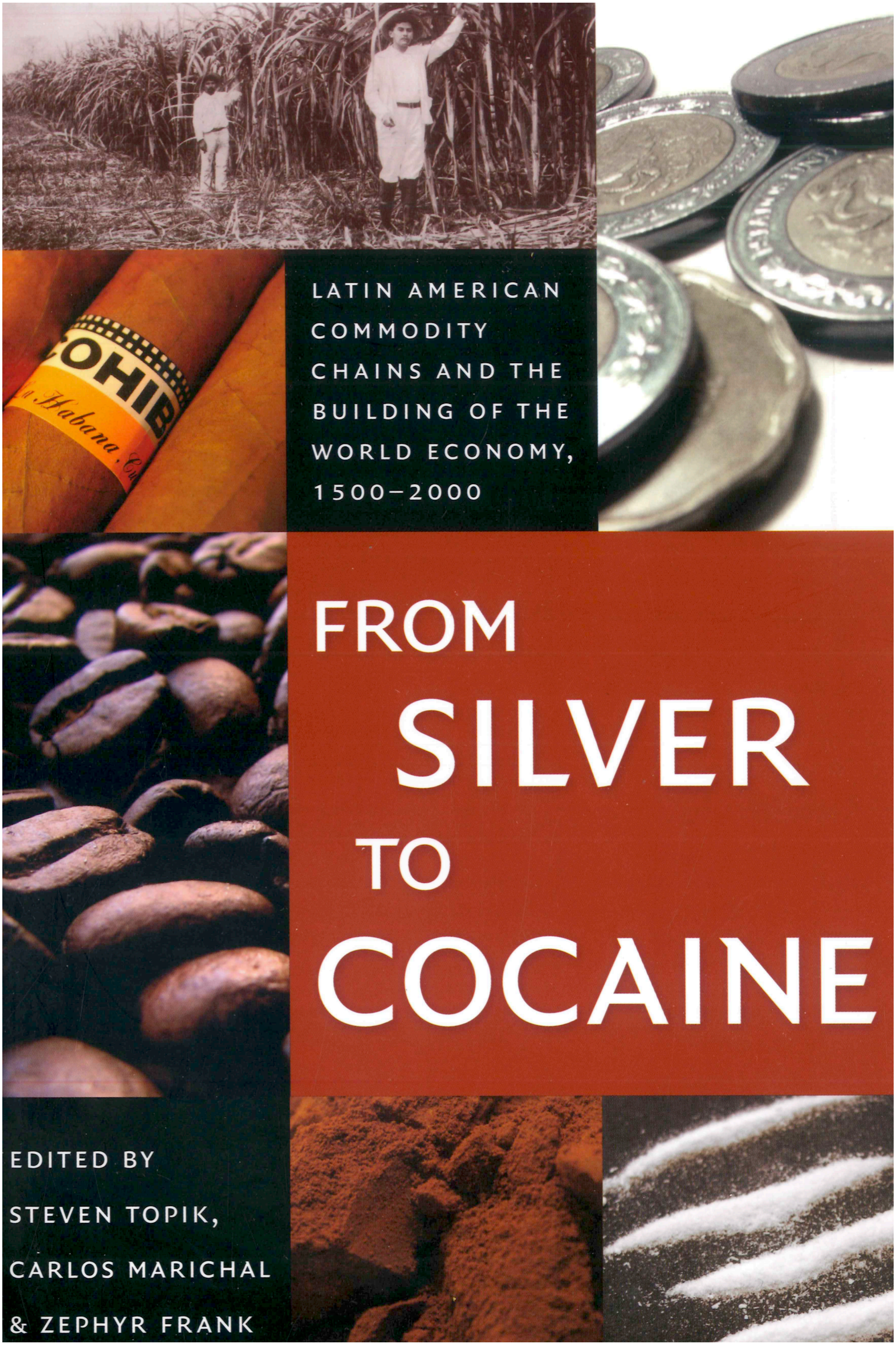
LATIN AMERICAN COMMODITY CHAINS AND THE BUILDING OF THE WORLD ECONOMY, 1500–2000
FROM SILVER TO COCAINE
EDITED BY
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The Spanish American Silver Peso: Export Commodity and Global Money of the Ancien Regime (16th-18th centuries)

Carlos Marichal

The legacy of the monetary regime of the Spanish empire is not only an important chapter in world economic history but also key to an understanding of premodern monetary systems. The international diffusion of the Spanish American silver peso between the sixteenth and eighteenth centuries transformed it into what could be termed as an almost universal, metallic money. The reasons for the global trade and circulation of this commodity money can be explained by the dynamics of supply and demand. On the supply side, the silver mines of Spanish America were the richest in the world and allowed for a voluminous and rising production of high-value bars and coins for several centuries. On the demand side, it is clear that silver (and gold) were long the most highly valued money commodities in ancien regime societies and economies since metallic currencies tended to be dominant as medium of exchange in a large range of transactions. In this regard, analysis of the extraordinary historical and geographical trajectories of the silver peso in the Americas, Europe, the Mideast and Asia between the sixteenth and early nineteenth centuries can elucidate important aspects of premodern processes of *globalization*.

Indeed, historians have clearly linked silver to the origins of a world trading system from the sixteenth century. [1] As two researchers have recently argued: "Global trade emerged (in the late 16th century) when all important populated continents began to exchange products continuously- both with each other directly and indirectly via other continents- and in values sufficient to generate crucial impacts on all the trading partners... The singular product most responsible for the birth of world trade was silver."[2]

Certainly this hypothesis may appear debatable since, in fact, there were already products such as silks, salt, spices and gold which had already been traded for centuries across Europe, the Mideast and Asia. But there is no doubt that it was not until the New World exports of silver and gold began generating large transatlantic and transpacific trade flows that the full circle of global commerce was joined, making *world* trade a reality. Given the key role of precious metals as both commodity and money, it is not altogether surprising that they should have played such an important role, initially, and should have continued to do so for centuries.

Silver and gold coins have always competed with other monies but were the most esteemed in practically all ancien regime societies because they fulfilled the three, traditional functions of money most effectively. Their durability and high-unit value allowed them to serve as an excellent medium of exchange. In addition, their universal acceptance made them the measure of most units of account, since most metallic monies came to be measured by relative weight of silver or gold. Finally, as a store of value, silver and gold were highly prized, and therefore had universal demand. It is well-known that there were a large variety of monies circulating in the world in the period under consideration (1500-1800) including metallic currencies minted by states, commodity money in the shape of products (cotton, tobacco, cowry shells, cacao, etc.) and bills of exchange created by merchant bankers. The varied nature of monies meant that a premium was generally placed by many clients on a money with an intrinsically high metallic value and a relatively stable value. In many states silver and copper coins were systematically debased and, hence, soon lost their attraction for international trade. In a few cases such as China, where there had been a large circulation of official paper money, the paper currency could not be used outside the frontiers of the Chinese empire. In other cases- in Europe, the Mideast, Africa and Asia- private monies issued by merchants (whether bills or promissory notes or tokens) were extremely useful to square accounts on trade yet had a limited or specific circulation outside of certain markets.[3]

A premium, hence, tended to be placed on metallic currencies which were not debased. Indeed, perhaps the key reason for the international success of the Spanish American silver peso was the fact that rising volume of production from the sixteenth century onwards was accompanied by maintenance of high quality, as assayers everywhere attested. Contemporary research testifies to this. Marie Thèrése Boyer-Xambeu and Ghislain Deleplace concur, noting that :"Spainish coins exercised their role as international monetary standard (reference point) all the better insofar as their quality and official exchange rates remained virtually fixed. This fixed value was absolute for the silver *real* from 1497 onwards and during three centuries…"[4]

High quality (almost pure) silver and gold coins had extraordinary demand among several groups, in particular: (1) merchants involved in long distance trade; (2) international merchant bankers who sought profits in arbitrage as a result of differentials in silver/gold ratios; **(3)..** states which needed precious metals for their own coinage and for payment of armies; **(4)..** producers of commodities with high international demand. From the early sixteenth to the early nineteenth century, the Spanish Crown controlled the territories with the richest mineral resources in precious metals, although it should be recalled that Spain did not have a monopoly on silver. For example, silver mines in Central

Europe were highly productive in the late fifteenth and early sixteenth centuries. Similarly in Asia, Japan provided China and India with a large supply of silver during the century, 1540-1640. Nonetheless, Spanish America produced more silver, on a more regular basis and for a longer time period than any other region of the world.

The present essay begins by looking at key factors in silver production in Spanish America during the colonial period, including location of mineral resources, capital, labor and technology. A second section focuses on the *production of money* in the Spanish American mints. The third part of the essay deals with the international trade in silver during the colonial era, demonstrating that the demand for the silver peso as commodity money was a worldwide phenomenon: the export of silver pesos from Spanish America to Spain and Western Europe was only one stage in a complex trajectory of the circulation of this universal money of the ancien regime. Much silver coin and bars also went to the Baltics, to Russia, the Ottoman Empire and to India and China, the latter two states absorbing the largest volumes of silver. The precious metals also traveled for centuries across the Pacific Ocean via the Manila galleon to the Philippines and hence to China. Finally, it should be recalled that there was also a widespread use of silver coin within the Americas, both in Spanish America and in the thirteen Anglo-American colonies. In fact, the United States dollar can be considered a descendant of the long-famous and once-dominant Spanish American silver peso.

Silver mining: labor, capital and technology

We have suggested that from the 16th century to the end of the 18th century, Spanish America provided the bulk of silver essential to the functioning of metallic monetary systems around the globe. According to the frequently cited estimates of the German scientist, Alexander von Humboldt (published in 1811), total registered and unregistered silver production in the hemisphere between 1492 and 1803 probably surpassed four <u>billion</u> pesos.[5] More recent estimates coincide: Flynn and Giráldez argue "Spanish America was the source of approximately 150,000 tons of silver between 1500 and 1800, comprising perhaps 80% of world production." [6]

Spanish America and Brazil also produced a considerable volume of gold but much less than silver and much less as a percentage of world production. During the sixteenth and seventeenth centuries the gold production of the western hemisphere represented only between 10% to 20% of world totals. On the other hand, during the eighteenth century, the situation changed dramatically. For over fifty years (1720-1770), Brazil became the world's largest producer and exporter of gold, providing close to 60% of global totals. [7] In itself, this Brazilian gold boom constitutes an important chapter in world monetary history as it has been linked to the early adoption of the gold standard by Portugal and by Great Britain in the eighteenth century. However, the emphasis of the present chapter is not on gold, but on silver.

What explains the fact that Spanish America became rapidly the world's main supplier of silver? A first explanation is simple enough: factor endowments. Several of the mountainous regions of Mexico and Peru, in particular, were among the richest in the world in minerals with high silver content. Moreover, the exploitation of these resources was not limited by significant constraints. The technology for extraction was relatively simple: the building of mine tunnels was accompanied by pick and shovel work, assisted by powder explosions to blow apart large rocks. The refining of the minerals was carried out using traditional smelting methods but increasingly with mercury amalgamation, as developed in the mid-sixteenth century in Mexico and subsequently applied in Peru.

Capital for investment in the mines was made available consistently by merchants and entrepreneurs willing to risk money in what promised to be extremely lucrative business. Peter Bakewell, David Brading, Frédérique Langue and Louisa Hoberman, among others, have published extremely detailed and stimulating historical studies on the mechant and mining elites that were active in dynamic, mining regions such as Potosi, Zacatecas and Guanajuato.[8] The rapidity with which the mining centers stimulated the development of regional economies and trade from the mid 16th century was notable, as first demonstrated in a set of classic studies by Carlos Sempat Assadourian, which have given birth to a an abundant historical literature.[9] Provisioning of the mines with mules, food, salt, powder, mercury and other products soon transformed the economic landscape of highland regions of the viceroyalties of Peru and Mexico that profited from silver, literally, for centuries.

There were few, labor constraints to the development of the mines. In the first place, it should be emphasized that the workforces required for the functioning of the silver mines was relatively small: the greatest silver mine of all time, that of Potosi in upper Peru (today's Bolivia), produced large quantities of precious metals in the late 16th century with a total of some 13,000 forced laborers. Subsequently, salaried laborers also were hired to carry out the exhausting work in the mines situated at over 12,000 feet above sea level. According to the careful research of Enrique Tandeter, approximately half of the laborers in eighteenth century Potosi were free workers who received salaries, but half remained forced laborers, recruited by the Spanish officials using the colonial system of the *mita*, which obliged many Peruvian Indian peasant communities to provide men for diverse tasks for which they received virtually no pay. [10]

In Mexico, on the other hand, practically all mineworkers were salaried from the mid-sixteenth century onwards. Nonetheless, in the eighteenth century, the total number of mineworkers in the most important silver producer, the viceroyalty of New Spain (Mexico) did not surpass 50,000 men, about 1% of the total population of this large territory. In 1790 the greatest silver mine of the viceroyalty, La Valenciana of Guanajuato, employed approximately 3,000 workers to produce more than two million pesos of silver per year.

In summary, in terms of resources, capital, technology, labor and economic linkages the silver mining industry in Spanish America was a complex and quite sophisticated operation from the start. Moreover, in terms of profit/capital ratios, it was perhaps the world's most lucrative, productive activity for decades, if not centuries. According to Flynn, the costs of production did tend to increase relative to real value of silver production between 1540 and 1640, after which there was a three-decade decline in the industry. However, after 1670 many silver mining regions once again recovered and spurred production to new heights. By the end of the eighteenth century, Mexican mines, in particular were producing silver to the tune of some 20 million pesos per year, a higher average than at any time in the colonial era. And this was at a time when the prices of silver (relative to the prices of other goods) were rising systematically, making it ever more profitable to exploit this mineral wealth. [11]

[Figure 1 Here]

The production of money: mints, taxes and profits

One of the most striking features of the Spanish imperial monetary regime was the extraordinary stability of the standards and units of account of the metallic monetary system over a period of three centuries. Indeed, it was the high quality of the silver coins of the Spanish empire which generated an international demand for them that remained intense and constant. The monetary system of the Spanish monarchy was established by the monetary reform of 1497, which conserved the gold ducat as unit of account. But since gold had little circulation, the same reform conserved the silver *real* as standard money, valued at 34 maravedises, and maintaining this ratio for over three centuries. This impressive continuity helps to explain the wide acceptance of the silver peso. [12]

Marc Flandreau has commented a possible explanation for the success of the silver peso as a kind of universal money in the early modern period, suggesting that its quality and stability in value could have made it, in effect, almost a perfect money commodity of the age. [13] The best coins in the ancien regime (such as the florin, ducat or silver peso) were in much demand because of quality (fineness), standardized weight and general confidence of merchants. These characteristics were highly prized in a world where monetary circulation was basically metallic or in which letters of exchange were normally liquidated either by other bills or by metallic currency in silver or gold.

In the event, the most extensive state in Europe and the world, the Spanish Habsburg Empire, soon adopted the silver peso as standard currency. As the historian Cespedes del Castillo has noted, by the mid-sixteenth century it is possible to note a tendency towards the consolidation of the peso de plata, with a value of 272 maravedis, equal to eight silver reales of the peninsula.[14] In Spanish America, as Cortes Conde observed: "The most common silver coins were the *real* and its multiples: the *real* of two (later the peseta) *real* of four (half peso) and *real* of eight (the peso, an ounce of silver). Fluctuating over time, between 16 and 17 silver pesos were equivalent to one gold peso (one ounce of gold)."[15]

One of the reasons for preserving high quality of coins minted was the desire of the Spanish Crown to systematically collect taxes on silver and gold production, avoiding evasion and debasement. Mints had to be places where miners and merchant bankers could take precious metals with confidence but also in major cities where there was not likely to be excess contraband. As a result, only a few mints were established in Spanish America: Mexico (1535), Santo Domingo (1536), Lima (1565), Potosi (1572), Bogotá (1620), Guatemala (1731), and Santiago de Chile (1743).

[Map of Mints Here]

The norms of mintage varied over the centuries, with rather coarse techniques being used in the sixteenth century, which stimulated much clipping of coins. Hence, silver pieces of eight were frequently cut literally into eight triangular pieces or, alternatively, into four pieces of two reales ("two bits" in the eighteenth century). It is extremely difficult to know exactly how much silver was exported from Spanish America in the form of coin and how much in bar or other forms, but over time, the volume of coin increased noticeably. Still in 1708, a French merchant captain noted after a visit to Mexico that he calculated that only half of the silver that went into the Mexico City mint was finally minted as many traders preferred bar.[16] Such a fact reflected clearly the interchangeability of silver as money and commodity.

Subsequently, however, coinage clearly came to dominate. The new machinery put into the Mexico City mint in 1733 permitted the stamping of almost perfect coins at the same time as assay reached a point of near perfection. The Spanish crown preferred the new system as it allowed for greater fiscal control. Mintage of coins increased from an annual average of four million pesos in 1691-1700 to over 9 million coin in the 1730´s. And by the end of the century, the Mexico mint was producing twenty million silver pesos a year as indicated in the Table below.[17]

The new monetary and minting policies of the Bourbon monarchy allowed for much closer state regulation and control but the technical improvements also reinforced the vast, international demand for Mexican silver pesos. The importance of this particular mint for world economic history was registered by Humboldt on his visit there in 1803: "It is impossible to visit this building...without recalling that from it have come *more than two billion pesos* over the course of less than 300 years... and without reflecting on the powerful influence that these treasures have had on the destiny of the peoples of Europe."[18]

Control of mints was also important to maintain the traditional revenue source of the colonial administrations made up by a collection of mining taxes, the most important being the *diezmo minero*, a 10% duty levied on all silver produced. This tax was charged at the royal mints where all silver from the viceroyalty was brought to be coined. While the direct tax on mine production was the single most important item among the varied list of exactions which fell upon Mexican and Peruvian silver, a close runner-up was income derived from seignorage, as the data on minting revenues indicates *(amonedación de oro y plata*). An additional income was derived from the sale of the products of the state-owned mercury monopoly, an essential ingredient for colonial silver refining processes, but the bulk of the income thus generated was used to buy more mercury and shipped off to Spain. The net revenues obtained in Bourbon Mexico from mining taxes- directly and indirectly- was close to 4 million pesos in the 1790s, approximately 26% of total *net income* of the vice regal government.[19]

Given such mining riches, it might be presumed that the colonies would have enjoyed a widespread circulation of silver and gold currency, and that this would have served to buttress a dynamic credit system with a presumably beneficial impact upon all social and economic sectors. In fact, however, the actual circulation of metallic currency within both Spanish America and Brazil was fairly limited, a fact so paradoxical that it has provoked considerable debate among historians, hard put to explain the scarcity of cash in circulation within what were eminently silver and gold-producing economies. Different arguments have been advanced to explain this situation but the most important factors are clearly the following: (1) the extraction of large volumes of silver by the Spanish Crown which used it to pay for the administration of the imperial monarchy in the Americas, in Europe and the Philippines; (2) the use of silver by merchants to pay for the bulk of imports to Spanish America from the sixteenth to the early nineteenth century; (3) the international demand for the silver pesos both as currency and as commodity; (4) the demand generated by merchant bankers engaged in international arbitrage on silver.

The international diffusion of the silver peso was therefore impelled by a series of strong and dynamic forces. Its circulation was in fact worldwide, but for reasons of clarity we will offer a summary by the major geographic regions.

Rivers of silver: the export of silver pesos and bar to Europe (16th-18th centuries)

For over a half a century historians have been debating the subject of the volume and cycles of the flows of silver and gold that crossed the Atlantic from the sixteenth to the eighteenth centuries. The modern discussion began with the classic study by Earl Hamilton, *American Treasure and the Price Revolution in Spain, 1501-1650*, published in 1934. Since then, dozens of essays and books have been in favor or against of his central thesis which was that the price revolution of the sixteenth century in Europe was largely caused by the influx of silver from the Americas. Despite the enormous influence of this work, later studies have come to question the majority of the propositions of Hamilton, and his study has been dismantled bit by bit.[20] With regard to the estimates of silver flows from the Americas to Europe, the new studies demonstrate that while Hamilton´s figure were on the mark for the period 1550-1630, he underestimated trends for later decades. Current research suggests that after 1630 shipments declined only during three decades and then resurged with force from 1670 onwards. Hence the theory of the long seventeenth century depression was not applicable to Spanish America.

The important study of Michel Morineau, Incroyables gazettes et fabuleux métaux, reconstructed the flows of silver not only to Seville but also to other European ports and demonstrated that the trends of silver exports (coin and bar) went systematically upwards from 1670 down to 1810. Of all monies, silver pesos became the most widely circulating currency in the world. In his great study of the transatlantic circulation of American silver, Morineau pointed out that already from the late sixteenth century, the silver peso had found a fundamental niche in the monetary vocabulary in most European nations: among the most common terms used in different languages to describe the silver peso were *pieces of eight*, *stuken van achten*, *pieces de huit réaux*, *pesos fuertes*, *piastres fortes*, *piastres* and *patacones*. [21]

In the case of Antwerp, under Spanish control and possibly the most important port and financial center of northern Europe in the mid-sixteenth century, the arrival of constantly increasing flows of American gold and particularly of silver contributed to financial modernization. Economic historians like Spooner, Van der Wee and Cipolla have emphasized the importance of the remittances in the takeoff of the stock market of Antwerp (1531), one of the earliest and most dynamic of northern Europe, where the precious metals served as basic support to the first international market of securities, a large part of the instruments negotiated being the famous “juros”, debt instruments of the Spanish monarchy, whose issue grew exponentially in the sixteenth century. Already as early as 1553, Thomas Gresham, financial expert and British envoy to Flanders, reported that in

Antwerp the gold market was quite small because practically all mercantile transactions were carried out in Spanish silver *reales*. [22]

In the second half of the sixteenth century and first decades of the seventeenth century, the shipments of silver were also fundamental to financing of the administration of the Habsburg empire in Flanders and Germany, most particularly for the financing armies and wars. Without these flows it is impossible to conceive of alternative means of financing the military forces and imperial projects of Charles V, Phillip II and Phillip III, at a time when the Spanish monarchy became the leading power in Europe. The silver peso became the coin of armies on the march through north/central Europe for decades, contributing notably to the circulation of this currency of Spanish American origin in the Old World.[23]

The Spanish state hence contributed forcefully to the transformation of the silver peso into a universal currency. The fiscal transfers were highly cyclical during the sixteenth and seventeenth centuries. For instance, during the Thirty Years Wars in Europe (1618-1648), the Spanish Crown obliged the American colonies to provide extraordinary sums, part in taxes and part in a combination of forced loans and interest-paying loans. The transfer in these decades of Peruvian silver to Spain (and hence to Spanish armies in Italy, Germany and Flanders) was truly astonishing.[24] But this trend continued in later periods as well. From the late seventeenth century, the Madrid officials required the Spanish American viceroyalties to ship fiscal surplus both to the metropolis and elsewhere in the empire to sustain civil and, above all, military administrations. The money thus served to buttress the Spanish government in the Iberian Peninsula and in southern Italy, but also throughout the Americas (in the greater Caribbean) and also in the Philippines.

During the eighteenth century, metropolitan exactions increased, reaching their peak at the end of the eighteenth century as the Spanish Crown became involved in successive international wars against its great rivals, Great Britain (1763-1767, 1779-1783, 1796-1803), and France (1793-1795, 1808-1814). As a result, the demands of the Madrid treasury augmented, and colonial administrators were instructed to remit as much fiscal surplus as possible. A recent study has demonstrated that Bourbon Mexico alone was obliged to send 250 million silver pesos of net, fiscal surplus abroad between 1760 and 1810. [25]

Of even greater importance than the shipments of silver from Spanish America to Europe and elsewhere on royal account were private remittances and payments which were basically tied to international mercantile transactions. Most imports to Spanish America were paid with silver and gold which, in turn, became the chief exports of the colonies for three centuries. The merchandise sent to the Americas on the great convoys known as "Flotas" which left annually from Seville and later from Cadiz (from the mid-sixteenth century onwards) included mostly textiles from Italy, France, Flanders and England, but also many other goods both from Spain and other European countries. The legal trade was complemented by a flourishing transatlantic contraband business which surged in the second half of the seventeenth century. According to historians Malamud, Moutukias and Morineau, the French took over the bulk of the illegal trade in that period and drained off huge sums of American silver, which never passed through the Iberian peninsula. One estimate is that in the 1680s France provided some 40% of the products destined for Spanish America, being followed in importance by Genoa, England, the Low Countries and Hamburg.[26] The Dutch and British also participated actively in many of these transactions through their entrepots in the Caribbean

During the eighteenth century, the Spanish convoys returned to Europe from the colonies laden with the following products in order of importance: silver, gold, tobacco, cochineal, indigo and other dyes, cocoa, hides and a variety of additional primary commodities of less volume and value such as quinine and vanilla. The precious metals arrived in the form of coin but also in bars. It is extremely difficult to ascertain the exact distribution of the silver throughout Europe but there are numerous documents which provide estimates. Among these, we can cite the report of a French merchant in Cadiz in the year 1686 who indicated that of the total of precious metals that had arrived directly to Spain, the French merchants had taken out 4.6 million pesos, the Genoese 4 million, the Dutch 3.3 million, the English 2 million, the Flemish 2 million and merchants from Hamburg 1.3 million silver pesos. [27]

Another important question is what happened to the silver once it entered into the currency circulation of the various European countries. Recent estimates sustain that approximately one third went to the respective mints of France, England and Holland where they were resmelted, although in some cases they were simply stamped over.[28] But another important portion of the silver did not go to the mints but rather was used for international trade with the Baltic, Russia, the Mideast, India and China.

Among the first scientific writers to attempt an overall estimate of precious metal exports from the Americas to Europe was Alexander Humboldt in the early nineteenth century, after his five year journey through the Americas (1798-1803), whose works we have already cited. His calculations are still considered valuable indicators by modern historians like John TePaske who have specialized in the subject of the production and circulation of silver and gold in early modern period. Moreover, the figures advanced by

Humboldt provide evidence of the importance that he and his contemporaries attributed to these international flows of precious metals.

Humboldt, however, did not limit himself to global estimates or to the long-term flows of American silver and gold exported to Europe, for he also calculated the subsequent redistribution of the precious metals in other world regions. According to the German scientist, the total value of silver and gold coins which arrived to Europe from America in the late eighteenth century was close to 43 million pesos per year, of which four million were redirected to trade with Russia, four million to trade in the Mideast, and 17.5 million to India and China by sea, mainly way of the Cape of Good Hope. Summing up, Humboldt estimated that perhaps 18 million silver pesos were used for currency circulation within Europe (a large portion being smelted and/or restamped), but the rest of the silver was reexported.

In recent years, researchers have been reevaluating the old estimates. Among the most-cited and provocative are those of the Swedish historian, Artur Attman, who has argued that silver flows reflected the size of trade balances between world regions. Europe received an abundance of precious metals and was therefore in a position to cover its trade deficits with other regions by exporting silver and gold coin. According to his view, from the sixteenth century, there were three great zones which enjoyed surplus in their foreign trade as they exported more (non-money) commodities than those they imported. These were the (1) Scandinavian and Baltic countries, (2) the Near East and (3) Asia (India and China). According to Attman they balanced their trade with the import of precious metals, mainly in the form of bar and coin.[29]

Various specialized historical monographs demonstrate the at least from the sixteenth century, the export from the Baltic region of timber, fish, furs and other primary commodities to England and Central Europe generated a counter flow of silver.[30] Similarly, other studies indicate that there were important flows of silver or gold to the Ottoman Empire, although these were much less significant than the shipments that went by ocean to South Asia and China.[31] It is to the latter that we now turn our attention.

The Asiatic adventures of the silver peso in China and India

What factors explain the secular transfer of huge sums of silver to Asia ? According to Charles Kindleberger, already at the time of the Roman empire, it was common to speak of Asia as the graveyard of silver from the West. Subsequently, numerous authors in the middle ages and in the sixteenth century insisted that there was a proclivity among Asiatics and Chinese, in particular, to hoard silver. Curiously enough, in a long essay published in 1978, Kindleberger accepted this proposition at face value to argue that in the early modern world, the difference between Europe and Asia could be described as a contrast between the West as spenders (who exported silver and gold) and the East as hoarders (who imported silver and gold).[32]

This superficial view has been rebutted by numerous studies of the Asian economies in the 16th,17th and 18th centuries, including their dynamic and complex monetary and credit systems, the nature of their international trade and the links with other macro-regions of the world economy. In 1982, in a now classic essay, William Atwell published pioneering estimates of the flows of silver to China in the long century, 1530-1650. Atwell pointed out that by the sixteenth century, China under the Ming dynasty already had more than 100 million people, which made it the largest market in the world. The demand for silver as both commodity and currency was therefore enormous.[33] Other currencies were by then quite scarce. Gold did not circulate much for mercantile transactions. There was lack of acceptance of the paper money that had circulated abundantly in the Chinese empire since the twelfth century, but was by then discredited. Copper money, which had also circulated widely and had been repeatedly debased, fell out of the favor with traders, consumers and the government, itself. Atwell added that the notable increase of Chinese exports from the sixteenth century, including raw silk, silk and cotton textiles, tea, porcelain, mercury, precious stones and other products also generated much demand for silver as a commodity .Hence, a large population and growing economy, inevitably created a large market for silver bar and coin, both serving as commodity and as money. [34]

Subsequently, economic historians Richard van Glahn, Dennis O. Flynn and Arturo Giráldez have published studies which delve into the subject. They argue that among the most important factors which contributed to the enormous increase in demand for silver in were the monetary and fiscal policies of the Chinese state.[35] The adoption of new fiscal rules (particularly the Single Whip Tax Reform of the 1570s) which obliged Chinese peasants, artisans and merchants to pay taxes in silver contributed forcefully to the new trend. As Flynn and Giráldez affirm "such a massive shift in the demand of for silver caused its value to soar. Using bimetallic ratios as an indicator, silver´s value within China jumped to about double the levels prevalent in America, Japan, Europe and much of the rest of the world."[36] The change in ratio of silver to gold in Chinese markets made it increasingly attractive to export silver to China and, inversely, to export gold. According to von Glahn, in the mid-sixteenth century, the gold/silver ratio hovered around 1:11-12 in Europe whereas it was 1:6 in China and approximately 1:8 in India. [37]

For European merchants engaged in international trade the potential profits to be obtained from arbitrage (based on the differential ratios between silver and gold in different markets) was, therefore, enormous. Not surprisingly, all the leading merchant bankers in Europe began accumulating large stocks of Spanish American silver pesos with an eye to trade with China and India where they could potentially obtain double profits on commodity trade itself as well as by speculating on the varying prices of money commodities.

But European merchants were not the only entrepreneurs active in this lucrative, double trade. Indeed Japanese miners, merchants and shippers were even more active in the sixteenth century. And between 1540 and 1640, Japan became the main supplier of silver for China, although by the mid-seventeenth century, the Japaneses government was forced to call a halt to silver exports as local mines had become virtually exhausted. By this time, differences in silver/gold ratios had diminished substantially and, as a result, profits on what was strictly the silver or money trade diminished. Nonetheless, throughout the seventeenth and eighteenth centuries, European merchants continued to find silver pesos to be in high demand in China. Moreover, various studies on the various East Indies Companies (English, Dutch and French) demonstrate that they continued to be active in the business of acquiring Spanish American silver pesos for their abundant and diverse trade in China and India.

In an extraordinarily meticulous historical study of European commerce carried out in the port of Canton during the eighteenth century, Louis Dermigny was able to estimate the amount of silver coin used to pay for the acquisition of tea, silks and other merchandise. The French, Danish and Swedish trades active in Canton paid their merchandise practically exclusively with silver pesos. Meanwhile, the Dutch and English merchants covered their acquisitions with a combination of commodities and silver. [38]

Apart from the large flows of silver that European merchants brought to China via Eastern routes, there was also an important flow of silver pesos that came via the Pacific. The shipments that arrived in the famous Manila Galeon brought approximately two million silver pesos per year from Mexico to the Philippines (and hence to Canton) from the late sixteenth century quite steadily until the early nineteenth century.[39] In the sixteenth and early seventeenth centuries, part of this silver did not originate in Mexican silver mines but in Potosí and other mines in Upper Peru. Ships with the precious metals would leave from the Peruvian port of Callao bound for Acapulco to connect with the arrival of the Manila Galleon, which brought many of the Chines silks and other luxury items in much demand in the cities of the viceroyalty of Peru. Later, however, the trade with Peru was drastically reduced by the Spanish Crown, allowing Mexican merchants to retain a monopoly on the transpacific trade.[40]

According to Dermigny, it may be estimated that over the course of the eighteenth century, approximately 500 million silver pesos entered China by both routes: somehwat less than 200 million via the Manila route and more than 300 million pesos from Europe via ships that made their way round the Cape of Good Hope and across the Indian Ocean. In other words, perhaps as much as a third of the total production of Mexican silver in that century would end up in Chinese markets.[41]

But China was not the only Asian market with a strong demand for Spanish American silver. There is now an important historical literature on the international trade of India in the seventeenth and eighteenth centuries which provides many insights on the role of previous metals in the expanding global trade of that era.[42] These studies document the importance and variety of Indian exports including an enormous variety of cotton and silk textiles, as well as raw silk, from Bengal, the Madras and other regions, much of which were sent to Europe but also to many other markets, including the Levant and southeast Asia. Some of these products even were reexported from Manila to Spanish America.[43] Most of these products were paid for with precious metals, and particularly with silver coin.

A classic study by K.N. Chaudhuri on the famous English East Indies Company opened this field of study and demonstrated that there were excellent company studies that allowed for detailed reconstruction of the international trade of India.[44] Subsequently, Sushil Chaudhury carried on more detailed, regional research on the role of both the British and Dutch East Indies companies´ mercantile activities in Bengal, the most prosperous part of India in the seventeenth and eighteenth century. This research illustrated the complexity of the exchange of silver for Indian textiles and raw silk. A part of the trade was carried on by Asian merchants who exported goods via West Asia to the Levant and Europe. Another part was conducted by the European companies mentiones via the ocean route around the Cape of Good Hope. But there was also a complex triangular trade between Europe, South Asia and Southeast Asia. The Dutch merchants found that the producers of much spices in the Indonesian archipiealgo were excellent clients for the light and multicolored, cotton textiles of the Bengal. As a result, the Dutch East Indies Company would send cargoes of send silver pesos to Calcutta in order to pay for local cloth, which they later transhipped and reexported to Southeast Asia in exchange for pepper and other species.[45]

But why was there such a high demand for silver in India ? The economic historian Om Prakash offers various answers, citing the classic observation that precious metals arriving to India had “a thousand gates for their entry and none for their exit”.[46] To begin, Prakash notes that silver was used to pay for textile goods which had a great demand in Europe before the industrial revolution because they were cheaper and more attractive than the competition. He notes that in order to keep up manufacturing production in Mughal

India, much of the incoming silver was reinvested. But precious metals were also used for currency (with great demand among the larger Indian merchants and merchant bankers), for use in temples (just as in all Catholic Europe) and for use as ornaments by women.[47] The high consumption of silver and gold for women´s jewelry was linked to a complex set of marriage dynamics in society of multiple castes in which marital alliances had enormous importance for all sectors of society.

Furthermore, in India as in China, silver was hoarded by individuals in many socio/economic groups because it was one of the best and most secure ways of saving money. In an economy without deposit banking and with no savings accounts, hoarding (saving) silver was not irrational, but rather a "rational form of holding liquidity".[48] And given the large size of both the Indian and Chinese populations in the ancien regime, the market effects led to a very large and constant demand for silver, which continued, in fact, down unto the early twentieth century.

Circulation of silver pesos in the Americas: the antecedents of the dollar

While our attention has been focused mainly on the international circulation of the silver peso, it should not be forgotten that within the Americas, circulation was also important, being the most widely used monetary instrument for several centuries. Paradoxically, however, both in the viceroyalties of Peru and Mexico colonial actors frequently and repeatedly protested that there was a paucity of silver coin. But how could silver be scarce in the land of silver? Several explanations have been advanced by historians for the relative scarcity of metallic curency in daily circulation through much of Spanish America from the late sixteenth to the late eighteenth century. To begin with, they have pointed to the very considerable export of precious metals to Spain and Portugal from the earliest days of colonization of the Americas. These included both remittances by merchants as well as by the Spanish state which suctioned off a large fiscal surplus. The latter increased over time, reaching a peak in the eighteenth century. Between 1760 and 1810 the the financial officers of the viceroyalty of New Spain (Mexico) transferred abroad an annual average of 5 million pesos: this sum was equivalent to extracting 2% of colonial Mexico´s gross product each year.[49]

Moreover, within the colonies themselves, much silver and gold (in bars and coin) was quickly retired from circulation and from local markets. This may be explained by the fact that heavy silver and gold stocks were held for long periods by the State as well as by corporations and rich individuals, although not mainly for the purpose of hoarding. The nature of the colonial economy and polity explain this behaviour of accumulation of large stocks of silver and gold. All colonial tax administrations in the principal mining regions retired a significant portion of metallic currency from circulation in order to have reserves available when the warships sent from Seville arrived; this practice reduced costs dervied from possible delays in loading them with the precious metals. Furthermore, private actors also accumulated huge stocks of precious metals and coin. From the sixteenth century until the end of the eighteenth century, the oligarchies of wealthy merchants in Mexico, Lima, Cartagena, Havana, Bahía and Rio de Janeiro made it a point of concentrating large silver and gold stocks in their firms, which they reserved for months in order to have sufficient funds to buy practically all the imported products sold at the great, annual fairs held in each colony after the arrival of the convoy of ships (*flotas*) from Spain or Portugal. Finally, the powerful ecclesiastical institutions in all of Spanish America and Brazil extracted large amounts of silver through tithe collection and other ecclesiastical taxes and, hence, accumulated important stocks of silver, which were used in part to assure both future expenditures as well as to assure the continuous flow of credit operations that ecclesiastical organizations realized on behalf of large property-owners.

The fact that much silver and gold was exported and/or held outside of consumer markets for long periods may help explain the relative stability of colonial prices over the long run. Despite high production of precious metals, there was not much abundance of coin in domestic circulation. Therefore prices rose only slowly, except at times of agrarian and commercial crises. However, recent research on markets in Bourbon Mexico indicates a fairly sustained price rise of basic agricultural commodities at the end of eighteenth century. [50]

The monetary paradox of these colonial societies has been explained by Ruggiero Romano and other specialists by arguing that the metallic monetary system in Spanish America was basically controlled by elites. Hence, monetary stocks (and wealth in general) were highly concentrated. Popular sectors suffered the consequences for they had considerable difficulty in obtaining the silver coin which they required both for payment of taxes and for mercantile transactions. Numerous ways were found to circumvent the shortages of fractional currency: A parallel monetary system developed which was based on non-metallic monetary instruments: among these were a great variety of coin/tokens issued by merchants in cities, towns and haciendas: these were generally known in Peru as *moneda de la tierra* and in Mexico as *tlacos*. The result was that there developed a dual monetary system which reflected the existence of a highly stratified economy and society On the one hand, there stood small but powerful elites which included mineowners, great merchants and large landowners, all highly monetized. On the other hand, most of the rest of society lived on the fringes of the monetary economy and had to get by on a daily basis with tokens issued by local merchants and on credit, also extended by merchants and landowners, leading in many cases to debt peonage. Indian peasants who formed the bulk of the rural population in the viceroyalties of Mexico and Peru participated in the monetary economy but also carried on much barter. Similarly, slaves in Brazil and throughout Spanish America had occasional access to metallic currency but on a very small scale. Clearly, this made for low levels of individual savings.

If we look beyond the mainland, it is important to keep in mind the significant flows of silver pesos that went to the islands of the Caribbean. It is well-known that English and French pirates from the early seventeenth century risked their lives for the famous *pieces of eight* (reales de a ocho) of the Spanish naval convoys. Later, more stable trade networks and the establishment of naval squadrons transformed many of the islands in the West Indies into floating warheouses of European goods which were exchanged through vast contraband networks for silver pesos.[51]

Parallel to this *illegal* commerce, legal trade between the different, Spanish American ports on the Caribbean Sea also intensified, particularly in the eighteenth century. The trade between Caracacas and Mexico, as well between Cartagena and Havana, and Veracruz and Cuban ports was oiled fundamentally by the flow of silver pesos. Moreover the viceroyalty of New Spain (Mexico) financed the administrations of Cuba, Santo Domingo, Puerto Rico, Trinidad and Florida with regular fiscal transfers in silver.[52]

From the early eighteenth century a set of new actors became very active in the silver trade in the West Indies. We refer to the merchants and shippers of the thirtheen Anglo-American colonies who also created new, commercial channels throughout the islands, increasing their activities after independence in 1783. As a result, silver pesos began to circulate ever more widely and soon became among the most widely used metallic currency in many of the thirteen colonies. It was no surprise, therefore, that during the war of independence (1776-1783), the government of the Confederation of the United States should have adopted the silver peso as the metallic reserve for its new paper currency of dollars. The first issue of paper money specified that the bills were payable in "Spanish milled dollars", which actually meant Mexican silver pesos. Subsequently, the monetary law ratified by the United States Congress on April 2, 1792, established that the metallic currency would be the silver dollar and that it would be equal in value to the silver peso of eight *reales*. In fact, it may be recalled that, in practice and law, the Mexican silver peso remained legal tender in the United States until the mid-nineteenth century.

Conclusions: the silver peso in the 19th century

It should be emphasized that after the independence of the Spanish American states, the silver peso continued to be minted throughout large parts of the hemisphere during the nineteenth century and constituted the single most, important export of Mexico and Bolivia for another eighty years. Nonethless, the wars of independence of the Latin American states (1810-1825) had wrought major changes. Each of the new governments in the region sought to affirm its monetary sovereignty and, not surprisingly, the outcomes differed markedly from nation to nation and even from region to region.

Generally speaking, after 1825, those countries with greatest silver mineral wealth continued on a metallic monetary standard, using the classic silver peso (peso fuerte) or some relatively close variation. Mexico, Peru, Chile and Bolivia continued to mint silver pesos on a large scale throughout the nineteenth century. On the other hand, countries such as Brazil, Colombia or Guatemala which had important gold (but not silver) deposits, found it difficult to increase production and therefore sought alternative monetary solutions: Brazil, for instance, began to experiment with a paper money standard in the early nineteenth century as did the the Argentine Confederation.

Among the most important of the old silver mining economies which continued to export silver pesos on a large scale, the case of Mexico merits special attention. It continued to be the major supplier of silver coin to the world economy during the first three quarters of the nineteenth century: in fact, until the 1880s, silver consistently represented close to 80% of total Mexican exports. The reasons for this continuity were closely linked to international markets for silver currency. In the first place, down to the 1870s there were important clients in Europe. Spain, France, Germany, and Italy, for example, all remained on bimetallic standards until the 1870s. After 1870, however, silver prices plummetted throughout Europe. In contrast, in Asia, and most particularly in China, the Mexican silver peso remained in heavy demand among traders even after the 1870s.[53] This was so because the Mexican silver peso continued to carry a premium in most, local markets. So attractive were these markets that silver miners in the United States successfully lobbbied Washington to mint a new silver dollar, the *American Trade Dollar* , a silver coin of which over 36 million were minted for use in the China trade between 1873 and 1887. Subsquently, however, this practice was discontinued and Mexican silver pesos again reigned supreme in East Asia until the early twentieth century.

Notes

e.g.: Salvucci, *Textiles and Capitalism in Mexico*, 23-25.

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[1] Attman (1986), Atwell (1982), Chaudhuri (1986) and von Glahn (1996) are important and representative studies which focus on the silver trade in different regions of the world.

[2] Flynn and Giráldez (1995), p.201.

[3] A detailed and provocative interpretation of the networks of mercantile credit based on letters of exchange in the sixteenth century is Boyer-Xambeau *et al*, (1986).

[4] Boyer-Xambeu (1986), p.216-217.

[5] TePaske (1998) reviews the historical literature on estimates of silver and gold production over the centuries and comes to the conclusion that Humboldt´s estimates were remarkably accurate in the light of comparison with much subsequent research:see charts in Humboldt (1991),pp. 431-433, the Spanish reedition of the 1811 classic.

[6] Flynn and Giráldez (1995), p. 214.

7 Nueva Granada (Colombia), Mexico, Chile and, to a lesser degree, Guatemala were also gold producers in the eighteenth century but paradoxically they also suffered from relative scarcity of internal circulation of this precious metal since practically all the gold was exported to Spain due to its high price. On New World gold production see the pioneering

work by TePaske (1998). Morineau (1985) provides much information on the Brazilian gold trade in the colonial era.

[8] Bakeweel (1984 and 1988), Brading (1973), Hoberman (1990) and Langue (1996).

[9] Sempat Assadourian (1983).

[10] Tandeter (1992).

[11] Salvucci (1984) provides the estimates of the rising prices of silver at this time.

[12] "Sus múltiplos fueron las piezas de dos, cuatro y ocho reales (éste último el peso de plata), y sus submúltiplos fueron las piezas de medio real y la de cuarto de real o cuartillo": Cespedes del Castillo (1996), p.34.

[13] Comment by Flandreau at the November, 2002, Paris Conference of the Association d´Histoire Economique de France to Carlos Marichal´s paper "The Silver peso as universal money of the ancien regime".

[14] Ibid, p. 53.

[15] Roberto Cortés Conde and George T. McCandless, "Argentina: From Colony to Nation. Fiscal and Monetary Experiences of the Eighteenth and Nineteenth Centuries", in Bordo and Cortes Conde (2001), p. 384.

[16] Morineau (1985), . 323.

[17] Cespedes del Castillo (1996), tabla 34, p. 251.

[18] Humboldt (1991), p. 457. For estimates of the total flows of silver and gold from the Americas to Euope from the 16th to 18th centuries see the relatively recent but already classic work by Morineau (1985) which has made obligatory a reevaluation of all of Earl Hamilton's estimates.

[19] These calculations in Marichal (1999), chapter 2, are substantially higher than the relevant

percentages offered by Klein (1995), but it should be noted that Klein did not use consolidated accounts nor did he discount costs of fiscal administration nor does he take into account seignorage of the mint.

[20] For a recent critique see John H. Munro, “Precious Metals and the Origins of the Price Revolution Reconsidered”, in Flynn *et al*, (1998) pp.35-50.

[21] Morineau (1985), p. 51.

[22] Cipolla (1990), p. 57.

[23] However, note that Boyer-Xambeu *et al* (1986), pp.134-138, argue that in the late sixteenth century most Spanish silver actually was transferred by Genoese bankers to Italy. There the silver was exchanged for gold which was later sent to Flanders. On later silver transfers see Stein (2000), chap 2.

[24] There is much data in Carlos Alvárez Nogal (1997).

[25] Marichal (1999), chapter 1.

[26] Morineau (1985), p.265 .

[27] Morineau (1985) p. 302.

[28] A fundamental study by metallurgical chemists interested in estimating the American silver content of contemporary European coins is Morrison et al (1999).

[29] Attman (1986).

[30] Attman (1983 y 1986)

[31] On the monetary history of the Ottoman Empire see Sevket Pamuk “Crisis and Recovery: the Ottoman Monetary System in the Early Modern Era, 1585-1789” in Flynn, et al. (1998), 97-108.

[32] Kindleberger (1989).

[33] However, it is wise to recall that until the eighteenth century, silver pesos were not legal tender in China. As Kann (1927) indicates, it is important to note that in China silver was a commodity as much as a currency and was constantly being cut in pieces and resmelted.

[34] Atwell (1982), p.79

[35] Von Glahn (1996), Flynn and Giráldez (1995 and 1996).

[36] Flynn and Giráldez (1996), p.316.

[37] Von Glahn (1996), chapter 4.

[38] Dermigny (1964), vol. 2, p.688, señala que a principios del siglo los ingleses pagaban sus compras con 90% de metálico, pero a fines de siglo con 65% y 35% mercancías.

[39] El estudio clásico de la Nao es Schurz (1959).

[40] For additional references see Souto and Yuste (2000) and Alvarez and Fradera (2001).

[41] Dermigny (1964), p.754.

[42] The major studies are Chaudhuri (1965), Chaudhury (1975) and Prakash (1985).

[43] Quiason (1966)

[44] Chaudhuri (1965).

[45] Chauhury (1975 and 2002).

[46] Prakash (2002), p.1.

[47] Ibid.

[48] Ibid., p.15.

[49] Considering that the ancien regime economies normally grew by no more than 1% of gross product per year these fiscal extractions reduced most possibilities of growth. See Marichal (1999).

[50] Richard Garner (1993) provides a good summary of eighteenth price history in Bourbon Mexico.

[51] Romano (1999) puts emphasis on the enormous contraband trade through Jamaica.

[52] Von Grafenstein (1997) has abundant information on this subject.

[53] For details see Kann (1927).