Leon Walras on Money and Banking[1]

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Introduction

Walras's impact on economic theory has been both profound and enduring. Like Keynes, however, he has often been cited and interpreted but seldom has he been read in entirety and fully comprehended. Economic students today know of Walras's contribution through the eyes of others rather than through the writings of Walras. They are led to believe in a certain paradigm which is recognised as the 'Walrasian system' that constitutes an epoch in economic thought. However, this paradigm is a truncated view of Walras that ignores his important theories of money and credit.

Walras must carry some of the blame for any ignorance or confusion because of the changes which occurred in his treatment of money through the successive editions of his *Elements of Pure Economics*. The alterations he made were documented in Arthur W. Marget's two articles "Leon Walras and the 'Cash Balance Approach' to the Problem of the Value of Money" (Marget 1931) and "Monetary Aspects of the Walrasian System" (Marget 1935), and these articles were extensively referred to in Jaffe's English translation of the *Elements: Edition Definitive* (Walras 1954). Relying on the material presented in these two articles, Jaffe provided a summary of what he called "... the broader lines of development of Walras's monetary theory" (Walras 1954: 601). Jaffe discussed two developments: firstly, how Walras altered the basis of his monetary theory from "... the aggregate demand for whatever money was required to subserve the 'circulation à desservir', i.e. the circulation of goods... (to) the individual demands for a desired cash balance" (Walras 1954: 601); and secondly, how Walras adjusted the role of the rate of interest from being "... the rate which equates the demand for cash balances in toto to the quantity of money at equilibrium .... (to being) one of a complex of rates .... which together bring about this equality in the aggregate by means of separate adjustments that are not always concurrent or of the same degree" (Walras 1954: 602).

However, Marget, and consequently Jaffe, related only part of Walras's views on money. Marget's goal was to explain the development of Walras's ideas on money as they impacted on the structure of Walras's model of general equilibrium. With this end in mind, Marget did not discuss certain points in Walras's papers on applied economic theory, in which Walras made very clear and precise statements concerning money and circulating bank instruments.[2]

Walras's applied works are not well known, largely because they have not been translated into English. In addition, these works have been denigrated by a number of distinguished economists: Pareto denounced them as 'futile metaphysics', Hicks described them as 'relatively uninteresting', and Schumpeter dismissed them as 'questionable philosophies' (Walker 1983: 344). Although there may be some truth in their remarks, an appreciation of these works gives greater insight into the ideas which fashioned Walras's pure system, and in this way better enables one to interpret and relate what he intended to convey.

The Role of Money in the Walrasian System

Before examining the salient features of his applied work, it is important to rectify a significant misunderstanding concerning the role of money in the Walrasian system. There remains a common view that general equilibrium was predicated by Walras upon the principles of barter exchange, and that money was purely an ancillary device that was incorporated only after the major schema was deduced. Marget, in his second article referred to above, clearly demonstrated that this view was incorrect and showed that Walras never intended his derivation of the principles of general equilibrium to be divorced from money except in:

> "... the nature of possibilities, rather than necessities, in the stages of the argument. He went out of his way, indeed to insist that it is necessary, in any complete exposition of the 'mechanism of free competition and production', to have not only 'a commodity in which the prices of other commodities are cried' (ie, a numeraire) but also 'a commodity for which services are sold, on the market for services, and with which products are bought on the market for products, and which serves as money'" (Marget 1935:182-183).

Moreover, Marget explained that Walras identified the numeraire with money, and that the generally held perception that they were entirely separate entities arose out of a misinterpretation of his theoretical presentation. The numeraire was not some *abstract* money-of-account, as had been argued for instance by Pareto, but some hard commodity that "was inevitably found, in practice, to be identical with the commodity serving as money" (Marget 1935: 171, fn.). In this regard, Marget quoted Walras's own clear statement that: "'... there exists a perfect analogy between the intervention of money [i.e. the use of a commodity as a medium of exchange] and the intervention of the numeraire [i.e. the use of a commodity as a common denominator of values]'" (Marget 1935: 177). As well, Marget pointed out that the meaning of the French word 'numeraire' was specie, hard currency or coin (Marget 1935: 174).

In Walras's system, therefore, we see a critical role being played by money, a role which Walras emphasised - though it is now misunderstood. The facility of money was inextricably linked with the attainment of general equilibrium and, if this was so, then monetary disturbances could directly lead to short-run periods of general disequilibrium or crises through the impact upon prices. This position is a logical inference of the Walrasian system, one to which Walras himself came to, and which led him to advise the prohibition of bank created 'money'.

The Economic Effects of Bank 'Money'

In his Introduction to "Théorie de la Monnaie", Walras began: "The question of money and that of the issue of bank notes are two questions of applied political economy on which my research into pure political economy has led me little by little to completely change my mind" (Walras 1936: 71).[3] [4] Later in this Introduction he explained: "In the interval of the composition and of the publication of the first and second (editions of the 'Elements'), I developed the thesis of the 'Mathematical Theory of Bank Notes', presented to the Society of Natural Sciences in November 1879, and which is included in the following volume. *There I speak formally against all issues of bank notes*" (Walras 1936: 72, emphasis added).[5]

In the article Walras referred to, i.e. 'Mathematical Theory of Bank Notes', he addressed the question of whether to allow banks to freely issue notes or whether to impose regulations upon them. He presented his arguments upon the basis of the different schools on banking theory, which were framed according to the institutional possibilities that existed for the licence to issue bank notes. These included State control, a monopoly bank, free banking and, to which he now added, "there exists also the school for the prohibition of all issues of bank notes" (Walras 1936: 366).[6]

He quickly dispensed with State control using the often repeated argument that such a power gave the State unlimited access to credit: a power that would no doubt be abused. As to a monopoly bank of issue, Walras here presented his major arguments against paper money. He immediately and explicitly stated "... the addition into circulation of a certain quantity of paper money with a quantity of metallic money depreciates the latter, raises prices and troubles the workings of exchange" (Walras 1936: 367-368).[7] This is the crux of the matter as referred to above, i.e. that the manufacture of paper money had a destabilising influence on general equilibrium. Given these effects Walras reasoned: "So the industry of credit and discount with the issue of bank notes is not an industry like any other; *it is an industry that must be regulated and not given freedom*" (Walras 1936: 368, emphasis added).[8]

These statements defined a major source of economic disturbance as Walras saw it. While Walras is renowned for his determination of the principles of general equilibrium, his interest in achieving this result went farther than simply deriving its conditions. In the *Elements* for instance he wrote: "... the market is sometimes thrown into violent confusion by crises, which are sudden and general disturbances of equilibrium. The more we know of the ideal conditions of equilibrium, the better we shall be able to control or prevent these crises" (Walras 1954: 381).

The rest of Walras's article 'Mathematical Theory of Bank Notes' was mainly a defence of his controversial position, in which he countered some basic arguments that had been put up by proponents of bank-created money. Walras admitted there were other kinds of 'money' and supporters of the monopoly school would contend that the other monetary instruments, including cheques, bills of order, bills of exchange, could not be regulated and "...so there is no way of regulating bank notes" (Walras 1936: 368).[9] However, Walras responded to this argument by:

(i) detailing the detrimental effects of price inflation and the consequential collapse resulting from monetary expansion:

> "The increase in prices arising from the fall in the value of the commodity money .... definitely constitutes trouble for exchange relations. The trouble is most favourable for the entrepreneurs who see an increase in the prices for their products before an increase in the prices of resources. But this also is most unfavourable for landowners who receive farm-rents that have been fixed in the long term, to the capitalists who lose on the interest which they are paid and on the principal when they receive it back, to the workers who are obliged to increase their salaries, always by recourse to burdensome strikes, and to the public servants who have no way of increasing their salaries; but *we always have to be at the mercy of a panic when, suddenly, the rise in the price of money causes a drop in the prices of all merchandise, leading to the ruin of producers and after that of consumers*" (Walras 1936: 368, emphasis added).[10]

(ii) arguing that the use of credit instruments, other than bank notes, would not give rise to these events, as he reasoned that bank notes constituted a unique type of financial instrument:

> "As for paper of commerce, bills of order and bills of exchange, it is not in their nature to circulate ..... Bank paper forms the acceptances of bankers, which circulates and which regulates the exchanges from region to region and country to country. Without doubt it is paper money which takes the place of a large amount of metallic money. But amongst those acceptances of bankers, the ones which have the shortest terms, are uniquely the instruments of circulation; the others which have longer terms are instruments of credit, they don't stay indefinitely in circulation: they multiply when business is active and disappear when business is slow. This is not so with bank notes. When business is slow

> or active, the necessary quantity of circulating capital will always be provided in the first place by bank issues, because of the relative ease of discount" (Walras 1936: 369).[11]

On this last point it should be noted that although Walras was mistaken to attribute a unique role to bank notes - for example, the use of 'deposit' creation and cheques was equivalent to the issue and circulation of notes - this error can be corrected merely by extending his recommendation to that of the prohibition of all bank-created instruments that circulated as substitutes for money.

Next Walras dealt with the argument of Adam Smith that replacing hard currency with paper money could enlarge the quantity of capital. Although, Walras did not disagree with this possibility, Walras selectively quoted the passage from *Wealth of Nations* in which Smith confessed:

> "The commerce and industry of the country, however, it must be acknowledged, though they may be somewhat augmented, (by the replacement of gold coin with paper) cannot be altogether so secure, when they are thus, as it were, suspended upon the Daedalian wings of paper money, as when they travel about upon the solid ground of gold and silver" (Walras 1936: 370; Smith 1976: 305).

Walras viewed this as an "admirable comparison" and added "... after the rectifications and additions that we have given to the theory of A. Smith, its accuracy is that much more remarkable" (Walras 1936: 370).[12] Walras declared: "We believe ... *there are more disadvantages of bank notes than advantages*" (Walras 1936: 373, emphasis added).[13] [14] In his concluding paragraph, Walras admitted his argument that the disadvantages of banknotes outweighed the advantages would not be well received: "But this statement is nearly impossible to say at present" (Walras 1936: 374).[15] Nevertheless, he encouraged careful reflection of these matters believing that in so doing "... that will discourage more and more with regard to the dangerous instrument of credit called the bank note" (Walras 1936: 375).[16]

Definitions of Money, Credit and Other Financial Instruments

Finally, as to Walras's definitions of money and of credit, he adopted strict forms that were uncommon. In Walras's day, as it is today, the generally accepted definition of money was founded upon the functions of money, and principally upon its use as a medium of exchange. This functional approach to money led to the common view that bank notes were money. However, Walras defined money as a *commodity* which served the purposes of a medium of exchange and a store of value (Walras 1936: 94).[17] [18] Accordingly, in Walras's mind, bank notes could not be money proper - see below. Furthermore, the commodity adopted as the monetary instrument had to possess certain characteristics: "... nature has conspired to bestow all the attributes of money, homogeneity, great scarcity, divisibility and immutability upon two precious metals, gold and silver" (Walras 1954: 329). Credit was purely the lending of money: "The capitalist accumulates his capital by successive savings and lends money to the entrepreneur for a given period; the entrepreneur converts this money into capital proper and at the expiration of the contract he returns the money to the capitalist. This operation constitutes credit" (Walras 1954: 228).[19]

As to financial instruments other than the commodity-money, Walras identified four types: 'book credit', 'commercial paper', 'bank notes' and 'cheques'. Walras considered these to be substitutes for money, but in Walras's mind they were not money. In the *Etudes* Walras specifically stated: "*The bank note is not money*, but it functions as money as an intermediary of exchange..." (Walras 1936: 367, emphasis added).[20] Walras argued that these instruments could never obviate the need for the existence of money proper, despite their use as money substitutes:

(a) on book credit he wrote: "... such transactions still suppose the intervention and the use of a numeraire and money, for even when precious metals are absent in fact, they are always present in principle" (Walras 1954: 362);

(b) on commercial paper: "Here again the numeraire and money must exist and must intervene virtually, if not actually" (Walras 1954: 363);

(c) on bank notes: "Clearly then, if a bank's cash reserves are 100 millions and its notes in circulation 300 millions, two-thirds of the exchanges are indeed settled by bank notes, but by no means independently of numeraire and money though no specie is effectively employed in the transactions" (Walras 1954: 364).

Walras made allowance for these financial instruments in the general equilibrium model developed in the *Elements*, augmenting the equation specifying the desire for cash balances by adding a term for 'fiduciary' money - fiduciary money being the sum of commercial paper, notes and cheques. The consequence of this he noted was not to destroy the major proposition of the proportionality of prices to the quantity of money. But to leave Walras views on fiduciary money here, just as a simple variable added to the cash-balances equation, is to err. Walras specifically warned in his *Elements*:

> "We shall see, in our study of applied economics, how far-reaching are the consequences of this law (i.e. the Quantity Theory) which places the whole equilibrium of the market at the mercy of mine operators, issuers of bank notes and drawers of cheques" (Walras 1954: 366-367).

While in general equilibrium the cash balances equation, augmented to include 'fiduciary' money, had to be satisfied, Walras had much more in mind concerning the influence of banking on the economy - the identification of a principle source of economic instability which, he explained in his *Etudes*, was the bank note.

Conclusion

Walras's stance regarding money and banking has been largely misinterpreted. The use of money proper was necessary to the effective attainment of equilibrium in the Walrasian system. The monetary instrument was always intended by him to be identified as the 'numeraire' and therefore had to be some commodity which precluded the bank note. He argued that banks should be prohibited from issuing notes, which he believed was primarily responsible for generating economic disturbances. In coming to this conclusion, Walras reasoned that bank notes were the most acceptable form of short-term circulating medium and he misunderstood that the use of 'deposit' creation and cheques was equivalent to the issue and use of bank notes. Nevertheless, his arguments are unaffected if a simple extension is made to his recommendation to include the prohibition of all forms of bank-created 'money'.

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Notes

[1] This paper was presented at the History of Economic Thought Society of Australia Conference held at the University of Queensland, 12-14 July 1995. I am indebted to the conference participants for their helpful comments on the paper. In particular, Prof. Peter Groenewegen noted that Walras's views were out of vogue with mainstream thought of Walras's era. While Walras advocated a 100% gold reserve system others were arguing for a system divorced from gold, for example Wicksell.

[2] Although Jaffe chose not to refer to these statements in the notes he appended to his translation of Walras's *Elements*, he did make some mention of them in other essays he wrote on Walras. However, his comments were brief (see for example Walker 1983:134, 283-284).

[3] "La question de la monnaie et celle de l'émission des billets de banque sont deux questions d'économie politique appliquée sur lesquelles mes recherches d'économie politique pure m'ont amené peu à peu à changer complètement d'opinion."

[4] The translation from French to English was completed with the assistance of J. Bonavia.

[5] "Dans l'intervalle de la composition et de la publication de la première et de la seconde, j'avais élaboré le mémoire sur la 'Théorie mathématique du billet de banque', lu à la Société vaudoise des sciences naturelles en novembre 1879 et qui est contenu dans le même volume que le précédent. Je m'y prononçais formellement contre toute émission de billets de banque."

[6] "... cette école existe aussi, de l'interdiction de toute émission de billets de banque."

[7] "... cette addition d'une certaine quantité de monnaie de papier à la quantité de monnaie métallique en circulation déprécie cette dernière, élève les prix et trouble les rapports d'échange".

[8] "Donc l'industrie du crédit à l'escompte avec émission de billets de banque n'est pas une industrie comme une autre; c'est une industrie qu'il faut réglementer et non laisser libre."

[9] "...il n'y pas lieu de réglementer l'émission des billets de banque."

[10] "La hausse des prix provenant de la diminution dans la valeur de la marchandise monnaie ... constitue assurément un trouble sérieux des relations d'échange. Ce trouble est très favorable aux entrepreneurs qui voient s'élever le prix des produits avant que s'élève le prix des services producteurs. Mais il est, par celà même, très défavorable aux propriétaires fonciers dont les fermages ont été fixés par des baux à long terme, aux capitalistes qui perdent à la fois sur les intérêts qu'on leur paie et sur leur capital quand on le leur rembourse, aux travailleurs qui sont obligés, pour faire augmenter leurs salaires, de recourir à des grèves toujours onéreuses, aux fonctionnaires publics qui n'ont, eux, aucun moyen de faire augmenter leurs traitements; sans compter qu'on est toujours à la merci d'une panique qui, tout d'un coup, renchérissant la monnaie et faisant baisser le prix de toutes les marchandises, amène la ruine des producteurs après celle des consommateurs."

[11] "Quant au papier de commerce, billets à ordre et lettres de change, il n'est pas de nature a circuler .... C'est le papier de banque, forme des acceptances des banquiers, qui circule et qui sert à régler des échanges de place à place et de pays à pays. Sans doute, c'est là une monnaie de papier qui supplée dans une large mesure la monnaie métallique. Mais, parmi ces acceptations de banquiers, les unes, qui sont à vue ou à très courte échéance, sont uniquement des instruments de circulation; et les autres, qui sont à plus longue échéance et qui sont des instruments de crédit, ne restent pas indéfiniment dans la circulation; elles se multiplient quand les affaires sont actives et disparaissent quand les affaires se ralentissent. Il n'en est pas de même du billet de banque. Que les affaires soient actives ou lentes, la quantité nécessaire de capital circulant sera toujours fournie en première ligne par les banques d'émission, à cause de la facilité relative de leur escompte."

[12] "... après les rectifications et compléments que nous avons apportés à la théorie d'A. Smith, d'une justesse doublement merveilleuse."

[13] "Nous croyons .... les inconvénients de l'émission des billets de banque sont supérieurs à ses avantages." Walras, *Etudes*, p. 373.

[14] In the discussion on Smith, Walras also remarked on the matter of the enforcement of paper money as legal tender. He wrote: "Legal enforcement is contrary to justice and self-interest; because no-one is beholden to become a creditor of the state, and, in another way, circulation founded upon paper money, is guaranteed by the state, it is not solid like circulation founded upon metal money." ["Le cours force est contraire à la fois à la justice et à l'intérêt; car personne n'est tenu de devenir malgré lui créancier de

l'Etat, et, d'un autre côté, la circulation fondée sur le papier-monnaie, même garanti par l'Etat, n'est pas si solide que la circulation fondée sur la monnaie métallique." (Walras 1936: 372)]

[15] "Mais que dire à présent si l'on songe qu'il est presque impossible qu'il en soit jamais ainsi!"

[16] "... l'on se refroidira de plus en plus à l'endroit de ce dangereux instument de crédit qui s'appelle le billet de banque."

[17] What Walras called "monnaie de circulation" and "monnaie d'épargne" respectively.

[18] Walras did explore solutions for the use of a monetary instrument which was neither a commodity nor anything which could serve as a numeraire (see Walras 1954: 325). But this was again an example of his thoroughness in examining the theoretical possibilities, rather than his essential view on the matter - see above.

[19] Walras repeated this definition later: "The capitalist accumulates his savings in money and lends this money to the entrepreneur who, at the expiration of the loan repays the money. This operation is known as credit." (Walras 1954: 270)

[20] "Le billet de banque n'est pas une monnaie; mais il fait office de monnaie ou d'intermédiaire d'échange..."

References

Marget, A.W. (1931) "Leon Walras and the 'Cash-Balance Approach' to the problem of the Value of Money", *The Journal of Political Economy*, Vol 39 No 5, pp. 569-600.

______ (1935) "The Monetary Aspects of the Walrasian System", *The Journal of Political Economy*, Vol 43 No 2, pp. 145-186.

Smith, A. (1976) *An Enquiry into the Nature and Causes of the Wealth of Nations*, Norman S. Berg, Dunwoody, Georgia.

Walker, D.A. (Ed.) (1983), *William Jaffe's Essays on Walras*, Cambridge University Press, Cambridge.

Walras, L. (1936) *Etudes d'Economie Politique Appliquée*, deuxième édition, R. Pichon et Durand-Auzias, Paris.

______ (1954) *Eléments d'Economie Politique Pure*, translated by W. Jaffe, Edition Definitive, 1926, George Allen and Unwin, London.