NOTES

Monetary Changes and Prices in Italy in the Napoleonic Period

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There has been considerable theoretical discussion of the relationship between monetary circulation and price levels, and in particular of the complex nature of the monetary system and its influence on price movements. In recent years, however, there has been increasing doubt over the validity of measuring this influence through any general price index, quite apart from the difficulties involved in constructing such an index, and greater emphasis has been placed on the price changes arising « from the side of commodities » and also on the impossibility of separating such influences clearly from those arising « from the monetary system ».[1] Understandably then these critical approaches to the problem of the relationship between currency and prices have tended to make historians wary when tackling new research and, as Romano has noted, have led to a general lack of progress.[2]

This does not, however, alter the fact that "prices" can still provide evidence of monetary conditions, especially when it is a matter of obtaining some initial and general indication of the pathological developments we call inflation or deflation, which originate in longterm and decisive changes (either in the sense of increase or decrease) in the monetary circulation. The existence and scale of such monetary disturbances become all the more

[1] See for example: R. BAEHREL, *Economie et histoire à propos des prix*, in « Eventail de l'histoire vivante. Hommage a Lucien Febvre », Paris 1953, vol. I; C. M. CIPOLLA, *Storia dei prezzi e della moneta*, in « L'industria », 1950, n. 4; A. V JUDGES, *Scopi e metodi della storia dei prezzi*, in « Rivista storica italiana », a. LXIII, 1951, n. 1; a useful bibliographical summary of the works on price history is given in R. ROMANO ed., *I prezzi in Europa dal XIII secolo ad oggi*, Turin 1967.

[2] *I prezzi in Europa . . .*, *op. cit.*, pp. XV-XX.

apparent when prices are studied comparatively, both geographically and chronologically. A study of the development of prices in Italy in the period 1792-1809 [3] (a period of political, military and financial upheavals which had more or less serious consequences in monetary terms) and a comparison with prices in the years 1788-1791 and 1810-1820 (of relative monetary stability) will serve to illustrate the advantages and limitations of such an approach.

There are now a considerable number of reliable series of prices for the period 1788 to 1820 which have been published, over a long period, either as statistical monographs or as part of the background to the economic development of particular regions.[4] In addition to the valuable information which these series provide on local conditions, they cover an area which was divided for a long time into separate states, subject to different monetary pressures; therefore the comparison of those series makes it possible for us to distinguish where prices behaved in an aberrant manner for monetary reasons and this in more conclusive terms than would be possible if a single area was studied alone.

Only those price series which relate to the capitals of the principal states have been used, because any monetary change would have been expressed more clearly there than in the peripheral areas of the respective states. On the basis of criteria of representativeness and affinity I have then selected the statistics available for Turin,[5] Milan,[6] Florence,[7] and Rome,[8]

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[3] In other words the reference period lies between the first French invasion and the final organization of the peninsula into the Napoleonic system. As many historians have illustrated the existence of a Kondratieff cycle of rising prices in Europe between 1787-92 and 1810-20, the Italian case forms part of a continental perspective in which monetary systems were affected by general pathological changes resulting from political events and their effects on trade and production.

[4] In addition to the works cited in ROMANO's bibliography (*op. cit.*, pp. 569-590) see also the studies by C. VANZETTI for prices at Verona (*Due secoli di storia dell'agricoltura veronese*, Verona 1965), by G. ZALIN for Padua, Verona and Legnago (*Aspetti e problemi dell'economia veneta dalla caduta della repubblica all'annessione*, Verona 1969, and ID., *L'economia veronese in età napoleonica*, Milan 1973), by L. BULFERETTI and C. COSTANTINI for Genoa (*Industria e commercio in Liguria nell'età del Risorgimento (1700-1861)*, Milan 1966), and by P. L. SPAGGIARI for Parma (*L'agricoltura negli Stati parmensi dal 1750 al 1859*), Milano 1966. Also relevant for this period, at least in part, are the statistical studies published in the first series of the « Archivio Economico dell'Unificazione Italiana » for Turin, Milan, Florence, Genoa, Palermo, Catania and Verona (vols. V, VII, VIII, XIV).

[5] « Il Palmaverde, giornale storico, statistico, giudiziario, amministrativo », Turin 1788-1821. The prices published here were collated by Lessona in a *ms* now in the Historical Archive of the Comune of Turin, parts of which, although with many inaccuracies, were published by A. FOSSATI (*Contributi alla storia della carta moneta. Nuovi studi sugli eventi monetari della fine del secolo XVIII in Piemonte*, Turin 1945, pp. 183-192).

[6] Commune of Milan, *Dati statistici a corredo del resoconto dell'amministrazione comunale 1908*, Milan 1909, pp. 7-8. Bearing in mind the different units in which they

to which I have also added an unedited series for Genoa, which was one of the leading commercial centres on the peninsula.[9] The study is also restricted entirely to movements in grain prices, on the grounds that: 1) this was the principal consumer commodity in the urban markets in question; 2) the price of grain was much more susceptible to monetary changes, due to the rigid structure of its demand, than were prices of other less essential goods, and therefore tends to highlight the presence of inflationary or deflationary factors. As far as the first point is concerned the sources which we have chosen leave little room for doubt, even if they do refer only to certain cities.[10] For example, of the cereals subject to the *banlieu* and ground in the mills of Turin, wheat constituted 75% at the end of the XVIIIth century and 85% around 1845, and this tendency for the percentage to increase was hardly affected at all even during dearth years.[11] In Cuneo, a much smaller and less advanced market, of the grain sold between 1791 and 1794, 65% was wheat, 14% rye and 21% other low grade cereals.[12] In Rome the grain ground in the last decades of the XVIIIth century reached nearly 300,000 quintals a year, that is nearly 2 quintals (440 lbs) per person, and was certainly the main cereal consumed in the city.[13]

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are given, the prices given here correspond well with those to be found in the recent study by A. De Maddalena, *Prezzi e mercedi a Milano dal 1701 al 1860*, Milan 1974.

7 For the years 1800-20 we have used the prices published by P. F. Bandettini based on the records of sales in the city market (*I prezzi sul mercato di Firenze dal 1800 al 1890*, in « Archivio Econ. Unificaz. Ital. », ser. 1, vol. V, f. 1, Rome 1957).

8 Ministero di agricoltura, industria e commercio, Direzione della statistica generale, *Monografia della Città di Roma e della campagna romana*, vol. 1, Rome 1881, pp. 353-354.

9 Archivio storico del comune, series *Magistrato dell'abbondanza*, registri n. 338-343; serie *Repubblica Ligure*, registri n. 377-385; series *Impero Francese*, registri n. 386-391; series *Amministrazione decurionale*, registri n. 392-395. The figures are for the prices of the grain purchased by the municipal provisioning authority for distribution to the public bakeries. They refer to the goods stored in the warehouses of the Annona and include local customs, transport to Genoa (for grain purchased elsewhere) and the commission for the brokers. For shorter periods there are also official price lists for foodstuffs, but these do not differ from the prices paid by the public authorities of the municipality.

10 The situation of the smaller towns and the countryside in northern Italy was different, because production of maize was often greater than that of wheat and therefore constituted the main item of consumption. On this, see M. Romani (*L'agricoltura in Lombardie dal periodo delle riforme al 1859*, Milan 1957, p. 246); G. Scarpa (*L'agricoltura del basso Veronese nella prima metà del XIX secolo*, in « Archivio Econ. Unificaz. Ital. », ser. 1, vol. XIV, f. 1, Roma 1966, pp. 35 and 45); P. L. Spaggiari (*L'agricoltura degli stati parmensi . . ., op. cit.*, pp. 185-188 *et passim*) and G. Zalin (*L'economia veronese . . ., op. cit.*, pp. 165, 167, 316-7 and 321).

11 Archivio storico del comune di Torino, serie *Ordinati, sub anno;* serie *Collezioni di volumi, fascicoli, ecc. di materie diverse, passim*; serie *Molini*, cartella n. 2869 ed altre.

12 F. Bonelli, *Mercato dei cereali e sviluppo agrario nella seconda metà del '700: un sondaggio per il Cuneese*, in « Rivista storica italiana », anno LXXX, 1968, n. 4, p. 829.

13 Ministero di agricoltura, industria e commercio, Direzione della statistica generale, *Monografia della città di Roma . . ., op. cit.*, p. 349.

On my second point, however, it could be argued that when grain prices rose then demand might well switch to other cheaper goods,[14] which might make the prices of the poorer quality cereals more suitable for this study. Quite apart from the fact that the available prices of wheat are more numerous, they remained pretty much in step with the prices of rye and maize, and finally of course the latter did not play a very important part in urban consumption.

Although they are open to comparison, the statistics under consideration do vary slightly. In the first place those for Genoa are based on the prices paid by the municipal provisioning authority (the *Annona*), while those for the other cities are based on prices quoted on the public markets. The annual figures are based on the simple average of either bi-monthly (in the case of Turin until 1809) or of monthly prices (for the other cases), which in turn represent: a) the average of the monthly minimum and maximum price (for Genoa); b) the average of all the monthly and bi-monthly prices (for Turin), weighted against the volume of transactions (for Milan); c) the average of all the weekly prices, calculated as the mid-point between the weekly minimum and maximum (for Rome between 1811 and 1818, and for Florence), or else as an average of all the prices in the week, weighted against the quantities sold (Rome before 1810 and again between 1819 and 1820).

In order to compare the annual average prices, which in the sources are given in the original currencies and measures, the data have been translated into hectolitres according to the official equivalences. For the values, original currencies have been substituted with the decimal franc which was in widespread use during the Napoleonic period and after the Restoration although often under different names.[15] In order to convert the original currencies we have used the coefficients stipulated in contemporary exchange regulations, which correspond to the commercial relations between the various units of account at the date of exchange. Since the original prices were always given in money valued at a free rate of exchange, all the figures which result from the conversion are expressed in the same unit of account without the intrinsic variations in the monetary form being lost. In other words, the "francs" in which the prices are recorded are not always equivalent to 4.5 grams of fine silver or to 0.29 grams of pure gold, but rather simply represent a metallic weight which varies inversely to the local

[14] For example, if we take the average prices of cereals on the Turin market between 1788 and 1792 as 100, the figures for the first half of 1800, at the end of inflationary period, are 484 for rye, 482 for maize, 462 for wheat, 457 for broad beans, 455 for millet, 450 for green beans, and 357 for rice. This indicates that there was a partial shift to the consumption of coarser cereals (rye and maize) and a comparable desertion of the finer qualities (wheat and especially rice).

[15] For the states of Savoy and Parma, *lire nuove*, for the Lombard-Venetian area, *lire italiane*.

TABLE 1

NUMERICAL INDICES OF GRAIN PRICES
(base 1805-1814 = 100)

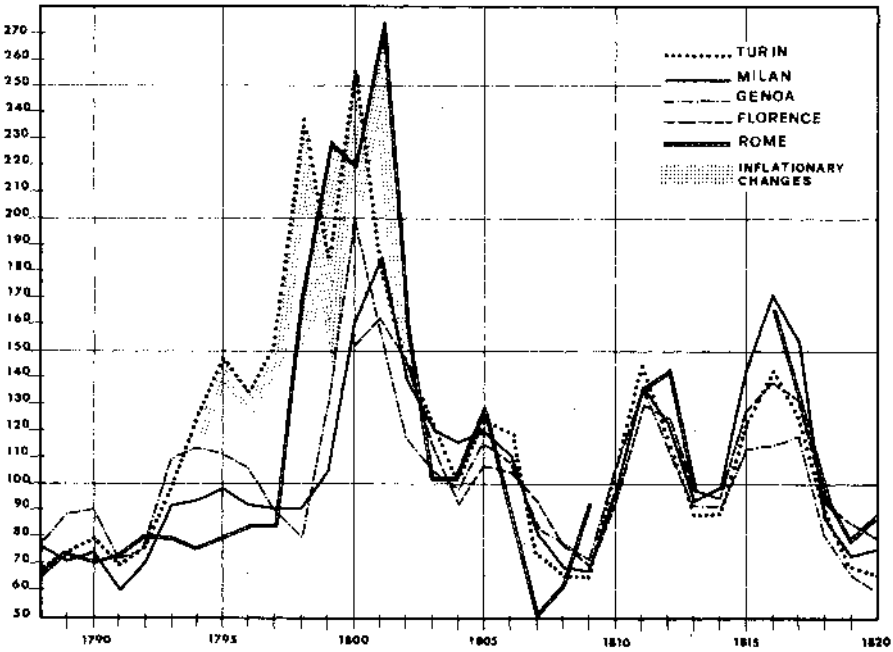
Year	Turin	Milan	Genoa	Florence	Rome
1788	68.2	76.5	77.1		65.8
1789	73.4	71.1	88.8		74.5
1790	79.0	74.5	90.5		70.3
1791	70.1	59.8	71.6		72.6
1792	76.3	69.3	76.4		80.4
1793	97.8	92.4	109.5		80.0
1794	125.8	94.0	114.1		76.2
1795	147.5	98.4	111.5		80.4
1796	133.3	92.8	106.1		84.6
1797	153.2	91.2	90.6		84.6
1798	237.4	91.2	80.2		169.3
1799	183.1	105.1	128.5		228.6
1800	257.1	160.2	199.5	152.1	219.7
1801	180.1	184.7	161.3	163.3	273.5
1802	145.0	140.2	119.3	146.0	158.6
1803	122.0	121.4	105.3	115.0	102.6
1804	99.1	115.8	98.9	92.1	102.6
1805	125.3	120.5	116.1	108.1	127.2
1806	118.9	111.3	108.6	105.1	88.0
1807	75.2	82.6	84.3	94.2	51.2
1808	65.6	69.3	78.7	78.6	60.0
1809	64.9	67.4	71.7	69.8	93.1
1810	107.2	96.5	103.2	95.5	
1811	145.3	137.6	137.3	130.7	136.6
1812	119.8	123.2	115.3	125.1	143.3
1813	88.5	93.8	92.5	98.3	100.7
1814	89.4	98.2	92.4	94.9	
1815	124.3	143.1	113.8	128.6	
1816	142.4	173.2	114.7	139.5	167.2
1817	127.9	154.2	118.4	132.4	138.4
1818	91.9	88.1	81.8	94.1	97.3
1819	69.3	73.4	66.6	85.4	79.4
1820	66.3	75.9	60.0	80.1	86.5

relationship between the commercial and legal parities of the "franc" of account.

To remove any possibility of ambiguity, the figures resulting from the conversion into hectolitres and francs have then been turned into a simple numerical index taking the years 1805-14 as base, because the different markets in question were closer to a reciprocal economic integration at this time than at any other during the period which concerns us here. (See Table 1).[16]

[16] On the considerable integration of the cereal markets, at least in northern Italy, in the Napoleonic period see E. SERENI, *Capitalismo e mercato nazionale in Italia*, Rome 1966, pp. 65-6.

NUMERICAL INDICES OF GRAIN PRICES FOR CERTAIN ITALIAN CITIES



The numerical indices are given in Table 1 and indicate that, with the exception of the years 1799-1800 in the case of Genoa, 1798-1802 for Rome, and 1794-1800 for Turin, the prices of grain in the different cities varied at the same time and to the same degree. Their variations are contained in a sinuous but narrow band and this limited geographical variation indicates a high degree of integration both before 1809 and after 1814, that is even in periods of great political divisions. This is true despite the disparity of the prices in the years 1815-1817 when the Genoese market managed to mitigate the effects of harvest failure by importing Russian cereals, whereas the situation remained very serious in Milan and throughout the central and eastern Po Valley. The fluctuating movement of the prices' band also indicates that common factors lay behind price increases, and that these resulted from the goods themselves and in particular from the harvest shortages in the years 1800-1, 1810-12, and above all in the years which we have already mentioned, 1815-1817.

The first of the exceptions which we noted concerned Genoa in the years 1799-1800. The explanation of this lies entirely in the coalition armies' hold over the city which began in 1799 and culminated in the seige of 1800. Once the military blockade ended, however, the supply of provisions recovered, although the failure of the harvests in the same summer meant that prices remained high until the harvest of 1801.

The situation was different for Rome, for here cereal prices rose as a result not only of a probable harvest failure in the years 1800-1801, but also as the result of serious debasements of the currency. These were caused primarily by the increased circulation of *"cedole"* (that is bills of exchange issued by the Monte di Pietà and by the Arcispedale di Santo Spirito), which by 1797 had reached a nominal value of nearly 14 million *scudi*,[17] although on the market their value was continually falling and by February 1798 had reached 33% of the nominal value.[18] During that year the *cedole* of less than 35 *scudi* were gradually withdrawn in the course of payments for the public property which was put up for sale, or else were substituted at 12.5% of their nominal value with bills drawn on contributors to the forced loan. The *cedole* for larger sums, which formed the majority, were officially devalued to a third in May 1798 and in the following September were exchanged at 15% for *assignats*, to a value of 2.1 million *scudi*; like their predecessors these quickly became discredited and were withdrawn from legal circulation in May 1799.[19]

The devastation of the paper money was aggravated by that of the debased money which was issued between 1794 and 1797; this was represented by coin of "mixed pairings"[20] amounting to the nominal value of 4 million *scudi*, with an intrinsic value of only 2 million, and by copper currency for more than one million. The latter was devalued by 25% in March 1798, although the "mixed pairing" coin continued to burden the market where its value in exchange for goods or for increasingly rare sound currency had lost 40% of its legal rate in early 1799,[21] 43% in early 1802, and 42% by the middle of the same year.[22] In the following October all debased coin was debarred as legal tender (with effect from 1 January 1803), and was accepted only at two-thirds of its legal value by public treasuries. This in fact was equivalent to a devaluation of 1/33, the same as had occurred on the open market.[23]

The excessive quantity of paper money and debased coin in circulation naturally gave sound currency a quite illegal premium on the open market,[24]

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17 A. Coppi, *Discorso sulle finanze dello stato pontificio dal secolo XVI al principio del XIX*, Roma, 1855, p. 32.

18 A. Coppi, *Discorso sulle finanze . . ., op. cit.*, p. 37.

19 A. Coppi, *Discorso sulle finanze . . ., op. cit.*, pp. 38-40; G. Carboneri, *La circolazione monetaria nei diversi stati*, volume I: *Monete e biglietti in Italia dalla Rivoluzione francese ai nostri giorni*, Roma, 1915, pp. 152-153.

20 "Eroso misto", that is coin of copper "paired" or mixed with small quantities of silver.

21 A. Coppi, *Discorso sulle finanze . . ., op. cit.*, pp. 39-40.

22 Istituto di Storia Economica dell'Università di Genova, Archivio Doria, registro 923.

23 A. Coppi, *Discorso sulle finanze . . ., op. cit.*, pp. 42-43.

24 Commercially 100 silver *scudi* were worth 167 paired *scudi* in early 1799, 175 in early 1802, 172 in the middle of that year and 150 from late 1802 to mid-1803.

and later caused it to disappear entirely as it was put away in private coffers for fear of risking the penalties proscribed for speculators. The use of debased coin then spread as a result to operations previously conducted exclusively in sound currency, as for example foreign exchange transactions [25] and wholesale commerce.[26] It was for this very reason that the price of grain in Rome in the years 1798 to 1802 diverged markedly from that on other markets which were not affected by such inflationary pressures, or at least not on the same scale.

The increase in prices in Turin between 1794 and 1800 had a similar origin. Their sudden and radical departure from the averages which prevailed elsewhere at the same time once again suggests immediately the existence of monetary inflation of considerable dimensions, and it would not in my view be any exaggeration to claim that the Savoyard state was the victim of the most serious monetary crisis in the peninsula in this period and that this is well demonstrated by the behaviour of grain prices in Turin. It should be remembered first that as a result of its geographical position Piedmont had born the brunt of the French invasion and that it also remained a central battleground subsequently for the rival armies. Secondly, following a long historical tradition, the state's existence was closely dependent on its ability to employ all its resources to oppose the pressures exerted by its neighbouring great powers. It was for this reason that the House of Savoy threw in its lot with the first anti-French coalition. Thirdly, from the mid XVIIIth century the Piedmontese state had also developed a form of paper money (known as « bills of credit drawn on the Royal Treasuries »). Although in normal times these were a very useful aid to circulation, they also constituted a source of overwhelming temptation for the treasury in times of emergency. It is not surprising therefore that both the Savoyard monarchy when it was threatened in its own dominions and the subsequent democratic republic which was weighed down by the debts inherited from the royal government and by expenditure of warfare, should have turned to the expedient of issuing huge quantities of debased coin [27] and especially of paper money. To the 75.2 millions of lire minted between 1793 and 1801, from which the state profited to the tune of 39 million, another

[25] This is evident from the accounts of various Genoese capitalists which refer to the collection of interests from Roman bonds which they possessed.

[26] In the *Monografia della città di Roma*..., *op. cit.*, it is stated that « for the years 1801 and 1802 it occurred that these prices [of wheat] were calculated in paired currency ... which would lead one to believe that in the years 1798, 1799, 1800 and 1801 [sic] as well the same occurred, even though we have not been able to consult the relevant documents » (p. 353). The suggestion is indirectly confirmed by the fact that in the same period the interest of the public debt was also paid in paired or clipped coin, calculated at its official rate of course (G. Felloni, *Gli investimenti finanziari genovesi in Europa tra il Seicento e la Restaurazione*, Milan 1971, p. 174).

[27] That is coin of pure copper and of copper mixed with small quantities of silver.

162 millions was issued in paper money between 1793 and 1799.[28] The fortunes of these huge issues of fiduciary currency are described elsewhere[29] and we need only mention that between November 1797 and September 1799 the poorer quality base coin was officially devalued by, on average, 63%, while paper money was debarred from legal tender after 27 July 1800.[30]

It was also the case in Piedmont, then, that so long as it survived the debased war currency and the credit notes issued by the government led to a decrease in the volume of sound coin in circulation, and in the end completed replaced it in commercial transactions, even though this was illegal. In Turin, as in Rome, both commercial transactions and foreign exchange operations came to be conducted exclusively in fiduciary currency,[31] and this, of course, also influenced grain prices. If then Turin prices are deflated, using a procedure which is open to numerous theoretical criticism, by translating them into the gold equivalents of the "*moneta lunga*" *or* "*diluted coin*",[32] the resulting series of prices expressed in sound currency does not diverge more markedly from those in Milan than it had in the years when both markets were subject to normal monetary conditions.[33]

In more general terms, however, this is not to imply that an excessive expansion of the money supply necessarily led to a corresponding increase in the price of goods and services. In Genoa, for example, there was a very large volume of banknotes with no metallic backing in circulation between the late XVIIIth century and the early XIXth, and after October 1805 the

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28 G. Felloni, *Il mercato monetario in Piemonte nel secolo XVII*, Milano 1968, p. 188, *et passim*.

29 G. Felloni, *Il mercato monetario in Piemonte . . ., op. cit.*

30 G. Felloni, *Il mercato monetario in Piemonte . . ., op. cit.*, pp. 113, 135-136 e 186.

31 The exchange rate with Milan for example was quoted in lire of bills (G. Felloni, *Il mercato monetario in Piemonte . . ., op. cit.*, p. 216).

32 That is in debased coin and in paper money.

33 Allowing for deflation the rate of the *zecchino* of Genoa in debased coin or *lire lunghe* (G. Felloni, *Il mercato monetario in Piemonte . . ., op. cit.*), the Turin and Milan price indices are then as follows (1805-1814 = 100):

	Turin	Milan
1789-1793 (average)	79.3	73.4
1794	102.9	94.0
1795	110.6	98.4
1796	94.5	92.8
1797	95.0	91.2
1798	89.5	91.2
1799	121.2	105.1
1800	139.3	160.2
1794-1800 (average)	107.6	104.7
1801-1805 (average)	134.3	136.5

city was invaded by an ever increasing quantity of debased coin,[34] in relation to which sound currency increased in value by as much as 50% despite the official devaluations of base silver coin in November 1810 and October 1814. In both instances, however, grain prices continued to be quoted in sound currency and do not indicate any inflationary developments.

In order to understand the complications of the monetary market in this period it is necessary to bear in mind that the metallic equivalent of the unit of account, that is the relationship between the intrinsic value of real money and its value as money of account, varied according to the coins considered and according to whether one takes their official or commercial value into account. Therefore within a single monetary system, even when the unit of account was always called by the same name, be it *lira, scudo,* or whatever, its metallic equivalents were theoretically at least double the number of the different forms of real money in which the equivalents themselves could be calculated.[35] In other words, every monetary system involved a multiplicity of ways of establishing values, which were not necessarily identical in practice. Taking the Piedmontese money rates in 1750, for example, the metallic equivalent of the *lira* of account varied from 0.35 gm to 0.37 gm for gold coin and between 4.4 gm and 6.2 for silver coin.[36]

To make the historical interpretation more accessible, real currencies can be grouped in three classes, for each of which currency of similar types and hence of alternative use can be so indicated:

a) Gold and silver coin of full intrinsic value (sound or heavy currency)

b) Debased or fractional money ("mixed pairing" and copper coin)

c) Paper money.

In economic terms, the three groups performed different functions and were used for quite separate purposes even in the early XIXth century. Sound coin, the classical source of value, was used in international transactions and in domestic wholesale trade; the debased coin was kept for mainly small transactions, for retail trade and the payment of wages for example; paper money in turn was used for both purposes according to the size of denominations.[37] It was very rare for these circuits to cross, and for one class of money to be used for purposes normally reserved to the other, and when

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[34] Or else overvalued officially in relation to the intrinsic value.

[35] Double the number because for each coin both the official and the commercial rates must be considered.

[36] G. Felloni, *Il mercato monetario in Piemonte . . ., op. cit.*, p. 236.

[37] It is worth noting in passing that the most severe phases of inflation arising from government issued paper money in general were also accompanied by a reduction in the size of denominations which facilitated the dispersion of the currency and allowed it to penetrate the lesser strata of the money market.

this did occur it was always on a virtually negligible scale, and involved the operators adjusting the denominations of the currency which they possessed to the different unit of payment.

For well organized systems and when conditions were not affected by the market, the metallic equivalent of the unit of account was essentially the same for all the coins in group a), provided that the official gold silver ratio was the same as the commercial. It was also the same as the metallic equivalent of the paper *lira*, calculable in terms of the coins of full intrinsic value which could be purchased with the paper money, provided that the latter was always convertible or, where it was not, that its circulation was within the limits of convenience generally expected of such forms of payment. It was also compatible with a rather lower equivalent for debased coin, as long as the lower intrinsic value of the latter was effectively compensated, in commercial terms, by the need for smaller coin in petty transactions.

The proper functioning of the monetary system then relied on the correct establishment of official exchange rates, the preservation of certain proportions between the quantities of the different groups of money and the different forms of transaction, and the absence of any speculative tendencies in the market (whether they related to a change in the gold-silver relationship or to the appearance of currency circulating at disproportionate rates). Not all these different factors were necessarily present at any one time, and the absence of any one was sufficient to dislocate the entire monetary system.

For example, if the official exchange rate of different coins was not related directly to their intrinsic value, the market would tend to level out the different units of account to lower value, either by clipping the undervalued coins or through speculative manoeuvres. If the relationship between gold and silver was altered (in relation to the official ratio) then the well known phenomenon of the disappearance of those coins struck in the metal more esteemed in the market would occur. When debased coin found its way into circulation (caused by a favourable balance of payments, by the arrival of a foreign army or from speculative imports) it often happened that this led to a disappearance of sounder coin (for which the unit of account had a higher metallic equivalent).

The most delicate aspect of the mechanism was however the proportion between the different groups of money in circulation, and our conclusions to this paper will be concerned mainly with this problem. Since, in an international monetary system with a metallic standard, any excessive issue of sound coin could easily be disposed of in neighbouring states where its purchasing power was only slightly lower than in the country of origin,[38]

[38] This does not of course exclude that in countries where there was considerable production of precious metals (either in the metropolitan territory or in colonies, as in the case of Spain in the XVIth and XVIIth centuries) long-term obstructions could restrain exports of specie and create long-term inflationary tendencies.

monetary inflation was caused in almost every case by the excessive issue of debased coin or paper money, because these were the only forms of currency which were legal tender only within the country of origin, either because they were not accepted abroad or else because they were heavily undervalued there. It could happen, anyway, that a disproportionate issue of fiat money (fractional coin or paper) could be contained within its normal circuit and make itself apparent only at occasional monetary meeting points. In Genoa, for example, the base coin inflation after 1805 was clearly visible in the accounts of the municipal *Annona* as it received in small coins (at the official rate) the proceeds from retail sales and had then to convert these back into sound currency at market rates in order to pay for wholesale purchases. The same probably occurred in Milan as well since there is also abundant evidence that there was an excessive quantity of debased coin and paper money in circulation there. But it could also happen that the fiduciary money proved capable of invading the spheres normally reserved for sound money, and when this occurred the latter began to retreat into private coffers or else go abroad so leaving the entire market in the hands of the poorer coin. This was what happened in Turin and Rome between the late XVIIIth century and the early XIXth century. Only a few years later, with the Imperial decree of 18 August 1810, the spread of debased coin into the circuits normally reserved for sound coin was halted and its use was restricted to a maximum of 5 francs in any transaction. The same expedient was employed after the Restoration and effectively helped prevent the base coin causing inflation and thereafter excesses of currency in circulation were caused almost exclusively by paper money.[39]

From this we can then conclude as follows:

a) during the Napoleonic period grain prices indicate inflationary tendencies of a macroscopic scale only in the cases of Turin and Rome;

b) in the same period grain prices in the other markets considered did not register any pathological increases or falls, which would suggest either that there were no such tendencies or that because of their very limited scale they did not affect the sector of wholesale commerce from which the prices stemmed;

c) grain prices do not in every case indicate inflationary or deflationary changes in a monetary system.

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[39] G. Carboneri, *La circolazione monetaria . . ., op. cit.*, pp. 108-109.