

Authors:

GIOVANNI BATTISTA PITTALUGA

Department of Political Science, University of Genoa, Italy

ELENA SEGHEZZA

Department of Political Science, University of Genoa, Italy

GIUSEPPE MASTROMATTEO

Department of Economic Policy, Università Cattolica del Sacro Cuore, Milan, Italy

FRIEDMAN AND ITALIAN QUANTITY THEORISTS ON INFLATION: A COMPARISON

ABSTRACT

In the first part of the last century, some Italian economists, like Einaudi and Bresciani-Turroni, explained post-WWI inflation and hyperinflation using the quantity theory. As Friedman, they trace inflation to excessive money supply to cover public deficits. However, their explanation of the origins and effects of inflation differs in some key respects from that of Friedman. While Friedman refers to aggregate variables, the Italian quantity theorists, as Condorcet, acknowledge that, during inflation, goods and services prices rise at different rates. Inflation, therefore, has redistributive effects both with respect to wealth and income. Friedman and the Italian quantity theorists reach also different conclusions on the distorting effects of inflation. For Friedman these distortions end with the adjustment of expectations, for the latter inflation distorts the structure of the economy and these distortions can only be reabsorbed in the medium-long run. Notwithstanding these differences, both Friedman and the Italian quantity theorists share the idea that prerequisite for disinflation is reabsorption of government budget imbalances and that it is necessary to prevent disinflation from degenerating into deflation.

Keywords: Monetarism; Friedman; Italian Economists

JEL Classifications: B10; B22

RIASSUNTO

Friedman e gli economisti quantitativisti italiani: un confronto

Alcuni economisti italiani, tra cui Einaudi e Bresciani-Turroni, hanno spiegato l'inflazione e l'iperinflazione in Europa del primo dopoguerra con la teoria quantitativa della moneta. Come Friedman, essi affermano che l'inflazione è dovuta all'eccessiva offerta di moneta utilizzata per

finanziare disavanzi pubblici. Tuttavia, su alcuni aspetti, la loro posizione circa l'origine e gli effetti dell'inflazione si discosta da quella di Friedman. In particolare, mentre quest'ultimo fa riferimento nell'equazione degli scambi all'indice dei prezzi aggregato, gli economisti italiani enfatizzano il fatto che i prezzi dei beni aumentano con velocità diverse. Pertanto, l'inflazione ha effetti redistributivi sia rispetto alla ricchezza che al reddito. In aggiunta a ciò, Friedman e i quantitativisti italiani giungono a conclusioni diverse circa gli effetti distorsivi dell'inflazione. Secondo Friedman queste distorsioni terminano con l'adeguamento dell'inflazione attesa a quella effettiva, mentre gli economisti italiani sostengono che l'inflazione causa distorsioni nella struttura dell'economia che possono essere riassorbite soltanto nel periodo medio-lungo. Nonostante queste differenze, sia Friedman che i quantitativisti italiani ritengono che il prerequisito per attuare la disinflazione è ridurre il deficit di bilancio, prevenendo nel contempo il fatto che la disinflazione degeneri in deflazione.

1. INTRODUCTION

As is well known, the implications of the old quantity theory according to which the price level varies directly and proportionally to changes in the money supply were dismissed by Keynes (1936). However, in 1956 Friedman¹ developed a new version of the quantity theory. In it, the velocity of circulation of money is considered, rather than a parameter, as happens in the old quantity theory, as a variable, whose determinant could be identified, and, therefore, it is predictable. Starting from these premises Friedman, in contrast with the Keynesian theory, reached the conclusion that changes in the quantity of money only affects prices, not output, and that the quantity of money is exogenous. In this context it follows that inflation is always a monetary phenomenon². There is no significant inflation that is not accompanied by an accelerating rate of monetary expansion. This conclusion comes from the acceptance of the Cash-Balances approach and from the assumption that money determines prices.

Similar conclusions can be found in some Italian economists from the first half of the twentieth century, such as Bresciani-Turroni, Cabiati, Einaudi, Jannacone³ and the young Sraffa, who,

¹ See Friedman (1956a).

² See, in particular, Friedman (1992).

³ In a brilliant essay published in the journal "Riforma Sociale", he showed the validity of the quantity theory with reference to Italy for the period between 1866 and 1914. See Jannacone (1918).

albeit with some distinctions, recognised the validity of the old quantity theory⁴ and shared the view that inflation has exclusively monetary origins. It does not, therefore, seem improper to define the Italian economists mentioned above as ‘quantity theorists’⁵. However, despite similar theoretical premises, they differ from Friedman in several respects, specifically in the explanations of the origin of inflation, its effect on resource allocation and growth and the best way of disinflating the economy. These differences are due primarily to the different versions of quantity theory to which Friedman and the Italian quantity theorists refer.

Friedman, in his ‘Restatement’ of the quantity theory⁶, considers aggregate variables, referring to the average price index. Conversely, the Italian quantity theorists, attach great importance to the fact that in period of inflation the prices of goods increase at different speeds and consider the impact of the competition between interest groups in the distribution of income as a factor. From this perspective, they come to the conclusion that in certain cases interest groups fuel inflation by adopting speculative behaviour and, furthermore, that some interest groups who benefit from inflation, may act to encourage it, preferring it to other forms of taxation.

While Friedman believes that the distorting effects of inflation wear off as soon as individuals adjust their inflation expectations to actual inflation, the Italian quantity theorists believe that these effects persist over time, causing an inefficient allocation of resources and penalising growth. These differing view on the distorting aspects of inflation lead Friedman and the Italian quantity theorists to reach different conclusions on the timescales of disinflation measures. For Friedman, in fact, such measures should be adopted gradually, giving individuals time to adjust their expectations to actual inflation. For the Italian quantity theorists, on the other hand, disinflationary measures should be implemented rapidly so as to prevent interest groups that have or are benefiting from inflation from engaging in organized resistance to these actions.

The rest of the paper is divided into three sections. In section 2 we compare the different hypotheses of Friedman and the Italian quantity theorists regarding the origins of inflation. Section 3 discusses the costs and distorting effects of inflation according to the two approaches. Section 4 addresses the way in which an economy should be disinflated according to Friedman

⁴ See Cabiati (1925a; 1938), Einaudi (1931) and Bresciani-Turroni (1913; 1937; 1960).

⁵ They are close to what is now called ‘old monetarism’ of which quantity theory is the essential building block. For an analysis of the differences between the ‘old’ and ‘new’ monetarism see Williamson and Wright (2010).

⁶ See Friedman (1956a).

and the Italian quantity theorists. The Conclusions summarise the different positions of these two schools.

2. THE ORIGINS OF INFLATION

In Italy, as early as the late 19th century, De Viti de Marco proposed the quantity theory, in opposition to the Marxist theory of money⁷. After the publication by Fisher of *The Purchasing Power of Money* in 1911⁸, the debate among Italian economists on the quantity theory picked up again with some force. In the face of positions critical of this theory, expressed by economists for whom also the price of money can be explained on the basis of the cost-of-production theory of value⁹, the Italian quantity theorists defended the old quantity theory based on Fisher's equation of exchange. A striking example of this defense are the following words by Bresciani-Turroni:

“There is a tendency among some modern economists to strip the quantity theory of money of meaning. This is part of a process of revising traditional theories which ... generates confusion ... In the case of money, critics are wrong when they attempt to weaken a principle that is as valid now as it was when it was formulated by Ricardo: to maintain the value of any money one needs to limit its quantity. This and nothing else forms the heart of the quantity theory”¹⁰.

The explanation of the causes of inflation based on quantity theory is shared by Einaudi in his explanation of both war time¹¹ and post-war¹² Italian inflation, and also by Cabiati (1925a)¹³, according to whom countries abandoning the Gold standard gave up producing ‘sound’ money, to produce ‘false’ money, causing pronounced price increases. Even the young Sraffa, like Keynes in *A Tract on Monetary Reform*¹⁴, accepted the old quantity theory of money. In his

⁷ In 1885, criticizing Marx's hypothesis that the quantity of money depends on the prices of goods, De Viti de Marco (1885; p. 28), writes: “*In conclusion we see that the supporters of the quantity theory's principle do not believe that monetary metals enter in circulation, deprived of any value, but simply that the determination of their value can succeed on the market or higher, or lower, or equal to the work they represent, depending on the result on the quantity circulating in relation to the needs of the circulation*”. About the same period, however, Loria (1890; 1901) explained the price of money with the cost-of-production theory of value. For an account of this debate, see Pavanelli (2003; 2006).

⁸ See Fisher (1911).

⁹ See, in particular, Loria (1911), Gini (1913), Murray (1912) and Vinci (1914).

¹⁰ See Bresciani-Turroni (1960; p. 52). See also Borgatta (1911) and Bresciani-Turroni (1934).

¹¹ See Einaudi (1919).

¹² See Einaudi (1933).

¹³ Even if he believes that certain factors, such as, for example, changes in the supply of bank money, can make the relationship between the quantity of money and prices less stringent. See Cabiati (1924; 1938).

¹⁴ Like Keynes in his *Tract on Monetary Reform* published in 1923. See Keynes (1923).

honors thesis titled e dopo *L'inflazione monetaria in Italia durante la Guerra la guerra*¹⁵, presented in November 1920, Sraffa wrote:

“Both monetary and bank inflation have created new purchasing power without a corresponding increase in the quantity of goods...[T]he result could not fail to be such a large price increase as to re-establish the balance between the total purchasing power and the quantity of available goods”¹⁶.

After the criticisms of Keynes and the Keynesians of the quantitative theory, Friedman resumed this theory of money in *The Quantity Theory of Money – A Restatement*, published in 1956¹⁷. In this essay he concludes that the quantity theory rather than a theory of price levels is, above all, a theory of the demand for money. According to Friedman this view comes from the Chicago monetary tradition¹⁸. “At Chicago, Henry Simmons and Lloyd Mints¹⁹ directly, Frank Knight and Jakob Viner at one remove, taught and developed a more advanced version, one in which the quantity theory was connected and integrated with general price theory and became a flexible and sensitive tool for interpreting movements in aggregate economic activity and for adopting policy choices²⁰.”

It is a fact that Friedman’s formulation of the quantity theory expressed in the *Restatement* has explicit micro-foundations derived from his price theory approach. On the basis of this approach, Friedman comes to the conclusion that the value of money, like that of any other good, lies not in the return obtained from it but rather in the services it offers. These services consist mainly in its being a means of payment. This assumption is the basis of Friedman’s paper published in the *Journal of Political Economy* in 1959, in which he follows the Cash Balance approach to the quantity theory, that is the Marshallian version of the quantity theory, where

¹⁵ Sraffa (1920) translated by Harcourt and Sardoni (1993).

¹⁶ See Sraffa (1920; p. 24 [1993; p. 15]).

¹⁷ See Friedman (1956a; 1956b).

¹⁸ For an illustration of the influence of the Chicago monetary tradition on Friedman see Laidler (2010), Irwin (2018) and Tavlas (2019).

¹⁹ For an analysis of the role of Mints on the development of Friedman see Dellas and Tavlas (2019).

²⁰ See Friedman (1956a; p.3). Johnson (1971) and Patinkin (1969;1972), however, argued that Friedman had misrepresented the Chicago oral tradition. In particular, Patinkin argued that the quantity theory considered in Chicago in the interwar period was reducible to Fisher’s equation of exchange. Therefore, it did not focus on the demand for money and did not treat the latter and the velocity of circulation as a function of a small number of variables. On the contrary, in his view, Chicago economists believed that unpredictable changes in the velocity of circulation could cause large cyclical fluctuations. Friedman replied to Patinkin’s criticisms in his 1972 article *A theoretical framework for monetary analysis*. On the dialectical relationship between Friedman and Patinkin see Leeson (2000). More recently Tavlas (2019) has presented evidence of the existence of a Chicago quantity theory tradition from which Friedman had taken inspiration. Very pertinently Lothian and Tavlas (2018) highlight the influence of Warburton on Friedman.

the level of prices can be affected not only by the supply of money, but also by the demand for money²¹. In Friedman, however, the latter can be considered as a stable function of a small number of variables²² and that the stability of the demand for money corresponds to the stability of the speed with which it circulates²³. In this perspective it is possible to identify the variables that influence the speed of circulation, whose value is, therefore, predictable.

Friedman returned to the theme of the demand for money several times, finding confirmation of the long-term stability of the velocity of circulation²⁴. Because the demand for money is stable, supposing that the quantity of goods and services is given, an individual's increased spending leads to an increase in prices proportional to the increase in the money supply²⁵.

The acceptance of the quantity theory (even if of the old version of this theory) and the long-term stability of the velocity of monetary circulation leads Italian quantity theorists to believe, as Friedman does, that inflation is always the result of an excessive money supply and that, at least in the case of non-convertible money, the responsibility for this excessive expansion of the currency lies in general with the government.

According to Friedman

“Inflation is made by Government and no one else. Of course no government likes to accept ... responsibility for its own defects, so Governments of course blame greedy businessmen, grasping trade unionists, and spendthrift consumers ... but neither the greedy businessmen nor the grasping trade unionists nor the spendthrift housewives produce inflation. The reason they do not produce inflation is

²¹ For a detailed illustration of the difference between the old version of the quantity theory and the Marshallian version of this theory see Hansen (1949).

²² See also Friedman and Schwartz (1982; p. 342). The importance of Friedman's 1959 article has been usefully highlighted by Lothian (2009).

²³ As pointed out by Friedman and Schwartz (1982), temporary deviations in the velocity of circulation from its long-term trend may result from changes in the share of currency on deposit (as occurred in the Great Depression) or from changes in the share of bank reserves on deposit.

²⁴ See, in particular, Friedman and Meiselman (1963), Friedman (1966; 1977), and Friedman and Schwartz (1963; 1982).

²⁵ It is from this perspective that in 1969 Friedman (1969) introduced the concept of *helicopter money*, arguing that a change in the quantity of money determines an identical change in the level of prices. “*Let us suppose now that one day a helicopter flies over this community and drops an additional \$1,000 in bills from the sky ... If every individual simply decides to hold onto the extra cash, nothing else would happen ... But this is not the way people would behave ... The assumption that he was in a stable equilibrium position before means that he will now want to raise his consumption and reduce his cash balances until they are back at the former level ...*”. As Bordo and Rockoff (2013; p. 62) write: “*The key propositions of the modern quantity theory were that: based on the interaction between a stable long-run demand for money and an independently determined money supply, a change in the rate of growth in the money supply would produce a corresponding but lagged change in the growth of nominal income*”.

because none of them has access to a printing press on which they can turn out those lovely, or some people think not so lovely, pieces of paper with which you purchase goods and services²⁶.

Bresciani-Turroni also traces the root causes of German hyperinflation back to the behaviour of the government:

“... German experiences show us the fundamental importance in establishing the level of internal prices and of the currency’s external value, of the quantity of money issued by the government. It was only the continual increase in the issues of legal money which made possible the incessant rise in prices and the continual fall in the external value of the mark ...²⁷”.

Einaudi similarly attributes inflation to the government’s abuse of its ability to issue money, stating that the right to mint money, after abandonment of the Gold standard, had become for them the ‘right to counterfeit money’²⁸. In 1919 he wrote as follows:

“Since the war began, here it was said and repeated countless times, until one no longer knew what words to use ..., that taxes had to be raised ... Only by doing so would it be possible to slow down the increase in circulation and seriously slow down the increase in prices and the increase in the cost of living²⁹”.

The idea that the ultimate cause of inflationary processes is fiscal indiscipline is shared by the young Sraffa who, with reference to Italian post-war inflation, writes:

“The necessary and sufficient condition to undertake a restoration of paper money circulation is for the state to be in a position to eliminate its budget deficit either through economies or through revenues which do not require, directly or indirectly, new issues of bank or currency notes. Only then is it possible to adopt the measures, whatever they might be, to stabilise or improve the foreign exchanges, to stabilise or lower the general price level; in brief to obviate the damage of monetary inflation³⁰”.

Despite these similarities of thought on the ultimate causes of inflation, Friedman and the Italian quantity theorists have differing opinions on the reasons that lead policymakers to decide to expand the money supply.

²⁶ See Friedman (1974). See also Friedman (1963).

²⁷ See Bresciani-Turroni (1937; p. 398).

²⁸ See Einaudi (1945).

²⁹ See Einaudi (1919). [Translation of the authors].

³⁰ Sraffa (1920; p. 45 [1993; p. 7]). Ciocca and Rinaldi (1997) criticize the interpretation of wartime and post WWI inflation in Italy based on the quantity theory.

For Friedman, history shows that overly expansive monetary policies result from politicians' attempts to expand public spending without increasing taxes:³¹

“The financing of public expenditure through an increase in the quantity of money is often a very enticing strategy for the president and the members of Congress. It allows them to increase public spending by offering sops to their supporters and electors without having to propose or approve new taxes to cover expenditure and without having to resort to public loans³²”.

From Friedman's perspective, inflation is a tax which allows government to exploit seigniorage³³. From this perspective, because the steady state seigniorage follows a Laffer curve³⁴, the level of inflation rate is optimal when the government maximises the revenue from seigniorage. This level corresponds to the point where the elasticity of the demand for money is unitary. Beyond this point, further increases in the inflation rate reduces the inflation rate revenue in the steady state³⁵.

However, in reality experience shows us that very often the inflation rate is positioned on the right-hand side of the Laffer curve, that is higher than the optimal inflation rate. Such behaviour, although inconsistent with the Friedman's view, according to which government behaves rationally in an opportunistic manner, can be explained within the ideological framework of the Italian quantity theorists. In fact, the latter, referring to Ricardo, Mill and other classical economists, pay close attention to social and institutional aspects, in particular to the competition between interest groups regarding the distribution of income³⁶. In this context, the decision of governments to pursue inflationary policies is influenced by the behaviour of organised interest groups. Therefore, there are situations where inflation can be traced back to a war of attrition between competing interest groups, none of whom are willing to bear the tax increases necessary to bring public finance back into balance; however at other times, inflation can be the result of pressure on the political class from interest groups who benefit from it.

³¹ See Friedman (1974b).

³² See Friedman (1992; p. 205).

³³ In fact, policymakers do not pursue the good of the community, but their own interests, primarily re-election. See Friedman (1984; [2014; p. 632).

³⁴ As shown by Cagan (1956), when inflation goes up, the expectations of inflation rise and demand for real balances first rises, then falls. In this context, therefore, the steady state seigniorage may follow a Laffer curve.

³⁵ There are then two levels of inflation, one high and the other low, which produce the same revenue. Hence the vast literature that seeks to explain why during periods of hyperinflation the rate of inflation is often on the 'wrong' side of the Laffer curve. See among others Evans and Yarrow (1981), Kiguel (1989) and Gutiérrez and Vázquez (2004).

³⁶ See Naldi (2009; p. 235).

A historical example of the 'war of attrition' is given by Bresciani-Turroni, when he shows how in Germany between 1919 and 1920 various laws designed to reform the tax system and thereby increase government revenue were undermined due to opposition of Labour parties to increase the burden of indirect taxes and that from industrialists and landowners to increase taxes on wealth³⁷.

Like Bresciani-Turroni, Einaudi also maintains that in some circumstances the political class creates an excess of money not so much to expand public spending and consolidate its power, as argued by Friedman, but because it is prevented from increasing taxation due to resistance from influential sectors of society. On the predominantly monetary financing of the First World War by Italy, he writes:

"The issuing of paper money kept within the limits just specified would not have given rise to inflation. Nobody could or wanted to engage in such conduct, the wish to avoid social upheaval and the concern to avoid discontent in the population, which in too great numbers had gone to war against their will and unaware of the reasons for it, prompted the treasury and the issuing institutes to introduce an extraordinary amount of notes"³⁸.

The emphasis on the role of distributive conflict leads Italian quantity theorists to conclude that in some cases, inflation is fueled by the behaviour of interest groups who engage in speculative behaviour by increasing their demand for credit and the accommodative behaviour of banks.

Therefore, Italian quantity theorists, like Keynes in *A Tract on Monetary Reform*³⁹, distinguish between inflation generated by the state and inflation generated by ordinary banks. By explaining the inflationary spiral which occurred in Germany in 1923, Bresciani-Turroni claims that

³⁷ See Bresciani-Turroni (1937; pp. 59-60).

³⁸ See Einaudi (1933; pp. 340-341) Einaudi identified what would subsequently be called the 'Tanzi effect' as a crucial cause of inflationary spirals. In fact, speaking of the period after the First World War and referring to both Germany and the European countries that had fought in it, he writes [Translation by the authors]: "*In order to cover public expenditure, as they were not collecting sufficient taxes and not securing sufficient credit, governments printed notes, some in enormous quantities. Finding themselves with all this paper in their hands ... citizens sought to buy goods and thus forced up prices. Governments, who thus had to pay more for the things they needed, had to print paper money in even greater quantities than before*". See Einaudi (1964; p. 47).

³⁹ See Keynes (1923; pp. 67-69).

“[t]o the ‘governmental’ inflation, provoked by continual demands made on the Reichsbank by the State, was added a second form of inflation, which Germans called ‘private’, that is, the creation of paper money for businessmen”⁴⁰.

In fact, a large part of the private sector not only encouraged the onset of inflation by refusing to accept higher taxes, but some sought to take advantage of the depreciation of the mark, and thus, were actually in favour of inflation.

“Without making the exaggerated statement that the depreciation of the mark was due to a conspiracy of the industrial classes, it is certain, nevertheless, that they contributed largely to it, aided by the agriculturists who saw the lightening of the burden of their mortgages, which before the war was very heavy, and by all the other people who prospered owing to the continued depreciation of the national money”⁴¹.

Sraffa (1920) also attributes crucial importance to the behaviour of interest groups and banks in encouraging the inflationary process:

“Since, as we have seen, bank credits play the same role as notes, it is obvious that an expansion of credit by all banks has the same effects on prices as an excessive issue of notes”⁴².

Sraffa, however, goes beyond the view of Einaudi and Bresciani-Turroni, by putting forward the hypothesis that some interest groups favour recourse to inflation so as to profit from it. In fact, in the opinion of Sraffa, while inflation benefits some interest groups, in particular industry, it disadvantages workers, whose real wages fall. Accordingly, he regards inflationary phenomena as the outcome of the social conflict that typifies capitalistic economies⁴³. Sraffa maintains that the predominantly monetary financing of the First World War was a deliberate policy on the part of the government, under pressure from industrialists:

“[D]uring the war, the convertibility of notes into gold was virtually suspended in all belligerent countries. As a consequence, ... producing money was left totally to arbitrary decisions of banks and the governments

⁴⁰ See Bresciani-Turroni (1937; p. 75).

⁴¹ See Bresciani-Turroni (1937; p. 104). The Reichsbank accommodated the high demand for borrowing of some components of the private sector by maintaining the discount rate at modest levels (despite the considerable acceleration of the rate of inflation between July and December 1922 this rate went up only from 6 to 10 per cent), as well as by discounting an abnormally large amount of commercial bills (between July and December 1922, the trade bills discounted by the Reichsbank rose from 43,595 billions to 496,507,424,800 billions of marks). The significant increase in loans was followed by a significant increase in bank deposits.

⁴² See Sraffa (1920; p. 22 [1993; p. 13]).

⁴³ See Panico (1988).

... Industrialists could avoid subordination to banks and, from being their debtors, they became creditors. The reason for this was the large profits the industrialists made due to war supplies and the fact that the state, their most important customer, itself financed raw materials imports and production”⁴⁴.

According to Sraffa (1922a; 1922b) inflation and excess money creation with their redistributive effects was not only the prevailing way in which the Italian government financed military expenditure in the First World War, but also the way in which it tried to resolve the crises that afflicted the Italian banking system in the early 1920s⁴⁵. On that occasion, the issuing banks released a large amount of liquidity to support the banks in crisis. This form of intervention was possible for the issuing banks

“... owing to the extreme super-elasticity of Italian circulation due to the right they have of issuing uncovered loans to commerce in unlimited quantity ... if ... bank notes are issued in great quantity it is because of the great influence which the Government exercises over the banks of issue”⁴⁶.

Through the subsequent inflationary ‘tax’, a large part of the costs of the errors of management of the banks and in particular of the discount bank fell on fixed income employees and workers⁴⁷.

The belief that an excess supply of money compared to demand is the result not only of imbalances in public finance, but also from the growth in bank money is shared by Einaudi⁴⁸, according to whom, the speed of circulation varies, based not only on changes in expectations but also because of variations in demand for credit⁴⁹. Bearing this in mind, he believed that the inflationary process that began in Italy in the second half of 1946, was fueled by a tumultuous growth in the demand for credit which was accommodated by the banks⁵⁰.

⁴⁴ See Sraffa (1920; p. 23 [1993; p. 14]). On Sraffa’s monetary theory see also De Cecco (1993), Ciccarone (1998) and Panico (2001).

⁴⁵ On this aspect see Mastromatteo and Pittaluga (2022).

⁴⁶ See Sraffa (1922a; p. 187).

⁴⁷ By insisting that inflation and the resulting redistribution are often a deliberate target, Sraffa departs from other post-Keynesian scholars, like Robinson (1938) and Rowthorn (1977), who, while considering inflation as the outcome of a social conflict, underline its unintentional character.

⁴⁸ See Einaudi (1931; 1939). On Einaudi’s interpretation of quantity theory and the Cambridge equation, see, in particular, Forte (2008; 2009).

⁴⁹ See Einaudi (1990). This aspect was known and recognized by Fisher in *The Purchasing Power of Money* published in 1911. In particular, in chapter 4, discussing deflation, he explains how a reduction in prices could be the result of a reduction in demand for loans.

⁵⁰ In the autumn of 1947, to contrast this behaviour of the financial institutions, Einaudi raised banks’ compulsory reserves to almost 25 per cent. In this way, he influenced both the monetary multiplier and the velocity of circulation of money, which both underwent a drastic reduction. As shown by Costabile (2010), Bresciani-Turroni (1950) approved and defended Einaudi’s manoeuvre. See on the disinflation measures adopted by Einaudi also Baffi (1954), Omiccioli (2000) and Faucci (2004).

3. THE DISTORTING EFFECTS OF INFLATION

As we saw in the previous section, Friedman regards inflation as a tax on monetary balances. The result is a redistribution of income from those who hold cash to the whoever controls the money supply, typically the government. In this view, therefore, the costs of inflation are linked mainly to the efforts of individuals to minimise their monetary holdings (substituting it with real goods) and by uncertainty about price levels. Firstly⁵¹, according to Friedman, as shown by Bailey (1956), since inflation is a tax on monetary balances, individuals hold a less than optimal quantity of money and are thus forced to go to the bank more often to obtain liquidity. Secondly, as argued by Friedman in his Nobel Lecture on *Inflation and unemployment*⁵², the higher the inflation rate, the higher its volatility, hence in inflationary situations there is an increased degree of uncertainty. The latter negatively affects the efficient allocation of resources in two ways. Firstly, the increased volatility of the inflation rate

“... shortens the optimum length of un-indexed commitments ...”,

this in turn negatively affects the functioning of the financial markets and lowers economic efficiency. Secondly, the increased price volatility undermines the value of prices as an indicator of commodities’ scarcity. Specifically, Friedman (1977) argues that inflation leaves individuals unable to distinguish between changes in absolute and relative prices and therefore to assess the relative scarcity of goods⁵³. Uncertainty about the level of relative prices also causes individuals to be less eager to enter into long-term commitments. Therefore,

“highly variable inflation tends to destroy financial intermediation, rendering the capital market both limited and inefficient ...”⁵⁴.

Allocation inefficiency caused by inflation impacts negatively on growth and employment levels⁵⁵. While attributing crucial importance to the inefficiency factors just illustrated, Friedman does not ignore the redistributive effects of inflation. Indeed, in his Nobel Lecture he argues that:

⁵¹ See also Johnson (1963).

⁵² See Friedman (1977).

⁵³ See Friedman (1977; p. 467). On this aspect see Nelson and Schwartz (2008) and Nelson (2020; chapter 7).

⁵⁴ See Friedman and Schwartz (1982; p. 496) and also Friedman (1977; p. 466-467).

⁵⁵ In fact, inflation “... may render the political and economic system dynamically unstable and produce hyperinflation and radical political change – as in many defeated countries after World War I, or in Chile and Argentina more recently”. See Friedman (1977; p. 468).

“The tendency for inflation that is high on the average to be highly variable is reinforced by the effect of inflation on the political cohesiveness of a country in which institutional arrangements and financial contracts have been adjusted to a long-term ‘normal’ price level. Some groups gain (e.g., homeowners); others lose (e.g., owners of savings accounts and fixed-interest securities). Prudent behaviour becomes in fact reckless, and ‘reckless’ behaviour in fact prudent. The society is polarised; one group is set against another”.

The redistributive effects of inflation on the real value of financial assets and liabilities are also highlighted by Italian quantity theorists. Bresciani-Turroni, referring to these effects during German hyperinflation, writes:

“The preceding figures are an index of the very great importance of capital in the form of fixed income securities, mortgage loans, and various kinds of credits. This enormous mass of marketable capital was completely upset by the inflation. It is no exaggeration to state that the depreciation of the currency caused in Germany the vastest expropriation of some classes of society that has ever been effected in time of peace”⁵⁶.

Similar concepts are expressed by Einaudi. Writing as Governor of the Bank of Italy, in his *Concluding Remarks* in 1946⁵⁷ he highlights the fact that the considerable increase in prices registered after the Second World War had hit savers, in other words the middle class, hardest:

“The relative impoverishment of the middle classes is therefore the most significant fact of recent years and is undoubtedly a negative factor for the country’s economic recovery and reconstruction”⁵⁸.

For Friedman, redistributive effects on wealth, financial assets and liabilities are time-limited. They end when individuals adjust their inflation expectations to actual inflation. As Johnson (1963; p. 49) writes, in monetarism à la Friedman

“... the owners of wealth, once they become accustomed to the fact of inflation, will incorporate the rate of inflation into the money rate of interest on loans fixed in money terms”.

Unlike Friedman, for the Italian quantity theorists these effects have lasting repercussions on the structure of the economy. As Bresciani-Turroni (1937; p. 363) writes:

⁵⁶ See Bresciani-Turroni (1937; p. 318).

⁵⁷ See Einaudi (1947).

⁵⁸ See Einaudi (1947; p. 107), [translation by the authors].

“Inflation prevents the various parts of the economy of a country from developing in a harmonious manner, and it follows that some parts are underdeveloped”.

Thus, during the German hyperinflation, since bank rates in real terms were very low, large companies took on debt to finance capital investment. This process led to a tendency to over expansion in some parts of German industry and a simultaneous shortage of working capital. Distortions of a similar structural nature are highlighted by Einaudi (1933) and Cabiati (1925a) regarding the inflation affecting the Italian economy both during and after the war. The

“non-harmonious” development of an economic structure penalises its growth, giving rise to an “immobilisation of national wealth” (Cabiati, 1925a, p. 199)⁵⁹.

According to the Italian quantity theorists because of its negative effects on the amount of savings of an economy⁶⁰ inflation penalises growth and the harmonious development of the various components of the economic system. In fact, it reduces the economic and ‘moral’ incentives encouraging individuals to save. From an economic point of view, it discourages saving by eroding the real value of financial wealth and thus inflicting capital losses on savers. This process, in particular, affects the middle class which represents the class where most financial wealth and savings are concentrated. This point is stressed by Einaudi (1933; p. 381) writing

“The middle classes, who are the salt of the earth. The inexhaustible source of savings... are crushed [by inflation]. Among the lower middle classes and in large part of the rich classes themselves, the incentive to save diminishes and disappears⁶¹”.

In criticising Hayek’s vision of the effects of ‘forced savings’, a youthful Sraffa (1932; p. 32) insists that inflation, even when it ends, does not imply a return of the economy to its previous equilibrium situation:

⁵⁹ See also Cabiati (1922).

⁶⁰ On the connection between savings and growth, Einaudi took a different position from Keynes: “I am unswervingly skeptical about the concrete value of modern theories, which suggest that there are countries and circumstances in which savings may prove to be damaging” (see Einaudi, 1947; p. 246 and ff.) [translation by the authors]. On this point, see Faucci (1986; pp. 354-355).

⁶¹ Translation by the authors.

“One class has, for a time, robbed another class of a part of their incomes, and has saved the plunder. When the robbery comes to an end, it is clear that the victims cannot possibly consume the capital which is now well out of their reach⁶²”.

In his *Restatement of Quantitative Theory* Friedman refers to aggregate variables, in particular in the identity between money supply and demand he refers to the aggregate price index, implicitly assuming that prices of different commodities increase at the same rate⁶³.

In contrast, the Italian quantity theorists emphasise the fact that in phases of inflation the prices of the various commodities have different dynamics⁶⁴, resulting in lasting effects on the economic and social structure⁶⁵. According to the Italian quantity theorists, inflation has redistributive effects because it acts not only on the real value of wealth, but also on the relative real income of economic subjects given the different dynamics of the prices of goods.

In accordance with this view, referring to the inflationary process that occurred in Italy during and in the years immediately after the First World War, Einaudi argues that, given the different flexibility of prices and salaries from sector to sector, an inflationary process tends to favour those sectors in which prices can be adjusted more quickly and to disadvantage the others. The lasting distorting effects of inflation were also highlighted by Cabiati (1925a, 1925b, 1926), who notes that war inflation favoured excessive growth in investment, consumption and speculative behaviour. In this context

“[...] healthy money represents the premise for, not the consequence of recovery⁶⁶”.

⁶² Not only through its influence on the economy's propensity to save, high inflation has negative repercussions on the quantity of savings. When inflation is at an advanced stage, many individuals are prompted to move their wealth and savings abroad. A prime example is what happened in Germany starting from the second half of 1922 (Bresciani Turrone, 1937; p. 90). Also the process of income redistribution from labour to capital that follows from high inflation gives rise to a distortionary allocation of resources. Bresciani Turrone terms this re-distributive process 'forced saving'. However, this form of saving does not benefit the socially most productive enterprises but rather those that are the least productive (see Bresciani Turrone, 1937; p. 219). Besides, due to the high state revenue from the inflation tax, wartime 'collectivism' had made popular the idea that the government was able to guarantee the welfare and happiness for everyone (see Einaudi 1933; pp. 29-30). Hence the temptation on the part of the various social classes, workers and farmers, industrialists and bankers to renounce their economic independence, transferring to the government the risks of their business, while retaining the profits for themselves (see Einaudi, 1933; p. 408).

⁶³ See Friedman (1953).

⁶⁴ In their reviews of Hayek's *Prices and Production* both Cabiati (1932) and Sraffa (1932) highlight the importance of the attention given in this book to the effects of changes in relative prices in phases of inflation: this in contrast with the quantitative theory which refers exclusively to changes in the general price level.

⁶⁵ See Nitzan and Bichler (2009).

⁶⁶ See Cabiati (1925a; p. 150).

The effects of different price dynamics on wages and profits in inflationary periods and their impact on the economic and social structure are emphasised particularly strongly by Sraffa. Referring to Italy's WWI inflation, he shows that retail prices rose more slowly than wholesale prices. As a result,

“[e]ntrepreneurs, speculators, and industrialists take full advantage of the differing rapidity with which the various types of prices adjust to increases in circulation. In the first phase, when circulation has increased but prices not as yet, they take advantage of the temporary abundance of money. In the second phase, when prices increase while money wages remain stable, they benefit from the reduction of real wages. The first type of benefits caused no immediate loss for anybody, but they will eventually be discounted by the scarcity of money following the possible future deflation. The second type of effects have immediate consequences for the working class⁶⁷”.

4. HOW TO DISINFLATE THE ECONOMY

According to Friedman the disinflation of the economy can only happen by reducing the creation of money:

“Restraint in the rate of monetary growth is both a necessary and sufficient condition for controlling inflation⁶⁸”. However, in his opinion, since inflation is the result of excessive public spending, “[t]he problem, however, is not how to stop inflation. The problem is to have the political will to do so⁶⁹”.

The Italian quantity theorists share the belief that inflation can only be eliminated by controlling the growth of money supply. As Bresciani-Turroni writes:

“It seems that certain critics of the quantity theory have not grasped the fundamental concept on which this theory is based. It is as follows: the limitation of the quantity of money is necessary for the stability of the price structure⁷⁰”.

A similar position is shared by the other Italian quantity theorists. Referring to post WWI Italian disinflation, Einaudi (1919) suggests that to curb inflation the government should

“break the printing press”.

⁶⁷ See Sraffa (1920; p. 25 [1993 p. 16]).

⁶⁸ See Friedman (1980a; p. 56).

⁶⁹ See Friedman (1980b).

⁷⁰ See Bresciani-Turroni (1937; p. 401).

Similarly on this topic Cabiati argues that:

“Our fiat money has been excessive for a long time: but at this moment, rather than reducing it, it seems urgent not to increase it, allowing prices to settle in stable equilibrium with the money in circulation⁷¹”.

This view is also found in Sraffa according to whom:

“The proposed or effected solutions to restore the circulation of a depreciated currency can be reduced to two categories: (1) withdrawing circulating money until it has wholly regained its original purchasing power; (2) simply refraining from new issues, thus accepting the new purchasing power of money as definitive⁷²”.

By referring to many historical examples, Sraffa shows that he prefers the second solution.

Despite this convergence between Friedman and the Italian quantity theorists regarding the fact that the inflation process can only be stopped by returning the growth of money supply to a level compatible with price stability, differences remain between the two schools on the way and the timing with which this should be undertaken.

Assuming adaptive expectations, and therefore a slow adjustment of expected inflation, Friedman suggests a gradualist approach. Since wages and prices need time to adjust, if the central bank drastically reduces the growth of money, there would be a recession characterised by a marked loss of output and a significant increase in unemployment. If, on the contrary, the reduction in the growth of money is gradual, its effects on output are contained and hence the social and economic costs of disinflation are low.

“The most important device for mitigating the side effects is to slow inflation gradually but steadily by a policy announced in advance and adhered to so it becomes credible. The reason for the gradualness and advance announcement is to give people time to readjust their arrangements, and to induce them to do so⁷³”.

⁷¹ Cabiati (1920b). [Translation by the authors].

⁷² Sraffa (1920; p. 26 [1993; p. 17]).

⁷³ See Friedman and Friedman (1980; p. 277). Friedman’s arguments and policy recommendations are not shared by economists who work on the assumption of rational expectations. Sargent (1983) maintains that rapid disinflation is less costly if accompanied by announcing a change of regime in the implementation of monetary policy. Such an announcement leads to a drop in expected inflation.

The position of the Italian quantity theorists on the method of disinflation is strongly influenced by the awareness that in both upward and downward phases the prices of various commodities change at different speeds, giving rise to redistributive processes. Such processes would encourage certain interest groups to resist restrictive monetary and fiscal measures. Hence the need to act quickly.

Bearing in mind the varying degrees of flexibility of prices and wages, Cabiati (1925a, 1925b) argues for rapid disinflation. In fact, a slow process to reduce inflation, by determining non-proportional variations in prices and production would lead to uncertainty as to which interest groups would bear the costs⁷⁴, which would therefore require

“... at every step a re-adjustment action, with a struggle between the various social groups to decide who ultimately pays the costs of monetary disinflation ...”⁷⁵.

Referring to Germany in the early Twenties Bresciani-Turroni (1937; p. 357 and ff.) states that, given the distortions caused by inflation to the productive structure of that country, monetary stabilisation is the cause of structural changes in the real economy. This implied the elimination of unproductive enterprises, of those engaged in speculation, a reduction in the bloated banking system, and so on⁷⁶. Since disinflation inevitably leads to these economic and social changes, serious resistance to its implementation can emerge if it is undertaken gradually⁷⁷.

It is perhaps no coincidence, therefore, that Einaudi, sharing this view, adopted rapid disinflation when dealing with the inflation that occurred in Italy in 1947. The radical measures he adopted made it possible to reduce the rate of inflation and establish stable prices in a short period of time.

The concern that phases of disinflation can degenerate in deflation is shared both by Friedman and by Italian quantity theorists. Friedman argues that because of adaptive expectations the reduction of money growth should be gradual in order to avoid starting an unintended

⁷⁴ On this point, see Marchionatti (2004).

⁷⁵ See Cabiati (1925a; p. 108). In line with this position, Cabiati was against the policy of slow disinflation adopted by the Italian authorities in the immediate post-war period. See Bientinesi (2010).

⁷⁶ According to Bresciani-Turroni (1937; p. 391-392) “*The monetary incident of stabilisation implies a change in the orientation of production, a deflation of the productive apparatus, of the overgrown banking organisation and of the enormous groups whose origin was due to the depreciation of the mark ... in favour of some genuinely productive activity*”.

⁷⁷ See Cabiati (1925a; p. 199).

deflation⁷⁸. Historically the costs of deflation are highlighted by Friedman and Schwartz (1963) with reference to the monetary policy of the Fed during the Great Depression and by Friedman (1992) with reference to the depressive effects on the Chinese economy of the US silver purchase programme initiated in 1933 by President Roosevelt.

The Italian quantity theorists, rather than emphasising the effects of excessive monetary contraction on aggregate demand, as Friedman does, highlight its effects on the distribution of wealth, income and the level of economic activity.

This position emerged with particular force in the debate about whether and, if so, how the lira should return to the Gold Standard. Within this debate Italian quantity theorists opposed the return to pre-war lira parity, arguing that it would have provoked severe deflation. For Einaudi such a process would lead to problems of solvency for enterprises and would risk bankruptcies and widespread unemployment⁷⁹. A similar position was taken by other Italian quantity theorists, notably Cabiati, according to whom:

“Deflation ... leads to the destruction of the past with the ... immediate bankruptcy of thousands of companies, many of which may be excellent, but they fall ... because they are neither able to recover the monies owed to them by other failed businesses nor obtain loans from banks”⁸⁰. He thus concludes: “Our paper currency has been excessive for a long time: but at the moment, rather than reducing it, it seems urgent not to increase it, allowing prices to establish themselves in stable equilibrium with the paper that circulates”⁸¹.

While both Cabiati and Einaudi were concerned that price stabilization would not degenerate into deflation and were against a return to pre-war convertibility, they believed that the risk of a return to inflation could only be averted by anchoring the lira to gold, albeit at a parity different from the pre-war one.

⁷⁸ See Friedman (1980a; p. 61).

⁷⁹ Speaking of the situation in Italy in 1919 and the question of how to stabilise the money in an article for the ‘Corriere della Sera’ he wrote: “*Until recently, when the amount of notes were still around 14 billion, I thought the most urgent work was to stop any further increase of them ... If, by a miracle, notes could be reduced to 5 or 6 billion at once, it would be a catastrophe. Entrepreneurs would be ruined, they would have no cash to keep their businesses going, they would lose huge amounts compared to the purchase prices of raw materials, they would have to lay off workers and cut the wages of the remaining ones in half.*” [Translation by the authors].

⁸⁰ See Cabiati (1925a; p. 116).

⁸¹ See Cabiati (1920a).

Sraffa, instead, believed that a return of the lira to pre-war parity not only would it have been unfair by disproportionately favoring the rentiers⁸², but it would also have led to serious deflation with high economic and social costs:

“As money appreciates, all private debts, in the same way as the public debt, would become more burdensome and creditors would receive an unexpected premium. It might appear that banks, which are both creditors and debtors almost to the same extent, would not be harmed; in fact, they would be forced to settle all their debts, while part of their debtors would become insolvent, thus also making banks insolvent. Perhaps workers and employees, for an initial period of time, would benefit from the price fall: their wages and salaries might decrease more slowly than other prices and, during the adjustment period, they would enjoy higher real pay. However, we have first of all to remark that changes of retail prices (the fall of which benefits wage-earners) take place more slowly than changes of wholesale prices (the fall of which ruins industry). Therefore, the benefit to wage earners lasts for a short time because the closing down of factories would soon interrupt it ...”⁸³. And again: “[A] contraction of circulation would be followed by a period of scarce money with very high rates. The price decrease would cancel profits and turn them into losses, since entrepreneurs would have to sell their produce at lower prices than those prevailing when they had bought raw materials and paid wages. The impossibility of borrowing would force many firms to close ...”⁸⁴.

Taking into account what Cassel had written in the Memorandum on the World’s Monetary Problems for the Monetary Policy Resolutions of the Brussels Conference of 1920⁸⁵ and in particular of the fact that the price of gold, given its scarcity worldwide, would have increased, Sraffa was convinced that a convertible lira would appreciate in real terms⁸⁶ with negative

⁸² On this point he shares the misgivings highlighted by Fisher (1913) regarding the return of the dollar to pre-war parity. According to Sraffa with the return of the lira to the pre-war parity, some bearers of Italian public debt would have received “... *more than five times what they paid!*”. See Sraffa (1920; p. 53 [1993, p. 23]).

⁸³ See Sraffa (1920; p. 53 [1993, p. 23-24]).

⁸⁴ Sraffa (1920; pp.49-50; [1993; p. 22])

⁸⁵ See Cassel (1920).

⁸⁶ The disastrous effects of deflation on the economy were emphasized by Sraffa even later, in a lecture held at the Emmanuel Economic Society on 3 November 1927 about the revaluation of the lira. In this lecture he pointed out that it “*had disastrous effects upon every section of the community. The workers have suffered both from cuts in wages that are larger than the fall in the cost of living and from unemployment!*”. In his opinion, the decision of the Mussolini government to revalue the lira had mainly domestic political reasons. This view emerges clearly in his two letters to Angelo Tasca (one of the founders of the Italian Communist Party) published in November-December 1927 in *Lo Stato Operaio* (the official journal of the Italian Communist Party). In these two letters, which were a reply to an article by Tasca called *The revaluation of the lira and the American loans*, Sraffa argued that the revaluation of the lira, although contrary to the interests of industrialists and financiers, corresponded to the regime’s objective of gaining the support of the middle classes. See Sraffa (1927). On this exchange between Tasca and Sraffa see Panico (1988), Potier (1991), Vernengo (2001), and Roncaglia and Thirlwall (2009).

consequences on the country's competitiveness. Based on these considerations, he believed it was appropriate to stabilize prices rather than the exchange rate⁸⁷.

“On the whole, if we acknowledge that the stabilisation of foreign exchanges and the stabilisation of prices are incompatible (under the hypothesis of an increase in the value of gold), it seems to me that the latter is to be preferred to the former. Until the destiny of the value of gold has been definitely determined in the major countries of the world, it is better to retain the circulation of legal tender, notwithstanding the serious danger⁸⁸”.

Sraffa's position on the issue of whether to stabilise the exchange rate or prices appears quite similar to that expressed by Keynes in the *Manchester Guardian Supplements* of 1922 and in 1923 in the *Tract on Monetary Reform*. In a passage of this last work he writes:

“Since the rate of exchange of a country's currency with currency of the rest of the world ... depends on the relation between the internal price and the external level, it follows that ..., [i]f the external price is unstable, we cannot keep *both* our own price level *and* our exchange stable. And we are compelled to choose⁸⁹”.

5. CONCLUSIONS

In the first decades of the 1900s some of Italy's leading economists recognised themselves in the quantity theory. They, as Friedman did in more recent times, traced inflation and hyperinflation to an excessive issuing of money by the government/central bank to cover public deficits. Despite sharing opinions on the origin of the inflationary process, Friedman and the Italian quantity theorists nonetheless differ regarding the explanation of how inflation develops, its consequences on the structure of the economy and on how to disinflate the economy. These differences arise mainly from differences in the version of quantity theory they support. Friedman in *A Restatement*, on the one hand, refers to aggregate variables: in the identity between money supply and demand, he refers to the average price levels and to a 'representative' individual, i.e. to a society made up of homogeneous individuals. On the other hand, he, accepting the assumptions of neoclassical economics, believes that the distorting effects of

⁸⁷ De Cecco (1993; p. 5) argues that Sraffa's position on the return to pre-war parity and on maintaining the convertibility of the lira is the result of a combination of the thoughts of Fisher (1913) and Cassel (1920).

⁸⁸ See Sraffa (1920; p. 46 [1993; p. 26]).

⁸⁹ Keynes (1923; p. 126).

inflation are short-term and are eliminated once individuals have adjusted their inflation expectations to actual inflation.

Unlike Friedman the Italian quantity theorists refer to disaggregated variables, taking into account the fact that during a period of inflation the price of various goods rise at different speeds and, furthermore, that society is composed of interest groups who compete regarding the distribution of income and wealth. In this context, according to the Italian quantity theorists, some interest groups, since they benefit from inflation, by their behaviour (e.g. by borrowing for speculative purposes on foreign exchanges or commodities markets) tend to feed the inflationary process. Therefore, alongside a ‘public’ inflation, a ‘private’ inflation can emerge fueled by the accommodating behavior of the banks and the political class.

For Friedman and the Italian quantity theorists, inflation produces serious distortions in the allocation of resources. However, the emphasis on the causes of these distortions is different: for the American economist they derive mainly from the loss of information that derives from the inability of subjects to distinguish between changes in absolute prices and changes in relative prices. Italian economists mainly highlight the effects on the allocation of resources from the redistribution of income and wealth induced by inflation.

For both Friedman and the Italian quantity theorists, the allocation distortions induced by inflation can only be eliminated through price stabilization. This stabilization presupposes the end of the monetization of public debt and the rebalancing of public finances. In the process of disinflation of the economy, the risk of generating deflation must be avoided. According to Friedman, this risk must be avoided through a gradual reduction in the growth rate of money in order to allow expectations to adapt to the actual dynamics of prices. Italian quantity theorists mainly focused on how to disinflate their country’s economy after the First World War. They, aware of the risks of deflation, lined up against a return to the pre-war parity of the lira. Some of them, such as Einaudi and Cabiati, took a position in favor of a return to the convertibility of the Italian currency: this would have prevented a return of inflation in the following years. Sraffa, accepting Cassel’s thesis according to which the scarcity of gold would have led to an increase in the price of this metal in the medium term, maintained, as Keynes would later do in *A Tract on Monetary Reform*, that it was preferable to stabilize prices rather than exchange rate.

REFERENCES

- Baffi, P. (1954), Memoria sull'azione di Einaudi, 1945-1948, in: P. Baffi (Ed.), "Studi sulla moneta", Rubbettino: Soveria Mannelli (2017).
- Bailey, M.J. (1956), "The Welfare Cost of Inflationary Finance", *Journal of Political Economy*, 64(2), 93-110, <https://doi.org/10.1086/257766>
- Bientinesi, F. (2010), "La battaglia quotidiana delle idee: Attilio Cabiati e La Stampa, 1921-1927", *Il Pensiero Economico Italiano*, 18(1), 183-200.
- Bordo, M.D. and H. Rockoff (2013), "Not just the Great Contraction: Friedman and Schwartz's A Monetary History of the United States, 1867-1960", *American Economic Review. Papers and Proceedings*, 103(3), 61-65, <https://doi.org/10.1257/aer.103.3.61>
- Borgatta, G. (1911), "L'opera monetaria del Fisher ed uno studio del Canovai", *La Riforma Sociale*, 22(10-11), 698-705.
- Bresciani-Turroni, C. (1913), "Le variazioni "cicliche" dei prezzi", *Annali del Seminario Giuridico, Università di Palermo*.
- Bresciani-Turroni, C. (1934), "The Purchasing Power Parity Doctrine", *Egypte Contemporaine*, 25, 433-64, Reprinted in: *Saggi di Economia*, Giuffrè: Milano (1961).
- Bresciani-Turroni, C. (1937), *The Economics of Inflation: A Study of Currency Depreciation in Post-War Germany, 1914-1923*, Allen and Unwin: London.
- Bresciani-Turroni C. (1950), "Two Contrasting Opinions Regarding Italian Economic Policy", *Review of Economic Conditions in Italy*, IV(5), September, 355-364.
- Bresciani-Turroni, C. (1960), *Corso di Economia Politica, Vol. II*, Giuffrè: Milano.
- Cabiati, A. (1920a), *Lezioni di politica commerciale e legislazione doganale*, Università Bocconi: Milano.
- Cabiati A. (1920b), "Le risorse del prestito e gli acquisti all'estero", *Il Secolo*, March 18.
- Cabiati, A. (1922), "Sul concetto di immobilizzazione bancaria", *Rivista Bancaria*, 3, 397-409.
- Cabiati A. (1924), *Principi di politica commerciale*, Stab. Grafico Editoriale: Genova.
- Cabiati, A. (1925a), *Il ritorno all'oro*, Edizioni Corbaccio: Milano.
- Cabiati, A. (1925b), "La lotta di interessi attorno al problema monetario", *La Stampa*, June 9.
- Cabiati, A. (1926), *Il ritorno all'oro*, Corbaccio: Milano.
- Cabiati, A. (1932), "La moneta "neutrale" in un libro del dr. Hayek", *La Riforma Sociale*, 39, 194-204.

- Cabiati, A. (1938), "Quel che è vivo e vero nella teoria quantitativa della moneta di Davide Ricardo", *Rivista di storia Economica*, 3(2), 93-115.
- Cagan, P. (1956), *The Monetary Dynamics of Hyperinflation*, in: M. Friedman (Ed.), "Studies in the Quantity Theory of Money", University of Chicago Press: Chicago.
- Cassel, G. (1920), *Memorandum on the World's Monetary Problems*, Harrison and Sons Ltd.: London.
- Ciccarone, G. (1998), "Prices and Distribution in a Sraffian Credit Economy", *Review of Political Economy*, 10(4), 399-413, <https://doi.org/10.1080/09538259800000060>
- Costabile, L. (2010), "Costantino Bresciani-Turroni and the Macroeconomics of Reconstruction", *Rivista Italiana degli Economisti*, 3, 403-431.
- Ciocca, P. and R. Rinaldi (1997), "L'inflazione in Italia, 1914-20. Considerazioni a margine della tesi di laurea di Piero Sraffa", *Rivista di Storia Economica*, 13(1), 3-40.
- De Cecco, M. (1993), "Piero Sraffa's 'Monetary Inflation in Italy during and after the War': An Introduction", *Cambridge Journal of Economics*, 17(1), 1-5.
- Dellas, H. and G.S. Tavlas (2019), "The Dog that didn't Bark: The Curious Case of Lloyd Mints, Milton Friedman and the Emergence of Monetarism", CEPR Discussion Paper no. 13858.
- De Viti De Marco, A. (1885), *Moneta e prezzi*, S. Lapi Tipografo Editore: Città di Castello.
- Einaudi, L. (1919), "Prima di tutto: rompere il torchio dei biglietti", *Corriere della Sera*, November 23 and December 4. Reprinted in: L. Einaudi (1966), *Cronache Economiche e Politiche di un Trentennio (1893-1925)*, Einaudi: Torino.
- Einaudi, L. (1931), "Teoria e pratica e di alcune storture intorno all'equazione degli scambi", *La Riforma Sociale*, 38(September-October), 510-522.
- Einaudi, L. (1933), *La condotta economica e gli effetti sociali della guerra italiana*, Laterza: Bari.
- Einaudi, L. (1939), "Della moneta 'serbatoio di valori'", *Rivista di Storia Economica*, 4(June), 133-167.
- Einaudi, L. (1945), *I problemi economici della federazione europea*, La Fiaccola: Milano.
- Einaudi, L. (1947), *Considerazioni finali*, in: *Relazione Annuale sul 1946*, Banca d'Italia: Roma.
- Einaudi, L. (1964), *Lezioni di politica sociale*, Einaudi: Torino.
- Einaudi, L. (1990), *Il mestiere della moneta*, Utet: Torino.

- Evans, J. and G. Yarrow (1981), "Some Implications of Alternative Expectations Hypothesis in the Monetary Analysis of Hyperinflations", *Oxford Economic Papers*, 33(1), 61-80, <https://doi.org/10.1093/oxfordjournals.oep.a041502>
- Fauci, R. (1986), Luigi Einaudi, UTET: Torino.
- Fauci, R. (2004), *Il Governatorato di Luigi Einaudi (1945-1947)*, in: C. Ceccuti (Ed.), "Governare la Moneta. La Banca d'Italia da Einaudi a Ciampi", Edizioni Polistampa: Firenze.
- Fisher, I. (1911), *The Purchasing Power of Money: Its Determination and Relation to Credit, Interest and Money*, Macmillan: New York.
- Fisher, I. (1913), "A Compensated Dollar", *Quarterly Journal of Economics*, 27(2), 213-235, <https://doi.org/10.2307/1881902>
- Forte, F. (2008), "La teoria della moneta di Einaudi e il suo messaggio" *Notiziario della Banca Popolare di Sondrio*, 106, 202-208.
- Forte, F. (2009), *Alla ricerca della moneta ottima*, in: F. Forte (Ed.), "L'economia liberale di Luigi Einaudi", Olshki: Torino.
- Friedman, M. (1953), *The Case for Flexible Exchange Rates*, in: M. Friedman (Ed.), "Essays in Positive Economics", University of Chicago Press: Chicago.
- Friedman, M. (1956a), *The Quantity Theory of Money - A Restatement*, in: M. Friedman (Ed.), "Studies in the Quantity Theory of Money", University of Chicago Press: Chicago.
- Friedman, M. (1956b), *A Program for Monetary Stability*, in: M.D. Ketchum, L.T. Kendall (Eds), "Readings in Financial Institutions", Houghton Mifflin: Boston.
- Friedman, M. (1959), "The Demand for Money. Some Theoretical and Empirical Results", *Journal of Political Economy*, 67(4), 327-351, <https://doi.org/10.1086/258194>
- Friedman, M. (1963), *Inflation: Causes and Consequences, First Lecture*, Asia Publishing House for the Council for Economic Education: Bombay. Reprinted in: M. Friedman *Dollars and Deficits*, Prentice-Hall: Englewood Cliffs (1968).
- Friedman, M. (1966), "Interest Rates and the Demand for Money", *Journal of Law and Economics*, 9, 71-85, <https://doi.org/10.1086/466620>
- Friedman, M. (1969), *The Optimum Quantity of Money*, in: M. Friedman (Ed.), "The Optimum Quantity of Money", Aldine: Chicago.
- Friedman, M. (1974), "Inflation is Created by Government and by no One Else", Address moderated by A. Shonfield, *Controversy*, British Broadcasting Service, 23 September 1974.

- Printed in: R. Leeson, C.G. Palm (Eds), "The Collected Works of Milton Friedman", Hoover Institute Press: Washington (2017).
- Friedman, M. (1977), "Nobel Lecture: Inflation and Unemployment", *Journal of Political Economy*, 85(3), 451-472, <https://doi.org/10.1086/260579>
- Friedman, M. (1980a), "Memorandum to U.K. Treasury and Civil Service Select Committee on "Enquiry into Monetary Policy", 11 June. Reprinted in: R. Leeson, C.G. Palm (Eds), "Milton Friedman on Freedom", Hoover Institution Press: Washington (2017).
- Friedman, M. (1980b), "Monetarism: A Reply to the Critics", *The Times*, March 3.
- Friedman, M. (1984), Monetary policy structures. *Canadian Conversations on Monetary Policy*, House Republican Research Committee: Washington. Reprinted in: *Cato Journal*, 34(3), 631-656 (2014).
- Friedman, M. (1992), *Money Mischief: Episodes in Monetary Policy*, Harcourt Brace Jovanovich: New York.
- Friedman, M. and R. Friedman (1980), *Free to Choose*, Harcourt Brace Jovanovich: New York.
- Friedman, M. and D. Meiselman (1963), *Relative Stability of Monetary Velocity and the Investment Multiplier in the United States, 1897-1958*, Commission on Money and Credit: Stabilization Policies, Prentice Hall: Englewood Cliffs.
- Friedman, M. and A.J. Schwartz (1963), *A Monetary History of the United States, 1867-1960*, Princeton University Press: Princeton.
- Friedman, M. and A.J. Schwartz (1982), *Monetary Trends in the United States and the United Kingdom, Their Relation in Income, Prices, and Interest Rates, 1867-1975*, NBER and University of Chicago Press: Chicago, <https://doi.org/10.7208/chicago/9780226264257.001.0001>
- Gini, C. (1913), "L'equazione dello scambio e il potere d'acquisto della moneta", *Rivista Italiana di Sociologia*, 17, 219-232.
- Gutiérrez, M-J. and J. Vázquez (2004), "Explosive Hyperinflation, Inflation-Tax Laffer Curve, and Modelling the Use of Money", *Journal of Institutional and Theoretical Economics*, 160(2), 311-326, <https://doi.org/10.1628/0932456041438786>
- Hansen, A. (1949), *Monetary Theory and Fiscal Policy*, McGraw Hill: New York.
- Irwin, D.A. (2018), "The Midway and Beyond: Recent Work on Economics at Chicago", *History of Political Economy*, 50(4), 735-775, <https://doi.org/10.1215/00182702-7202548>

- Jannacone, P. (1918), "Relazioni fra commercio internazionale, cambi esteri e circolazione monetaria in Italia nel quarantennio 1871-1913", *La Riforma Sociale*, 25(Novembre-Dicembre), 513-590.
- Johnson, H.G. (1963), "A Survey of Theories of Inflation", *Indian Economic Review*, 6(3), 29-69.
- Johnson, H.G. (1971), "The Keynesian Revolution and the Monetarist Counter-Revolution", *American Economic Review*, 61(2), 1-14.
- Keynes, J.M. (1923), *A Tract on Monetary Reform*, Macmillan: London.
- Keynes, J.M. (1936), *The General Theory of Employment, Interest and Money*, Macmillan: London.
- Kiguel, M. (1989), "Budget Deficits, Stability and the Monetary Dynamics of Hyperinflation", *Journal of Money, Credit and Banking*, 21(2), 148-157, <https://doi.org/10.2307/1992365>
- Laidler, D. (2010), *Chicago Monetary Tradition*, in: R.B. Emmet (Ed.), "The Elgar Companion to the Chicago School of Economics", Edward Elgar Publishing: Cheltenham, <https://doi.org/10.4337/9781849806664.00013>
- Leeson, R. (2000), "Patinkin, Johnson, and the Shadow Friedman", *History of Political Economy*, 32(4), 733-763, <https://doi.org/10.1215/00182702-32-4-733>
- Loria, A. (1890), "Studi sul valore della moneta", *Giornale degli Economisti*, 1, 189-205.
- Loria, A. (1901), "Il valore della moneta", *Biblioteca dell'economista*, 6 (s. IV), 1-53.
- Loria, A. (1911), "Review of I. Fisher, 'The Purchasing Power of Money'", *Scientia*, 10, 399-405.
- Lothian, J.R. (2009), "Milton Friedman, Monetary Economics and The Quantity Theory Tradition", *Journal of International Money and Finance*, 28(7), 1086-1096, <https://doi.org/10.1016/j.jimonfin.2009.06.002>
- Lothian, J.R. and G.S. Tavlas (2018), "How Friedman and Schwartz Became Monetarists", *Journal of Money, Credit and Banking*, 50(4), 757-787, <https://doi.org/10.1111/jmcb.12481>
- Marchionatti, R. (2004), "Attilio Cabiati, un economista liberale di fronte al crollo dell'ordine economico internazionale", *Il Pensiero Economico Italiano*, 12(2), 119-138.
- Mastromatteo, G. and G.B. Pittaluga (2022), *Organizations and Institutions in Sraffa's Thinking*, in: Eatwell J., Commendatore P., Salvadori N. (Eds), "Classical Economics, Keynes and Money", Routledge: New York.
- Murray, R.A. (1912), "A proposito di due opere sulla moneta", *Giornale degli Economisti e Rivista di Statistica*, 44(6), 558-564.

- Naldi, N. (2009), Piero Sraffa e gli economisti torinesi, in: R. Marchionatti (Ed.), "La scuola di economia di Torino", Leo S. Olshki editore: Firenze.
- Nelson, E. (2020), Milton Friedman and Economic Debate in the United States, 1932-1972, University of Chicago Press: Chicago, <https://doi.org/10.7208/chicago/9780226683805.001.0001>
- Nelson, E. and A.J. Schwartz (2008), "The Impact of Milton Friedman on Modern Monetary Economics: Setting the Record Straight on Paul Krugman's 'Who was Milton Friedman?'". *Journal of Monetary Economics*, 55(4), 835-856, <https://doi.org/10.1016/j.jmoneco.2008.01.001>
- Nitzan J. and S. Bichler (2009), *Capital as Power: A Study of Order and Creorder*, Routledge: New York.
- Omiccioli, M. (2000), "Einaudi e l'inflazione del 1946-47: un riesame", *Rivista di Storia Economica*, 16(1), 37-63.
- Panico, C. (1988), "Sraffa on Money and Banking", *Cambridge Journal of Economics*, 12(1), 7-28. <https://doi.org/10.1093/oxfordjournals.cje.a035051>
- Panico, C. (2001), *Monetary Analysis in Sraffa's Writings*, in: T. Cozzi, R. Marchionatti (Eds), "Piero Sraffa's Political Economy", Routledge: London.
- Patinkin, D. (1969), "The Chicago Tradition, the Quantity Theory, And Friedman", *Journal of Money, Credit and Banking*, 1(1), 46-70, <https://doi.org/10.2307/1991376>
- Patinkin, D. (1972), "Friedman and the Quantity Theory and Keynesian Economics" *Journal of Political Economy*, 80(5), 883-905, <https://doi.org/10.1086/259943>
- Pavanelli, G. (2003), "Aspetti della teoria neoclassica in Italia tra Otto e Novecento: la ricezione del contributo di Fisher", Università di Torino, Dept. of Economics "S. Cogneetti de Martiis" Working Paper No. 01/2003.
- Pavanelli, G. (2006), "The Early Reception and Diffusion of Irving Fisher's Work in Italy", *Journal of the History of Economic Thought*, 28(3), 267-294, <https://doi.org/10.1080/10427710600857732>
- Potier, J.P. (1991), *Piero Sraffa-Unorthodox Economist (1898-1983): A Biographical Essay*, Routledge: New York.
- Robinson, J. (1938), A review of "The Economics of Inflation" by Bresciani-Turroni, *Economic Journal*, 48(191), 507-513, <https://doi.org/10.2307/2225440>

- Roncaglia, A. and A.P. Thirlwall (2009), Piero Sraffa, Palgrave Macmillan: London, <https://doi.org/10.1057/9780230234697>
- Rowthorn, R.E. (1977), "Conflict, Inflation and Money", *Cambridge Journal of Economics*, 1(3), 215-239.
- Sargent, T. (1983), *Stopping Moderate Inflation: The Methods of Poincaré and Thatcher*, in: R. Dornbusch, M.H. Simonsen (Eds), "Inflation, Debt, and Indexation", MIT Press: Cambridge.
- Sraffa, P. (1920), *L'inflazione monetaria in Italia durante e dopo la guerra*, University of Turin. Published in the same year in Milan with the Premiata Scuola Tipografica Salesiana. Translated in English by W.J. Harcourth and C. Sardoni and published in 1993 as "Piero Sraffa: 'Monetary Inflation in Italy during and after the War'", *Cambridge Journal of Economics*, 17(1), 7-26.
- Sraffa, P. (1922a), "The Bank Crisis in Italy", *Economic Journal*, 32(126), 178-197, <https://doi.org/10.2307/2223256>
- Sraffa, P. (1922b), "Italian Banking Today", *The Manchester Guardian Commercial - The Reconstruction of Europe*, 7 December, 675-676.
- Sraffa, P. (1927), *Politica monetaria. Due lettere sull'articolo di Angelo Tasca "La rivalutazione della lira e la crisi dell'economia italiana"*, *Lo Stato Operaio*, 1, 1089-1095. Reprinted in: L. Villari (Ed.), *Il capitalismo italiano del Novecento*, Laterza: Bari (1972).
- Sraffa, P. (1932), "Dr. Hayek on Money and Capital", *Economic Journal*, 42(165), 42-53, <https://doi.org/10.2307/2223735>
- Tasca, A. (1927), *La rivalutazione della lira e la crisi dell'economia italiana*, *Lo Stato Operaio*, 1(6), 667-692.
- Tavlas, G.S. (2019), "'The Group': the Making of the Chicago Monetary Tradition, 1927-36", *History of Political Economy*, 51(2), 259-296, <https://doi.org/10.1215/00182702-7368860>
- Vernengo, M. (2001), "Sraffa, Keynes and 'The Years of High Theory'", *Review of Political Economy*, 13(3), 343-354, <https://doi.org/10.1080/09538250120055186>
- Vinci, F. (1914), Review of I. Fisher, "The Purchasing Power of Money", *Giornale degli Economisti*, 48(6), 507-514.
- Williamson, S. and R. Wright (2010), *New Monetarist Economics: Methods*, in: B.M. Friedman, M. Woodford (Eds), "Handbook of Monetary Economics", North Holland: Amsterdam, <https://doi.org/10.1016/B978-0-444-53238-1.00002-8>