation of a “local” coin to substitute for the lack of cuartillos. The Viceroy explicitly cited the shortage of small change in the documents submitted to support his proposal. The Spanish Crown refused to approve the proposal and instead ordered the minting of more cuartillos (Elía, 1942a, pp. 425-426).

shortage of small change. Tin-made tokens with similar characteristics as the contraseñas circulated in England in 1576 (Sargent and Velde, 2002, p. 266).

⁸ Butlin (1953, pp. 81-82) reports that the government in Australia (a British colony) used similar legal instruments to avoid the export of coins in 1813. Sargent and Velde (2002) report legal restrictions on the export of coins in medieval England (p. 132) and in Venice on May 1268 (p. 163). See Wallace and Zhou (1997) for a rationalization of these kind of official restrictions.

⁹ There were three kinds of silver coins in circulation at the time: the “double silver” (*plata doble*), the coins “*de condorcillo*,” and the “*macuquina*.” The last two were fiduciary (not full-bodied) coins and were commonly called “single silver” (*plata sencilla*) (Bonura, 1992, p. 40). The coin “*de condorcillo*” had the edges marked to prevent clipping. The double silver was a high-quality, full-bodied silver coin that was scarce and usually remitted to Spain as payment for exported goods.

¹⁰ The Spanish Crown wanted to maintain its reputation as a producer of high quality coins. The macuquina from Potosí was being exported (through trade) to all over Europe and the King had started to receive numerous complaints from its users (about the coins’ uncertain weight and legal content).

The mint in Potosí was under the direct control of the government that held the monopoly for issuing coins. The government bought bullion from miners and issued coins at its discretion (Irigoin, 2003, p. 81). One potentially interesting piece of information would be to learn the proportion of cuartillos (and other low denomination silver coins) that the mint issued during the colonial years. Romano (1998, p. 133) reports that the original Crown ordinances creating the mints in Mexico and in Peru (including the Potosí mint) had explicit rules for the proportions of the different denomination of coins that should be issued. In particular, only a fourth of the coins minted were to be of denominations lower than the real. However, these original orders were not strictly followed and, hence, it would be useful to know what was effectively done. Obviously the imbalances in the provision of fractional money were associated not only with the supply of coins, but also with the demand (see Sargent and Velde, 2002). Still, knowing more about the supply could be very helpful.

There is clear evidence that in the City of Buenos Aires during the colonial times the hard peso circulated at a premium over fiduciary silver coins (i.e., the plata sencilla) (Prebisch, 1921, p. 195 and Bonura, 1992, p. 40-41). The premium was lower (and even zero) in the central and northern regions (the *interior*), creating a flow of plata sencilla from Buenos Aires to those regions.¹¹ In 1790 the authority in Buenos Aires asked the Crown to introduce legal restrictions with the goal of abolishing “the 3 % premium of the hard peso.” In 1798, after having no response from the Crown, the demand was reiterated. The main justification for the demand was the constant flow of fractional coins from Buenos Aires to the interior which, it was said, had “reduced the quantity of small-denomination coins ... creating difficulties in the change or reduction of the plata doble to the sencilla ... the specie so necessary for small daily purchases, a very indispensable activity” (Bonura, 1992, p. 41). With respect to the evolution of the referred premium, it appears that the premium was fairly constant over time. In fact, Bonura (1992, p. 49) reports that the premium was still around 3 % in 1812, when the authority in Buenos Aires engaged in another legal attempt to abolish it. Overall, not much evidence is available documenting the characteristics and the evolution of the premium on subsidiary coins. More research on this topic would be useful (see Sargent and Velde, 1999, for the importance of changes in the exchange rate among coins in understanding the dynamics associated with shortages of small change).

The cycle of shortages and debasements of small denomination coins described by Sargent and Velde (2002) that so accurately reflects the monetary events in medieval Europe does not seem to directly apply to colonial Argentina. There is no clear evidence of regular debasements of small coins happening as a response to the shortages. The missing piece from the story may be “free minting,” an essential element in Sargent and Velde’s theory.¹² In the Viceroyalty of the Río de la Plata, minting was monopolized by the Potosí Royal mint and coins of different denomination were minted only following specific instructions from the Spanish Crown.

¹¹ This kind of geographic dispersion in the exchange rate of coins was also observed across the French territory during the 1570’s, a period of monetary “chaos” (Sargent and Velde, 2002, p. 200).

¹² Free minting is the system by which private agents holding silver or gold are able to go to the mint and exchange their metal for coins of a denomination of their choice (see Sargent and Velde, 2002, p. 20)

3. Evidence from Early Argentina

In 1810 the *Cabildo* of Buenos Aires declared autonomy from the Spanish Crown. With the end of the Viceroyalty of the Río de la Plata, Buenos Aires lost from its area of influence the Upper Perú; and with the Upper Perú, the mint of Potosí and the silver mines.¹³ The confrontation with the Upper Perú (a region that had remained loyal to the Crown) and the necessary financing of military expenses (including significant imports that had to be paid in specie) created a sharp contraction in the amount of available means of payment in Buenos Aires (Prebisch, 1921, p. 198). The new government made several attempts at issuing coins during this period. In 1813, after temporarily recovering the city of Potosí, the first Argentinean coin was minted. A year later, however, the independence army lost Potosí to the royal forces and the minting stopped. In 1815 minting resumed in Potosí under the authority of Buenos Aires, but only for a short period of time. After losing Potosí again, some minting of silver pesos took place in the province of Córdoba during 1815, but in very limited amounts (Elía, 1942a, p. 433). Around that time, also illegal private minting of cob and other (very low quality) silver counterfeits was common in the northwest region of the country (Bonura, 1992, p. 73). In 1817 the Governor Güemes officially authorized the circulation (after being officially stamped) of “illegal” coins in the territory under his jurisdiction. He gave as a justification for this resolution the “evils associated with the lack of means of payment” (Elía, 1942a, p. 435). A year later, the federal authority banned the circulation of these “Güemes” coins, establishing a severe punishment to those that accepted and/or held them. Overall, no real progress was made in terms of providing the economy with appropriate means of payment during the first decade after the revolution.¹⁴

Generalized shortages of money are not the subject of this note. Instead, I seek to provide some evidence pointing towards the existence of an especially acute shortage of small change. Some episodes do suggest that small change was still in short supply in the territory of Argentina during the early period after the Revolution of 1810. In what follows, I review two situations that are indicative of the existence of the problem: (i) The provision of copper coins that was approved in 1821 after several years of discussions. (ii) The government’s authorization to the Bank of Buenos Aires for issuing small denomination paper notes in 1823 (even when it had been explicitly prohibited in the original legislation that created the Bank).

In June 1815 the authority in Buenos Aires started evaluating the introduction of “provisional money” in the form of copper coins (Bonura, 1992, p. 61). For this purpose, the government commissioned an Extraordinary Consulting Body of experts to study the issue. The authority’s motivation for the introduction of these coins was two-fold. First, they argued that the shortage of appropriate means of payment was a recurrent problem that needed to be fixed. In fact, by August 1815, the body of experts presented a final

¹³ For a good overview of the economic factors that led to the break up of the Viceroyalty into different countries, see Cortes Conde and McCandless (2001).

¹⁴ See Bonura (1992) for a complete survey of the monetary developments in the region of the Río de la Plata during the 1810s.

report where they unanimously agreed that the introduction of the copper coins was essential to solve the inconveniences associated with the persistent scarcity of small change (Bonura, 1992, p. 65). The second motivation was the possibility of obtaining some extra resources for a government that was in desperate need.¹⁵ This issue was the subject of important disagreement among the experts. There were extensive discussions about the estimated costs of minting the copper coins but no agreement was reached and the idea was postponed (Bonura, 1992, p. 65). Sporadically, during the next five years, the authorities in Buenos Aires revisited the possibility of issuing copper coins but never managed to implement the idea.¹⁶ Finally, in October 1821 a law was passed allowing the government to arrange the minting of one hundred thousand pesos in copper coins of *one tenth of a real* (Elía, 1942a, p. 437). These coins, the first copper coins of Argentina, were minted in Birmingham (England) and the first fifty thousand pesos were received and put in circulation in July 1823. Elía (1942a, p. 437) reports that the public immediately absorbed this first lot of coins and that the government then requested that the Birmingham mint deliver the rest of the coins as soon as possible. The small denomination of these copper coins and their generalized acceptance by the public are a clear indication of the unsatisfied demand for fractional money during the period.¹⁷



Copper coin minted in Boulton's mint (Birmingham)
<http://www.camoar.gov.ar/CecasProvinciales.htm>

In June 1822, the government in Buenos Aires gave to a group of local businessmen an exclusive twenty-year concession to create the first bank of the region. The bank was called Bank of Buenos Aires (also *Banco de Descuentos*) and was supposed to be fully

¹⁵ During 1817 the government was evaluating the possibility of opening a mint in the city of Cordoba. After concluding that the project would not be a source of revenue for the government, the idea was abandoned. The evidence seems to indicate that there was a problem of insufficient scale of production. Apparently, the set-up costs of operating a mint were very high and the quantity of metal available from the mines of Famatina, the planned source for basic input, was not enough to make the enterprise profitable (Bonura, 1992, p. 72).

¹⁶ The issue of minting copper coins was extensively discussed in 1818 when the new government was evaluating the possibility of establishing an official mint (Bonura, 1992, p. 75).

¹⁷ The circulation of token coins was never automatic in the early stages of monetary development. It often happened that the population, accustomed to full-bodied coinage, distrusted the validity of token copper coins as an acceptable mean of payment. See Butlin (1953, p. 37) for the case of Australia and Sargent and Velde (2002, p. 210) for the case of France in the 1590's, where political unrest was also a factor. Of course, counterfeiting was always a potential problem in the case of circulating token coins (Sargent and Velde, 2002, p. 217-218). The fact that these first copper coins were minted in England, using frontier technology for the time, probably reduced the risk of counterfeiting making the coins more likely to circulate (Sargent and Velde, 2002, p. 227).

funded with private capital. Part of the government's justification for allowing the creation of the Bank was the need to provide appropriate means of payment to the community (Irigoin, 2003, p. 65).¹⁸ The idea at the time was that it was necessary to develop the monetary and financial institutions to be able to support the substantial increase in commercial activities that took place with the trade liberalization and the Revolution. However, there is evidence that indicates that the implicit (and sometimes explicit) main reason for the creation of the Bank was to provide cheaper financing to a government that, while involved in significant civil war efforts, was quickly running out of resources (Prebisch, 1921, p. 201). The Bank issued convertible money notes well in excess of its reserves of gold and silver and in 1825 a confidence crisis broke out. Early in 1826 the Bank was closed and its money notes were declared inconvertible. The notes still circulated but only based on government fiat.

Some evidence related to the creation of the Bank of Buenos Aires is indicative of the persistent shortage of small change in the region. First, it is clear from the discussions at the time that private IOUs (*vales*) and *contraseñas* were still in circulation when the Bank was created in 1822 (Elía, 1942b, p.323, Prebisch, 1921, p. 199, and Irigoin 2003, p. 65).¹⁹ Second, while initially the Bank was only allowed to issue money notes of no lower denomination than 20 hard pesos, in mid-1823 the government finally authorized the Bank to start issuing low denomination bills. These bills came to replace some Treasury notes of similar denomination that the Minister of Finance had instituted only months before. The Bank issued bills of one, three, and five hard pesos, convertible to gold and silver coins upon presentation at the Bank's window (Elía, 1942b, p.326). Probably the government realized that the need for fractional money was a potential source of seigniorage and turned to it under the increasing fiscal pressure caused by the civil war.

The introduction into circulation of copper coins and the creation of the first bank in the area were both decisions that the authorities in Buenos Aires made under a strong influence of reports from experiences abroad. For example, the general perception in Buenos Aires was that copper coins were being used with great success in Portugal (Bonura, 1992, p. 77). With respect to banking, reports of the benefits associated with the operation of the Bank of England were one of the main motivations for the creation of the Bank of Buenos Aires in 1822 (Prebisch, 1921, p. 199-200). In general, the progress on monetary matters taking place abroad and the improvements in international communications allowed the Argentine authorities to access an important body of knowledge without incurring the cost of experimentation. In terms of the insufficiency of means of payment, after 1926 the problem started disappearing and was replaced by excessive printing of inconvertible paper money, which then resulted in decades of mounting inflation.²⁰

¹⁸ Redish (1984) reports that a similar justification was used at the time of the creation of the first Canadian banks at the beginning of the nineteenth century.

¹⁹ The use of *vales* and *contraseñas* in domestic transactions can be taken as evidence of the need for fractional money to the extent that people were willing to accept these imperfect means of payment which were clearly associated with significant risk of counterfeiting (Prebisch, 1921, p. 199).

²⁰ After 1825, the authorities in both Bolivia and Buenos Aires started a period of sustained monetary expansion and inflation (Irigoin, 2003, p. 60). In Bolivia, the minting and systematic debasement of silver

4. Final Remarks

In this note I have reviewed some evidence indicative of the occurrence of shortages of small change in the Río de la Plata economy during the colonial period and the first two decades after Independence. Evidence of this sort is already available for several other regions around the world. It is interesting to verify that similar monetary phenomena took place in Argentina during the early stages of its political and economic development. Documenting the shortages of small change is not a simple matter. Hard data is difficult to come across and the anecdotal evidence can sometimes be misleading. Here I have tried to report a number of specific facts that directly or indirectly suggest that the big problem of small change did indeed arise in early Argentina. The general strategy in the paper has been to describe the evidence without attempting to provide any theoretical explanation of its origin. Recently, several competing equilibrium models have been developed where the shortfalls of small change can be studied (see for example Wallace and Zhou, 1997, Sargent and Velde, 1999, 2002, and Wallace, 2003). Hopefully some of the evidence discussed in this note can help in deciding what modeling strategy future research should follow.

References

- Amaral, Samuel (1987). Rural Production and Labour in Late Colonial Buenos Aires. *Journal of Latin American Studies* 19 (2), pp. 235-278.
- Bonura, Elena (1992). Aproximaciones al Estudio del Problema Monetario de las Provincias del Río de la Plata, 1810-1820. *Historiografía Rioplatense* 4, Buenos Aires, Instituto Bibliográfico Antonio Zinny, pp. 39-84.
- Bordo, Michael D. and Carlos A. Végh (2002). What if Alexander Hamilton had been Argentinean? A Comparison of the Early Monetary Experiences of Argentina and the United States. *Journal of Monetary Economics* 49, pp. 459-494.
- Butlin, Sydney James (1953). *Foundations of the Australian Monetary System 1788-1851*. Melbourne University Press, Victoria.

coins (*moneda feble*) was the main fiscal instrument of the new government. These coins circulated also in the northwest of Argentina. In Buenos Aires, the government printed large amounts of inconvertible paper money to finance increasing fiscal deficits. For detailed discussions of the monetary history of Argentina during this period see Irigoien (2003), Bordo and Végh (2002) and Irigoien (2000). In general, the paper money from Buenos Aires did not circulate in the provinces. In the interior of the country, several provincial governments attempted to issue their own paper money but faced substantial problems in inducing its circulation. In 1826 the province of Corrientes issued three thousand hard pesos in low denomination notes but the experiment was a complete failure (Irigoien, 2003, p. 67). Sometimes the government introduced extreme legislation to try to encourage the circulation of the money notes. For example, in 1840 the provincial authority in Tucumán instituted the death penalty for those not accepting in exchange the paper money printed by the Northern League, a coalition of northwestern provinces (Halperín Donghi, 1979, p. 91).

Cortés Conde, Roberto and George McCandless (2001). Argentina: From Colony to Nation. Fiscal and Monetary Experience of the Eighteen and Nineteenth Centuries. In *Transferring Wealth and Power from the Old to the New World*, Michael D. Bordo and R. Cortés Conde (Eds.), Cambridge University Press, pp. 378-413.

Elía, Oscar Horacio (1942a). Evolución de la Moneda en la República Argentina: Desde sus Orígenes hasta 1822. *Revista de Ciencias Económicas*, Universidad de Buenos Aires (April), pp. 415-437.

Elía, Oscar Horacio (1942b). Nuestro Primer Banco. *Revista de Ciencias Económicas*, Universidad de Buenos Aires (May), pp. 323-330.

Halperín Donghi, Tulio (1972). *Revolución y Guerra. Formación de una Elite Dirigente en la Argentina Criolla*. Siglo Veintiuno Editores, Buenos Aires.

Hanson, John R. II, (1979). Money in the Colonial American Economy: An Extension. *Economic Inquiry* 17 (April), pp. 281-286.

Irigoin, María Alejandra (2000). Inconvertible Paper Money, Inflation, and Economic Performance in Early Nineteenth Century Argentina. *Journal of Latin American Studies* 32, pp. 333-359.

Irigoin, María Alejandra (2003). La Fabricación de Moneda en Buenos Aires y Potosí y la Transformación de la Economía Colonial en el Río de la Plata (1820 y 1860). In *La Desintegración de la Economía Colonial*, María A. Irigoin and Roberto Schmit (Eds.), Editorial Biblos, Buenos Aires, pp. 57-91.

Kareken, John, and Neil Wallace (1981). On the Indeterminacy of Equilibrium Exchange Rates. *Quarterly Journal of Economics* (May), pp. 207-222.

Piñero, Norberto (1921). *La moneda, el crédito y los bancos en la Argentina*. Buenos Aires.

Prebisch, Raúl (1921). Anotaciones Sobre Nuestro Medio Circulante. *Revista de Ciencias Económicas*, Universidad de Buenos Aires (Octubre), pp.190-205.

Redish, Angela (1984). Why Was Specie Scarce in Colonial Economies? An Analysis of the Canadian Currency, 1796-1830. *Journal of Economic History* 44 (3), pp. 713-728.

Rolnick, Arthur J. and Warren E. Weber (2003). Book Review. *Journal of Political Economy* 111 (2), pp. 459-463.

Romano, Ruggiero (1998). *Moneda, Seudomonedas y Circulación Monetaria en las Economías de México*. Fondo de Cultura Económica, Mexico.

Sargent, Thomas J. and François Velde (1999). The Big Problem of Small Change. *Journal of Money, Credit and Banking* 31 (May), pp. 137-161.

Sargent, Thomas J. and François Velde (2002). *The Big Problem of Small Change*, Princeton University Press, Princeton, N.J.

Schmit, Roberto (2003). Enlaces Conflictivos: Comercio, Fiscalidad y Medios de Pago en Entre Ríos durante la Primera Mitad del Siglo XIX. In *La Desintegración de la Economía Colonial*, María A. Irigoien and Roberto Schmit (Eds.), Editorial Biblos, Buenos Aires, pp. 251-276.

Supple, Barry E. (1957). Currency and Commerce in the Early Seventeenth Century. *Economic History Review, New Series* 10 (2), pp. 239-255.

Wallace, Neil (2003). Modeling Small Change: A Review Article, forthcoming, *Journal of Monetary Economics*.

Wallace, Neil and Ruilin Zhou (1997). A Model of a Currency Shortage. *Journal of Monetary Economics* 40, p. 555-572.