

Money and interest in an atypical neoclassical economist: Gustavo Del Vecchio

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The international prestige of Gustavo Del Vecchio (1883-1972) is ascribable to his monetary theory and particularly to his studies aimed at integrating money into the Walrasian general equilibrium framework.

Between 1909 and 1917, in various articles and essays Del Vecchio (henceforth DV) proposed a monetary theory of circulation which includes a wide range of analyses on pure monetary theory, i.e. utility and value of money, and on applied monetary theory, such as credit, discount rate, banking and international payments. His early writings, in chronological order, in which he set forth his “theory of circulation” were: *Principii della teoria economica della moneta* (1909); *Il capitale disponibile e la circolazione del capitale* (1911); *La teoria economica del credito*, (1913); *Sulla teoria economica delle crisi* (1914); *Teorie dello sconto* (1914); *Lineamenti generali della teoria dell’interesse* (1915); and *Questioni fondamentali sul valore della moneta* (1917).

Each of these long articles would require thorough analysis, so we have preferred to pay our attention to works that study utility and value of money in depth, although in DV’s vision even the most theoretical features are always intertwined with applied aspects such as discount rate, interest rate and credit.

The history of economic thought places DV among Walras’s followers and, particularly, considers him as the scholar that first tried to develop his monetary services approach (Schumpeter, 1990[1954], p. 1326; Marget, 1932a and 1935; Demaria, 1961). If this is true, DV’s monetary theory must be read, as we hope to show, also from another perspective aimed at integrating heterodox aspects with neoclassical principles.¹ Moreover, unlike Walras, he never dropped the attempt to develop a dynamic monetary theory.²

In fact, the works DV proposed during the above-mentioned period attract attention also due to the method he used. He started with a static methodology aiming at explaining *how* the monetary phenomena occur; subsequently he adopted dynamic instruments in order to clarify *why* the monetary variables and the value of money

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¹ In a previous work we argued that Del Vecchio’s theoretical originality is grounded on his effort to intertwine economics and history (see Tuset, 2004). Del Vecchio treated general economic equilibrium as the zenith of economic studies, but this does not mean that he was a mere disciple of Walras.

² A thorough analysis of Walras’s monetary theory is contained in Bridel (1997).

change.³ DV was evidently a rather ‘original’ and ‘heterodox’ scholar and therefore, in order to better understand him, it is helpful to firstly provide a brief overview of his methodological topics.

Economics as a science of social organisation

By looking at the spread of economic theory in Italy, DV’s works represent a point of junction if not synthesis between the late nineteenth century evolutionary approach, which in its turn is the result of classical, organicistic and historical contributions, and the equilibrium perspective mainly derived from the Walras-Pareto theoretical framework.

DV affirmed that the difference between social sciences does not pertain to «the object», which remains the human being and his relationships with all of them, but to «the different point of view» that each of them delineates on the above object. Thus, in DV’s perspective, economics is nothing more than the discipline that analyses the individual in his relations with goods or the individual’s relations concerning goods: «there are not *things* but economic relations» (1932, footnote p. 9). Consequently, economics becomes a «science of relationships».

The notion of «economic relationship» gives a touch of originality to DV’s theory vis-à-vis traditional economic schools of thought. In fact, this concept, the origins of which lie in organicism, confirms DV’s position in the general equilibrium theory, but it also recalls the German economic-law school of the mid nineteenth century.⁴ Moreover, we can better understand why DV adopted such a viewpoint by remembering that he agreed with Pantaleoni’s proposal affirming that the origins of economics should be sought in biology instead of mechanics. Also for Pantaleoni the object of economics is

«[Not] the improving in the satisfaction of individuals and groups, but the persistence and the moving of individuals and groups into their mutual positions» (Del Vecchio, 1956b, p. 198).

Put in another way, economics studies relationships.

If we postulated that economics «studies certain processes instead of making the inventory of the wealth» (1908, p. 235), we can understand DV’s interest, once again derived from Pantaleoni, in the processes of organisation of markets and enterprises and in social competition. In short, the job of economics is to investigate the origins of market transformations. In order to do this, economics should include all the factors and forces that shape economic relationships, even if they are not of the utilitarian or hedonistic type, in other words even if they are not economic strictly speaking.⁵ Thus

³ From 1909 onwards Del Vecchio was conscious that monetary facts require both static and dynamic methods (1909, p. 550). Moreover, he frequently affirmed that monetary circulation issues are mainly dynamic ones (see, among other works, 1914b, p. 135).

⁴ In this regard, see one of his early essays, *Beni immateriali e capitali immateriali* (1908), where he hinged the notion of economic good on its relationship or title and not on its physical qualities. We can find a similar perspective in von Hermann (1832).

⁵ Since the notion of relationship allows him to insert historical and extra-economic elements in economic analysis, DV’s perspective appears very close to the Marxian one. The latter, since it is grounded on specific ways of production, involves economics as a science of historical relationships and not a science of exact laws. DV’s theory does not include the “ways of production” and does not accept the determinism that characterises the Marxian historical laws: in any case, both the approaches start from history in order to find uniformities and invariants, with the difference that, for DV, these elements are in the economic web and not in society. The former are in perennial transformation.

economics must explore such *hidden links*⁶ that interconnect economic variables to extra-economic factors. In so doing, the boundaries of economics become wider and wider, up to the point where they are no longer clearly defined.

Moreover, for DV, as for Pantaleoni's interpretation of dynamics, economics is a science of economic organisation,⁷ where the latter is defined:

«As the less visible side, but also the side that is nearest to political economy, since organisation, in the strict sense of the word, is the main object of economic theory» (1933, p. 45).

The interest in economic organisation leads DV in the direction of institutions. Although the latter are not economic variables, they represent a subject that influences economic activities and relationships.⁸ In DV's opinion, economists must connect the change of extra-economic variables, among them institutions, with the changes in the economic environment. Obviously, this means treating extra-economic or exogenous factors⁹ not as data, but as empirical or historical variables.¹⁰

It should be clear that, in DV's view, economic dynamics involves the building of an analytical method that includes both economic and exogenous components in the theory. In other words DV believed that the understanding of price determination comprised the study of population, social organisation, technology, psychology and so on. In almost all his works the following methodological scheme recurred: the complementarity between pure economics based on equilibrium and applied economics directed to the study of extra-economic factors in economic change.¹¹ The reason for the frequent reference to the need for both types of analysis is explained, as in Walras's

⁶ As subsequently F. Braudel writes about history.

⁷ Caffè stressed this point (1983, p. 15).

⁸ In DV's terminology, which is drawn from Pareto, institutions represent an important *economic coefficient*. The "economic coefficient" is a parameter that, in a dynamic perspective, can be treated as an economic cause. DV (1908, p. 266-7, footnote n. 2) proposed the following list of economic coefficients: individual tastes; absolute quantities and qualities of individual and real coefficients of production; relationships between different quantities of production factors; allocation of resources among individuals; environment, knowledge of it and ways of acting on it; relations between individuals; time as a general coefficient conditioning all the other coefficients, including economic organisation; concurrence (see Tusset, 2000).

⁹ When DV wrote about extra-economic factors he was concerned with the *middle* factors that characterised the economies of the then industrialised countries.

¹⁰ According to this view, DV believed that the debate on *Methodenstreit* was not completely justified. He recognised that economic facts are historical, but also thought that the method used in analysing them should not be only historical. He hypothesised an intermediate way between the two opposed methodological fields (1956b, p. 240). The intersection between historicism and deductive theories would lead to economic dynamics. In any case, the growing attention to dynamic theory was not the consequence of methodological progress only; it was also the result of changes in the object of economic theory. In fact, while the economy of the previous century did not raise the need for a dynamic theory different from circularity and stationary analyses, the economy of the early 20th century posed new challenges for economic scholars. Money, credit, accumulation and other topics could no longer be theorised leaving out time. Dynamic theory has therefore represented a methodological progress but it has also shown the partial transformation of the theoretical object as a result of the changes in economic reality.

¹¹ Generally speaking, the distinction between pure economics and applied economics «reproduces – as Gini wrote (1943, p. 9) – the analytical sequence that is adopted by most part of scientific disciplines in order to solve gradually problems, starting from general or more abstract aspects and then passing to more specific and actual ones». Also Walras and Pareto (in the *Cours*) and, previously, nineteenth century writers made this distinction.

monetary theory, by the specific object, money. Nevertheless, it is a rule DV adopted to read the evolution of economic theories.¹²

According to it, all the works produced on monetary aspects began with pure analysis devoted to the theory of utility and then developed dynamic or applied elements investigating the causes of the monetary value variations. In addition, in each of his most important works on interest, discount rate and economic crises, DV always proposed both the perspectives on economic phenomena.

However, as stressed by Machlup (1978, p. 95), raising doubts on the role of extra-economic factors does not mean rejecting the deductive method but affirming its methodological limitedness and, in general, emphasising the question of «epistemological self-sufficiency of economic science». At the beginning of the twentieth century, DV was already aware of such limits of economic science. In order that economics does not abandon its aim of «explaining the day-by-day economic facts by the general laws» he considered it useful to integrate deductive analyses with statistical and historical statements, in a perspective accepted also by Pareto in the *Cours*, a text of which DV always thought highly.

Nevertheless, these methodological notes are useful for understanding how such a “complex” approach could not allow singling out of a unique and prevailing reading of monetary phenomena.

The quantity theory of money

In the writings examined here, DV reaffirmed his acceptance of the neoclassical principle stating that money has a unique function: medium of exchange. He never gave up this dogma during his static and dynamic analysis of monetary circulation. However, it should be noted that DV often made use of a rhetorical device consisting in the proposal of statements that he then submitted to a through analysis. Therefore, starting from money as a medium of exchange, he investigated concepts such as final utility and marginal utility of money, placing them at the centre of his static investigation. The other pivotal notion in the pure theory view, the value of money, remained in the background until DV tried to explain it in dynamic terms but, as he argued, this involved switching to an applied perspective.¹³

Proceeding by topics enabled him to reach conclusions that did not seem definitive, in the sense that they were not completely denied or accepted. However, this was typical of DV's arguments, whose main object was not to reach the “truth” but rather to show the complexity of any issue belonging to the economic world.

Firstly, he clarified his thoughts on a neoclassical dogma: the *quantity theory*. From the early pages of *Principii*, DV detached himself from such a broadly accepted theory (1909, p. 258). Remembering the above-mentioned rhetoric scheme, he proposed new concepts in order to confute the explicative power of quantity theory. Although he argued that the velocity of circulation of goods must be equal to the velocity of circulation of money (1909, p. 261), DV replaced the latter with the *effectiveness* of money. In other words he inserted a notion expressing the ratio between the unit of money and the quantity of goods that such unit can exchange. Thus, characterising such

¹² He argued that economic science, once Ricardo established it, had been developed as pure theory till economic dynamics or applied economics assumed a complementary role.

¹³ It must be clear that for DV “value of money” has the common meaning of “purchasing power” of money expressed by the reciprocal of the “price index”. However, such definitions and measures do not solve the question concerning the changes in this value of money.

quantity of goods according to the sector or to the economic group that produces or exchanges them, he obtained another concept: the pre-classical *selling group* (*gruppo di vendite*).¹⁴ DV put it:

«A selling group will be determined for each period of time, after that a unit of money can be used to make another change: if this period is very long we would have very high value of money; if such period is very short, we would have very small value of money» (1909, p. 162).¹⁵

This means that money that moves a large quantity of merchandise in one transaction is effective (or involves a large group of selling). DV left the quantity of circulating money out of consideration, preferring to single out the quantity of goods that can be purchased by one unit of money.¹⁶ Consequently the demand for money grows with the number of transactions, the latter in its turn depending on the characteristics of the market.¹⁷

In our opinion, the more plausible conclusion of this analysis is that DV posited a different velocity of circulation of money according to the productive structure of the country. Consequently, both the value of money, i.e. the purchasing power of money expressed by the reciprocal of the price index, and the quantity of circulating money will rely on the regime prevailing in such a market. If two or few groups characterise it, the number of transactions is smaller than with many groups.

Hence we can understand the distinction introduced by DV between the “normal” value of money during long periods and the “current” value of money during short periods (1909, p. 264). The former presupposes few transactions, a sort of ‘once-and-for-all’ market in which the value of money tends to its cost of production, but this is not the most probable case. On the contrary, short periods involve many transactions, a ‘periodical/continuous’ market, in which the value of money is not known. In fact, DV did not accept application of the quantity theory of money to the latter case:

«The quantity theory is not true either for a moment or for a country: it could be true only for a closed country with the money market in equilibrium» (1909, p. 264).

He believed that a dynamic market could not be in equilibrium.

Thus since the value of money cannot be explained either by following the mainstream thought of those years or referring to the classical theory of cost of

¹⁴ DV referred to Cantillon, *Essai sur la nature du commerce*. In particular, the notion he introduced pertains to the analysis of the monetary circulation proposed by Cantillon in Chaps. III and IV of the second part. Cantillon’s analysis concerned the exchange by means of money between the main social groups in eighteenth century France (Landowners, Entrepreneurs, Farmers, Workmen, Menservants and so on) (Cantillon, 1931, p. 120 ff). Previously, Petty and Locke had discussed the same problem of the proportion between exchanged goods and circulating money.

¹⁵ The idea of “selling group” recalls the relation between the amount of goods sold and the share of goods not produced for the market. Marget, among others, subsequently discussed the question (1932b).

¹⁶ The value of money therefore appears determined by the selling groups; in other words, if we suppose that only two types of goods are exchanged in a country, and we make use of one unit of money, the value of such money will be equal to the value attributed to one of the two groups of goods. Consequently, the «value of money will be equal to the ratio between the larger selling group and the amount of money circulating in that country» (1909, p. 266). The problem is to determine the larger selling group in a country. The “selling group” recalls the distinction introduced by Walras (1877) between “periodic” market and “continuous” market. The former would be characterised by large selling groups and by a reduced number of transactions; the latter by small selling groups and by many transactions.

¹⁷ The larger the selling groups, the fewer the transactions (1909, p. 263).

production (1909, p. 257), we have to conclude that DV was looking for a completely different explanation.

Money as an organisational factor

Once he made his position on the quantity theory of money clear, he could investigate the intermediary function of money. At first glance, money does not have other functions beside the intermediary one. DV wrote:

«Money [...] is money if it deserves to be exchanged, only during the exchange it is useful, and even if we can affirm that it is useful since it has value [...] certainly it is useful when it is changed; in less abstract terms, we can say that its utility coincides with its exchangeability» (1909, p. 509).

According to the advocates of the marginal utility of money, DV tried to insert money in the utility function of the agent inasmuch as it would mean integrating money in the theory of value, but he never stated that the value of money is determined by its marginal utility (see also 1956b, p. 278). In abstract terms and postulating a stationary world, if money is exclusively used as a medium of exchange, the utility and the value of money might be the same. Money increases the value of goods: in fact, «exchangeability is its utility» (1909, p. 509). And the marginal utility of money is equal to the utility of the last good purchased. Nevertheless, the notion of utility of money will immediately lose its “marginal” meaning if it is separated from its role as a medium of exchange.

It is meaningful that such a notion of utility of money did not accomplish DV’s theoretical needs. In fact, he established the dependence of the utility on the value of money:

«Utility of money [...] would be dependent on its value» (1909, p. 510).

Thus, DV distinguished himself from Wieser and the other scholars of marginal utility.

DV never abandoned the Walrasian notion of *service* since the value of money can be explained referring to such a notion only and, as we will see, such a monetary service is equal to the interest rate.¹⁸

The fact is that from 1909 onwards, DV was interested in explaining why individuals hold money because it contradicts the neoclassical principle of the uniqueness of the monetary function. Moreover, he tried to understand whether a social utility of money exists beside the individual utility.

To solve the first of the two questions, DV used a methodological device which actually allowed him to set the problem aside. In static conditions, money shows a unique function, the intermediary one. However, it does not rule out the possibility that money offers a «further and additional service» (1909, p. 270). In fact, DV hypothesised that money may be held

«because hoarding it represents the satisfaction of a need that is different from the need to purchase» (1909, p. 513).

A first attempt was made by DV opening a new perspective on social utility. He stated that money could be analysed from a social perspective beside the known

¹⁸ DV re-proposed this theory in 1956 (1956b, p. 279).

individual point of view. In other words, money has both an *individual* utility and a *social* utility:

«The individual point of view must be distinguished from the social point of view; it is necessary to know the relationships between the two perspectives and to replace the notion of utility with that of service; finally, the studies must be focused on these two aspects: the services offered by money to individuals and those given to society as a whole» (1909, p. 514).

DV wrote that only in this way could we explain the common individual tendency to hold money even if it is contrary to «the economic principle». To understand this point, we should mention that DV treated circulation in a different way from production. While the addition of the individual production is equal to the aggregate amount of production itself, the sum of the quantities relating to circulation is not equal to the correspondent aggregate one. This happens because the individual phenomena would present a different form (*forma*) (1909, p. 515, footnote no. 1) in comparison with social phenomena. DV distinguished the individual utility of money from its social utility. The latter is higher than the addition of individual utilities. The reason lies in the additional contribution that money makes to the economic organisation.¹⁹

Although it is neutral, money in its social dimension offers a *service* that is a factor of economic organisation. Hence it presents a social utility that is different from its value or, better, a social service that differs from individual ones. Individuals are aware of such social service and so they hold liquidity. DV actually offered an explanation of such service in terms of utility.

Individual utility of money is different from the utility of goods that money allows us to purchase. Money shows an incremental utility since it is not equal to the utility of the goods purchased, but to the difference of utility perceived by the individual as a consequence of the change.²⁰ DV then transposed the incremental character that money presents at individual level to the social plan. Money permits economic organisation: this is the reason for its social utility.

Moreover, the organisational properties of money make it clear why DV preferred to treat his proposal as a theory of circulation and not of money strictly speaking. For the same reasons we cannot assert that DV rejected every kind of direct utility of money.²¹ Social utility is a direct utility. It is true that such utility is inseparable from exchange but individuals, perceiving both the individual and social role of money, decide to hold it. Consequently, money partially loses its character of money-good and acquires that of money-sign.

We believe that DV's statements on the social utility of money are only a step in the direction of a theory of monetary services. In fact, social utility as defined does not contribute to defining the value of money which remains unspecified. DV stressed that

¹⁹ Del Vecchio wrote: «[...] for the factors of organisation the principle according to which the total utility exceeds the utilities of the individual that can dispose of the organisation is true» (1909, p. 517, footnote no. 1).

²⁰ DV proposed the following comparison: «We think of money as a means of transport [...] the final utility of which is not the utility of the less useful merchandise it has carried, nor the utilities of the two less useful goods carried in the double direction, but is the sum of the differences between the utilities at the final point and the starting point: so the final utility of money is the addition of the differences between the utilities of the goods purchased and that of the goods not purchased» (1909, p. 518).

²¹ In this regard, Realfonzo pointed out the absence in DV's works of a clear theory of both direct and indirect utility of money (2003, pp. 50-1).

«value of money is an expression that may be understood in several way», firstly and more simply as «purchasing power measured by the amount of goods that money can buy» (1909, p. 520).

The role of the rate of interest

Moving forward from examination of the first important work of DV's youth, we can assert that he progressively shifted the notion of utility of money away from the marginalist mode towards a not completely defined notion of utility as service. Moreover, he has not yet given a clear definition of value of money. In this regard, ever since then in the *Principii*, and mostly in the subsequent essays, he tried to anchor the value of money to another variable: the interest rate or the discount rate when the analysis is referred to the monetary market only.²² DV believed that in general economic equilibrium the discount rate must be equal to the interest rate. Out of static perspective, this equivalence is not necessarily respected (1956b, p. 254).²³ As he wrote in 1909: «The monetary theory should be built as an application of the theory of interest» (1909, p. 519).

Time became an important factor in defining the value of money and the interest rate was treated as the variable that introduces time into the theory. First of all, the interest rate was directly connected to the utility of money: if the interest grows, the utility decreases. Therefore, although DV was still not able to explain the reasons that induce individuals to hold money, he could explain the criteria according to which an agent decides to keep money.²⁴

Ascertaining that a time gap between the selling and the buying of goods exists, he outlined the need to draw general attention to the uncertainty and the instability surrounding each decision about the cash held for consumption.²⁵ Since such choices happen in time they depend also on the rate of interest. In this regard, reading DV, we have the perception that each individual forms his own idea of the (real?)²⁶ interest rate according to his needs, the availability of goods, and the historical time.²⁷ The “individual” rate of interest becomes the variable that influences the choices concerning consumption (and investment). Consequently, since the demand for money depends on the circulating merchandise, the interest rate indirectly affects the demand for money and therefore the monetary value.

DV implicitly stated that changes in the interest rate *cause* changes in the value of money. Thus, we gradually have a theory of circulation where the money rides on the interest rate: the smaller (higher) the interest rate, the larger (smaller) the purchased goods and, thus, the higher (smaller) the utility of money.

²² About the DV's distinction between the discount rate as monetary variable and the interest rate as financial variable (Realfonzo, 2003, p. 53).

²³ In equilibrium, the interest rate must be interpreted as the Wicksellian natural rate of interest.

²⁴ DV stated that «Each individual holds money in such a quantity and *for some time* till he obtains from the last quantity of money held and *for the last period of time* during which he detains money an increment of utility equal to decrease in the utility of the goods that he will purchase» (1909, p. 521 ff.). This means that the measure of the variation of utility is given by the interest rate.

²⁵ This is the point of view of Zanni: «DV gave a role to the interest rate also in the qualitative composition of the liquidity held for the transactions; moreover, he was conscious of the short period instability descending from the possibility of substituting money and quasi-money» (1989, p. 145).

²⁶ DV was not completely clear on this point.

²⁷ See what Demaria wrote about this issue (1961, p. XXXVII).

The obvious conclusion of such reasoning is that the variations in the value of the “service” offered by money follow the changes in the interest rate. According to such statements DV criticised von Wieser’s proposal (1910, 1914) affirming that the value of money must be deduced from past economic transactions. On the contrary, he (1917, p. 120-21) believed that such a value is determined by future economic transactions, by the interest rate and, finally, by individual forecasts (an embryonic idea of expectations).

Summing up, the value of money is conditioned by the interest rate.²⁸ In addition, since the interest rate influences the composition of liquidity it also affects the circulation of money that cannot be postulated, in line with the then prevailing interpretations of the quantity theory:²⁹

«determining the cost of money the interest rate regulates purchases [...] if it decreases the amount of transaction grows and, consequently, the value of money increases; on the contrary, if the interest rate declines the opposite occurs» (1909, p. 537).

Contrary to the neoclassical thought, in DV’s view the interest rate does not affect saving which is determined by social and psychological factors. DV argued that saving is determined partially by economic factors such as wages, profits and wealth, and partially by non-economic factors, such as individual ambitions (1915, p. 306 and following).

In our opinion the interest rate allows DV to introduce variables that give a subjective character to the demand for money in addition to the objective or transactional one, i.e. psychological factors, market forecasts, uncertainty and behavioural elements.

According to the early DV we can affirm that the value of money is simultaneously determined by the demand for and the supply of money, where demand mostly depends on *psychic* factors (habits, uncertainty) while supply is affected by institutional determinants such as the discount rate or banking rules.³⁰ In such a way DV replaced the objective meaning of the value of money with a subjective concept.

We can conclude that following the *Principii* in 1909, DV introduced into his analysis more than one point distinguishing his monetary view from neoclassical thought, despite his repeated compliance with the neoclassical principle stating that money is firstly a medium of exchange. In fact, in his early writings he had left several questions open, for example the link between utility and value, and this was the sign of a style characterised by an aversion to all dogmas or easy explanations.

²⁸ Sometimes, DV’s analysis on the role of the rate of interest seems to place him nearer to what Marshall was to write in *Money, credit and commerce* than to Walras. Marshall (1923, p. 14) wrote that «[...] the ‘value of money’ [...] at any time is the rate of discount, or the rate of interest for short period loans charged in it».

²⁹ The interest rate «represents the economic boundary» to the monetary circulation (1909, p. 526). DV attributed to the notion of *monetary circulation* a meaning that sums up all the aspects concerning the use of money. For example, the postponement of consumption is part of such theory because it is influenced by the real rate of interest. Similarly, institutional decisions concerning the discount rate affect the circulation of money. The theory of circulation is therefore wider than the theory of money strictly speaking.

³⁰ We have mentioned Cantillon who, in 1755, wrote that prices – and consequently the value of money – can change because of individual psychological reactions.

The value of money

By presenting the contents of the 1917 essay, *Questioni fondamentali sul valore della moneta*, DV re-proposed the same question previously argued in the *Principii*: is it possible to develop a theory of the value of money independently from the theory of utility? To offer an acceptable answer, he progressively grounded his reasoning on *psychic* factors.

In addition, as said above, he drew nearer to a dynamic methodology which means paying attention to applied economics or, also, to sociological approaches. In a nutshell, dynamic perspective led him to state that the value of money finally hinges upon exogenous determinants. In particular, the dynamic analysis of money mainly involves widening the theoretical investigation to subjective factors influencing monetary variables. Since DV viewed dynamic perspective as complementary and not as opposite to the static perspective, he did not set aside the result of his previously pure analysis.

Having accepted that in mathematical terms the value of money is the reciprocal of the level of prices, he tried to single out the variables influencing this value. This is the subject of the 1917 *Questioni* and of his dynamic monetary theory.

DV was not satisfied with one or few determinants of the value of money. Thus, the investigation of the monetary value involves accounting of the following margins:

«the individual marginal utility in trade; the capitalised marginal utility of money accounting all the indefinite future services; non-monetary marginal utility of good serving as money; marginal cost of the money; marginal utility of the holdings required by the more or less irregular oscillations of the economies; and the marginal cost of credit, accounting the amount of payments and all the other legal, political, psychological conditions limiting its use» (1917, p. 134).

The result is an example of those “composite” constructions that characterise his dynamical reasoning. According to the “complex” approach to economic phenomena that he was building, DV established a hierarchical order of the influence of such factors on the value of money. He defined such a criterion *infinitesimal order (ordine degli infinitesimi)*.³¹ The infinitesimal order allows the establishment of a hierarchy of dynamical variables or factors acting on the phenomenon, accounting also the reciprocal influences among all of them. The higher the infinitesimal attributed to a factor, the smaller its influence will be on the variable studied. He could therefore affirm that the discount rate only partially influenced the demand for money.

We said that DV added new determinants, either real, such as the classical money-merchandise, or psychological, such as the uncertainty deriving from economic and non-economic fluctuations. Among all these elements, the inclusion of psychic and time features should be pointed out. Unlike static analysis, where he seemed to attribute a high order to psychological factors, in dynamic perspective such an order would be less. This means that subjective elements increase their influence on monetary circulation. In fact, in subsequent writings, he talks about “psychic time”. By introducing such a concept, DV aimed to differentiate the dynamics in economics from the dynamics we find in mechanics and other exact sciences:

³¹ DV proposed such a criterion to compute the weight of any factor on the circulation of money. It was very similar to Frisch’s *order of confluence* (1934) from which the concept of *multicollinearity* has been derived.

«We can remember that the use of time in mechanics is possible because it is reduced to space, while in economics we have to cope with a real time that cannot be treated with the instruments used in physics» (1956b, p. 248).

We can say that time in economics does not flow independently of the individual's perception of his relationships and of economic changes. *Psychic time* could be translated in *expectation time*, even though in the early years of the twentieth century the concept of *expectation* had not even been brought into economic literature. It is equally clear, however, that DV thought that subjective time changed according to individuals and their position in society.

This notion of time and the importance attributed to dynamic perspective were already contemplated in 1909, but they acquired a primary role only in 1917, after DV wrote about crises, discount rate and interest rate. DV's attention to subjective perspective grew gradually but constantly. In 1915, DV spoke of *individual psychic rate of interest* that could be different from the market rate of interest determined by the length of the productive process (1915, p. 327). It means that individuals make decisions on future transactions according to their subjective costs of holding money.

Dynamical features are not only additional but they integrate functions previously attributed to money:

«The fundamental element in our treatment on the value of money is not a static fact, neither is it deducible from current conditions nor does it depend on the past phenomena. Essentially, it hinges on the future conditions and most precisely on those among them that influence the current judgements» (1917, p. 159).

Thus, prices and, indirectly, the value of money are determined by expectations of future transactions:

« [...] we can observe that expectations (*attese*) of higher prices increase the velocity of circulation of money and, indeed, forestall the effects deriving from a growth of the stock of money. Expectations of lower prices produce opposite effects» (1917, p. 173).

In this regard, it must be stressed that DV posited sticky prices.³² Also the effects on prices of changes in money supply are not certain (1914c, p. 123).

Summing up, in comparison with the *Principii*, DV seems conscious that the value of money depends on market forecasts: «money is worth today what it will be worth in the future without limitation of time» (1917, p. 132). Consequently the pivotal role attributed to the interest rate (and to the discount rate) is clear.³³ Since the latter links the value of future purchasing or consumption to the current one, it determines the value of the medium of exchange held for future transactions. Consequently, if the interest rate changes, the value of money will also be modified.

The monetary services

Positing sticky prices, DV believed that people hold money *for its own sake* and not only for immediate exchange. Money is held because the economic world depicted by DV is dominated by uncertainty. Money is useful during exchange as a medium but also

³² For example, he did not think that a reduction in the level of prices could reduce the deficit of the balance of payments.

³³ In addition, in dynamic conditions, the equivalence between the discount rate and the interest rate is not necessarily true.

before, when the individual decides on the basis of the interest rate and of his expectations.

Finally, we are able to ascribe the exact meaning to the additional or secondary or, also, dynamic service that DV attributed to money. As stressed by Demaria (1961, p. XVIII), DV seems to share the neoclassical principle according to which money plays a function only when it is used as a medium of exchange. In fact he had previously affirmed that

«admitting that money gives a service when it is held would be a contradiction in terms because such money would lack its main quality, i.e. the impulse to circulation» (1909, p. 513).

Nevertheless, from 1909 onwards he admits that money provides a “secondary” service as a consequence of it being held even if it is not immediately used for transactions (Zanni, 1989, p.143). This «additional service» takes place in a «dynamic regime».

In 1917, by exploring all the roles that can be attributed to money in a dynamic system, he recognised at least three further utilities. Money is an instrument of accumulation when

«in certain historical conditions, it cannot be invested in other movable or immovable assets» (1917, p. 170).

Money is also a static reserve or a dynamic one:

«no fund decreases under a stated level in order to avoid inconveniences. This is the static utility of money. In real dynamic economy such level should be higher, because of the greater amplitude of the variations and the smaller capacity to forecast them. This is the utility of money as a dynamic reserve» (1917, p. 170).

Finally, money is a reserve for credit

«since credit partially substitutes money as intermediary instrument; however it needs a monetary base» (1917, p. 170. See also 1914b).

Clearly, although DV did not include functions of equal importance to the intermediary one, he admitted other activities or services that must be evaluated from a pragmatic point of view with regard to monetary value:

«The increase in the demand for money or the decrease in supply produces a growth of its value» (1917, p. 171).

Such functions, judged «of the greatest importance» when related to «a long enough period», shed light on a theory of money open to new formulations. Although additional, a monetary service exists.

At this point, DV had all the components required to build a heterodox theory of money: interest rate, an early theory of uncertainty and the acceptance that money provides a service *in itself*. DV did not adequately develop such a theory, however.

What happened was that, for the monetary theory as well as for other theories, his “complex” view of economic phenomena prevented him from focusing his analysis on a few determinants. DV looked for an all-inclusive dynamic theory that led him, like other scholars in that period,³⁴ towards a more sociological³⁵ rather than economic

³⁴ We mention, among others, Pareto and Borgatta.

analysis. This composite approach certainly represented an interesting proposal, but it also made the understanding and spread of his monetary theory more difficult. Moreover, it should be remembered that DV wrote during a phase of the evolution of economic thought that was dominated by reductionism.

Concluding remarks

Looking at the history of the monetary theory, we ask ourselves how DV's theory of circulation should be placed. He was a heterodox neoclassical scholar; he seemed to adhere to the marginalist current but he refused to link the value of money to its utility. Moreover, he brought into the debate a subjective perspective that revived the lost Walrasian notion of service. In addition, contrary to Pareto and Walras, he did not restrict himself to present extra-economic factors as data, but he tried to build a theory of extra-economic variables. All these are important components of his monetary theory.

In our opinion, however, his most important contribution to this area of economic studies lies in the uncertain character that he accorded to the demand for money and, consequently, to the value of money. He introduced uncertainty in the analysis without being fully aware of his proposal. However, on this basis, he could justify the additional service of money and the finally subjective value of money, linking the latter to the interest rate or, better, to many and changing rates of interest.

He was not able or maybe did not want to accomplish his intuitions on subjective determinants of the demand for money, but we must not forget that the works we have analysed were written between 1909 and 1917.

References

- BRIDEL, P., *Money and General Equilibrium Theory. From Walras to Pareto (1870-1923)*, Cheltenham, Elgar, 1997.
- CAFFÈ, F., *L'opera economica di Gustavo del Vecchio*, in AA. VV., *Studi di economia finanza e statistica in onore di Gustavo Del Vecchio*, Padova, Cedam, 2 vols, 1963, pp. 701-09.
- , *Introduzione a Antologia di scritti di Gustavo Del Vecchio nel centenario della nascita*, Milano, Angeli, 1983.
- CANTILLON, R., *Essai sur la nature du commerce en général*, London, Macmillan, 1931, 1st ed. 1755.
- DEL VECCHIO, G., *Ricchezze immateriali e capitali immateriali*. Alessandria, Società poligrafica Alessandrina, 1908.
- , *I principii della teoria economica della moneta*, «Giornale degli Economisti e Rivista di Statistica», XXXIX, 1909, pp. 255-72, 507-53.
- , *Teoria della esportazione del capitale*, «Giornale degli Economisti e Rivista di Statistica», XLI, 1910, pp. 120-52.

³⁵ DV proposed a socio-psychological theory of capitalistic accumulation. In fact, he singled out the spirit of emulation as the impulse that induces individuals to change “habits” and to invest. He considered saving as an instrument of social mobility. Saving is a means of individual progress in the social scale: when it is correctly invested it can raise the individual in the hierarchical scale. Thus, since the credit exists, «saving is not at the disposal of the leisured classes only, but also of the most dynamic groups» (1915, p. 387). Consequently, DV built a theory of accumulation (or a theory of the distribution of wealth during time) grounded on psychological factors like ambition.

- , *Il capitale disponibile e la circolazione del capitale*, Bologna, Monti e Noè, 1911. Repr. in 1956a.
- , *La teoria economica del credito. A proposito del libro del Prof. Fanno sul mercato monetario*, «Giornale degli Economisti e Rivista di Statistica», 1913a, XLVI, pp. 200-213.
- , *Le variazioni periodiche dello sconto*, «Giornale degli Economisti e Rivista di Statistica», 1913b, XLVI, pp. 342-405
- , *Problemi del Tesoro e della circolazione*, «Giornale degli Economisti e Rivista di Statistica», 1913c, XLVI, pp. 1-12.
- , *Induzioni statistiche per la teoria della circolazione*, «Giornale degli Economisti e Rivista di Statistica», 1913d, XLVII, pp. 510-37.
- , *Sulla teoria economica delle crisi*, «Giornale degli Economisti e Rivista di Statistica», 1914a, XLVIII, pp. 425-52.
- , *Teorie dello sconto*, «Giornale degli Economisti e Rivista di Statistica», Supplement, 1914b. Reprinted in *Capitale e interesse*, 1956a, pp. 108-207.
- , *Contributi alle dottrine della circolazione*, «Giornale degli Economisti e Rivista di Statistica», 1914c, XLVIII, pp. 109-133.
- , *Lineamenti generali della teoria dell'interesse*, «Giornale degli Economisti e Rivista di Statistica», LI, 1915, pp. 272-327; 367-408.
- , *Questioni fondamentali sul valore della moneta*, «Giornale degli Economisti e Rivista di Statistica», LV, 1917, pp.117-74.
- , *Un capitolo di teoria monetaria*, «Rivista bancaria», 1925. Repr. in 1932, pp. 313-22.
- , *Ricerche sopra la teoria generale della moneta*, Padova, Cedam, 1932. 2nd ed. Padova, Cedam, 1967.
- , *Lezioni di economia applicata*. Parte prima. *Dinamica economica*, Padova, Cedam, 1933.
- , *Lezioni di economia pura*, 3rd ed., Padova, Cedam, 1937.
- , *Capitale e interesse*, Torino, Utet, 1956a.
- , *Vecchie e nuove teorie economiche*, 2nd ed. Torino, Utet, 1956b.
- DEMARIA, G., *La moneta nell'equilibrio economico generale*, 1961, in Del Vecchio, 1967 [1932], pp. XVII-XXXIX.
- FRISCH, R., *Statistical Confluence Analysis by Means of Complete Regression Systems*, Oslo, University Institute of Economics, 1934, Publication n. 5.
- GINI, C., *Alle basi della scienza economica*, Città di Castello, Unione Arti Grafiche, 1943.
- GIOIA, V., *Il contributo epistemologico di Gustavo del Vecchio*, «Quaderni di Storia dell'Economia Politica», VIII, 1990, pp.147-67.
- GRAZIANI, A. e REALFONZO, R., *Introduzione a G. Del Vecchio, Lineamenti di teoria monetaria*, (a cura di R. Realfonzo), Torino, Utet, 1997, pp. XVII-XXVIII.
- HERMANN, F.B.W. VON, *Staatswirtschaftliche Untersuchungen*, München, Werber, 1832.
- MACHLUP, F., *Methodology and Economics and Other Social Science*, New York, Academic Press, 1978.
- MARGET, A.W., *Review of Del Vecchio Grundlinien der Geldtheorie*, «Journal of Economic Perspectives», 1932a, pp. 272-4.
- , *The relation between the velocity of circulation of money and the velocity of circulation of goods*, «Economica», June and August, 1932b.
- , *Monetary Aspects of the Walrasian System*, «Journal of Economic Perspectives», XLIII, 1935, pp. 145-86.
- MARSHALL, A., *Money, credit and commerce*, London, Macmillan, 1923.
- REALFONZO, R., *Gustavo Del Vecchio: critical conscience of the Italian neoclassical school*, in W.J. Samuels (ed.). *European Economists of the Early 20th Century*, Cheltenham, Elgar, 2003, pp. 37-58
- SCHUMPETER, J.A., *Storia dell'analisi economica*, Torino, Bollati Boringhieri, 1990, 3 vols.. Orig. *History of Economic Analysis*, New York, Oxford University Press, 1954.

- TUSSET, G., *Gustavo Del Vecchio's Economic Dynamics and German-speaking Economists*, in Gioia and Kurz (eds.), *Science, Institutions and Economic Development*, Milano, Giuffrè, 2000, pp. 343-60.
- , *La teoria dinamica nel pensiero economico italiano. 1890-1940*, Firenze, Polistampa, 2004.
- WALRAS, L., *Eléments d'économie politique pure*, Paris, Dupuy, 1926, 4th ed.
- WIESER, F. VON, *Der Geldwert und seine Veränderungen* «Schriften des Vereins für Sozialpolitik», 132 band, 1910;
- , *Theorie der gesellschaftlichen Wirtschaft*, «Grundriss der Sozialökonomik», 1914.
- ZANNI, A., *La teoria monetaria di Walras: una polemica scientifica fra Marget e Del Vecchio*, «Quaderni di Storia dell'Economia Politica», VII, 1989, pp.135-45.