Finance and the Realization Problem in Rosa Luxemburg: a 'Circuitist' Reappraisal

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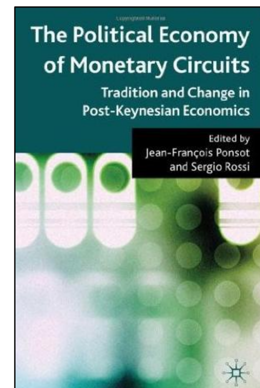
Introduction

The aim of this chapter is to show that Rosa Luxemburg's analysis of capitalist accumulation is framed within a 'circuitist' macroeconomic reading of capitalism as a monetary production economy. The strengths and limits of her approach are to be found elsewhere than suggested by usual criticisms, especially those advocated by Marxist authors. Rosa Luxemburg cannot be reduced to the uncertain theoretical status of an 'under-consumptionist'. On the contrary, she presents a clear (although incomplete) picture of the macro-monetary and sequential working of the capitalist process. This chapter is organized as follows. The next section examines Luxemburg's comments on how the enlarged reproduction scheme is introduced in volume II of Marx's Capital. The third, fourth, and fifth sections summarize, first, the orthodox attack by Bukharin, and then the more sympathetic interpretations provided by Michał Kalecki and Joan Robinson. The sixth and seventh sections emphasize the affinities and differences of Luxemburg's circuitist perspective with the contemporary theory of the monetary circuit. The eighth section concentrates on the problem of the monetization of profits and interests. Some concluding remarks are provided in the last section.



Luxemburg's criticism

From October 1907 and until October 1914, Luxemburg taught political economy and economic history for the Social Democratic Party School (Kratke, 2009). Luxemburg intended to publish her lectures as a book, and her Introduction to Political Economy was actually printed, posthumous and incomplete, by Paul Levi (Luxemburg, 1925). However, when, in early 1912, Luxemburg was completing a first draft of this book, she ran up against a problem with the content of volume II of Marx's Capital. That unexpected difficulty had to do with the impossibility of depicting through Marx's schemes capitalist reproduction as a whole, in its concrete relations and objective historical limits. According to Luxemburg, Marx's abstract scheme of enlarged reproduction gives an unrealistic picture of capitalist development, because its economic logic is itself faulty. It is not enough that the surplus value extracted in the immediate production process is 'actualized' in commodity circulation (that is, converted into money). What is needed is that firms expect that they will be able to find outlets in the future, on an increasing scale. Against this background, the analytical structure of Marx's argument clearly shows its limitations. Marx's schemes merely fix the equilibrium bookkeeping conditions. But the substantial questions, Luxemburg objects, are rather the following: (1) are industrial capitalists able to sell the commodity output on the market against money, at prices including the expected profit? This obviously is the same thing as asking (2) from where comes the monetary effective demand allowing the realization in circulation of the value and surplus value produced in the current period? Of course, this also means asking (3) how can it be taken for granted that industrial capitalists may safely expect growing sales for their future productions, so that there will be systematically an incentive for capitalists to accumulate as time goes by?

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According to Luxemburg, the only analytical relevant point of view is that of 'total capital', systematically assumed by Marx in the third volume of Capital. Capital 'as a whole' is a 'real' abstraction, not a mere logical assumption. Since total capital is not a fiction, aggregate gross profits must be realized in money form – namely, in gold as money, because Luxemburg, like Marx, adopts a commodity-money perspective. 'Valorization' occurs in the unity of immediate production and circulation, and 'accumulation' requires the prior monetary validation of the output of the valorization process. This 'monetization' of the commodity output refers ex post to production, but ex ante it refers to the new investment. In this view, a monetary economy is an economy where commodities do not buy commodities, and commodities do not buy money, but only money buys commodities (Patinkin, 1965). Further, it is an economy where there is a cash-in-advance constraint (Clower, 1967). Luxemburg's exploitation is 'demand driven', and the essential 'monetary' nature of capitalism means that both production processes and expenditures (that is, demand) must be financed.

Within a 'pure' and 'closed' capitalist system, there are no money inflows granting the realization of the commodities containing surplus value. It is easy to see why for Luxemburg there is not enough monetary effective demand meeting the total value of the product, if this embodies a surplus value. The point is that finance to production and finance to demand directly or ultimately originate in the capitalist class itself, which is given by industrial capitalists and gold producers. This argument, however, is more transparent in the Anti-Critique (Luxemburg, 1921) than in the Accumulation of Capital (Luxemburg, 1913), and we will come back to it later on. At this juncture, let us just recall that Luxemburg is stressing that the answer to her problem must be a 'productive' kind of expenditure in the Marxian sense: a demand which is opening new valorization processes. This amounts to saying that the solution must open the way to capitalist investment itself.

This is the reason why an increase in capitalist consumption is not the solution, since it does clash by definition with the productive reinvestment of surplus value. The natural increase in population is not a solution either, since it gives way to a generic increase in consumption needs, but not to a demand backed by new money. The additional expenditure cannot come from 'third' social strata: their consumption is, once again, 'unproductive', and their money income has its source in a deduction from surplus value. An increase in gold production to realize the current level of production is another 'unproductive' way out rejected by Luxemburg. If by chance an increasing share of production turns into investment, this cannot but lead to a paradoxical situation where firms produce capital goods (today) in order to produce even more capital goods (tomorrow). Not only is this doubtful – in order for capitalists to realize the whole surplus value in money, through investments in the current period, there must be the probability of greater money receipts in the future. It is also deceptive, because the capitalist 'circular' process is here depicted as a production for production's sake, not as a production of more money by means of money (as capital). Given that in a 'pure' and 'closed' capitalist system the capitalist class cannot count on any systematic additional monetary inflow justifying a net addition to employment and means of production, Luxemburg infers that capitalism can exist only in an 'impure' and 'open' setting.

It is not only a transitory mode of production; it is also destined to collapse. The inquiry of capitalist development is inseparable from its history, and the latter is marked by the capitalistic compulsion to grab hold of 'external' (that is, non-capitalist) areas. In other words, capitalist nations need to fight not only in order to preserve their domestic markets (protectionism), but also to expand them. Imperialism is the increase of their political and military control over the residual non-capitalist areas. (Net) exports give way also to international loans going from the centre to the periphery. This produces overindebtness, which helps finance the commodity exports of the capitalist countries, but ends in financial instability and crises (Toporowski, 2009). The only exception to relying upon 'external' demand is that military expenditure may temporarily resolve the difficulty (militarism). Eventually, the never-ending capture of 'external' spaces erodes the basis of the capitalist system, leading to economic breakdown and creating the 'objective' conditions for its overcoming (socialism or barbarism).

Bukharin: Rosa Luxemburg as under-consumptionist

Luxemburg's work was harshly criticized by social-democratic as well as by Bolshevik authors. A greater attention to Luxemburg was paid by interpreters outside the Marxian camp strictly defined, like Michał Kalecki or Joan Robinson, both stressing the originality of her positions on effective demand in a monetary economy. The debate on Luxemburg as a political economist vanished after the 1970s. The essays in Bellofiore (2009a), however, testify of a renewal of attention to her economic works, mostly by authors influenced by post-Keynesian and monetary circuit perspectives.

The criticisms against Luxemburg usually refer to her Accumulation of Capital as a typical 'under-consumption' perspective (see for instance Bukharin, 1924). On the one hand, Luxemburg's emphasis on the necessity for capitalists to 'monetize' the surplus value (that is, to realize it against money) is severely criticized as a crass error. Monetization would just be a 'technical' issue, which has to be ignored in the preliminary abstract analysis of capitalist reproduction. The problem, it is argued, can be easily avoided by supposing an increase of money through gold producers or a higher velocity of circulation of money. The consideration of a plurality of capitalists and the overlapping of different circuits would ensure the metamorphosis of the surplus product from the 'commodity form' into the 'value form', that is, money. On the other hand, the demand that validates potential surplus value comes from the capitalist class itself, in the form of investment expenditure. In this framework, tomorrow's accumulation realizes yesterday's surplus value, without any necessary tendency toward a lack of effective demand and a consequent breakdown of the capitalist system. In this view, Rosa Luxemburg would add nothing but simply reformulate, after Marx, the under-consumptionist error of Malthus and Sismondi, forgetting that capitalism is 'production for production's sake', not 'production for consumption's sake'. In the following two sections we shall examine two alternative readings of Luxemburg's theory put forward by Michał Kalecki and Joan Robinson. These two authors are far away from traditional Marxism, and provide an interpretation that links Luxemburg's problem with Keynes's principle of effective demand.

Kalecki: the 'savings gap'

Luxemburg, taking a 'total capital' point of view, raises the following question: why should one invest if there is no final market in view? Her conclusion that capitalist accumulation is downright impossible depends on the idea that the capitalist class 'as a whole' decides investment expenditures. Kalecki (1967) replies critically that capitalists do many things as a class, but they certainly do not invest as a class. If they really did operate like an individual 'collective capitalist', they would always be able to invest enough to ensure the extended reproduction of the economic system, whatever the total consumption expenditure – as indeed Tugan Baranovski argued. In a setting like this, capitalists always earn enough profits from the capital-goods sector, and may overcome any decline in workers' consumption. This criticism notwithstanding, Luxemburg's insight about the need to find a market allowing realization of surplus value is a sensible point according to Kalecki. Luxemburg locates these outlets 'outside' the global capitalist system, namely, in the non-capitalist commodified economies.

This occurs not only in the underdeveloped, not yet capitalist economies, but also in the non-capitalist sectors of developed capitalist economies. The explanation of this point can be provided on the ground of Kalecki's (1968) reading of the Marxian Equations of Reproduction. Though different from Luxemburg's, Kalecki's interpretation comes down to a very similar conclusion. The schemes anticipate much of modern (Keynesian) economics, that is, Keynes's principle of effective demand and Harrod–Domar's growth theory. The equations show that capitalists can decide how much they invest or consume in the future (and these decisions are in 'real' rather than in monetary terms), but they are not able to decide how much they sell and earn as profits. The issue of the determinants of capitalists' investment was left in the dark both by Marx and Luxemburg. But for sure the schemes show that, although equilibrium is possible in theory, it is not granted and far from being obvious.

The accumulation path is unstable, and there is no reason why, beside the stable rate of growth, the economy should not rather gravitate towards zero net investment, that is, the depreciation rate. In the long run, then, enlarged capitalist reproduction is possible, as Luxemburg argued, only if there are some 'external markets' that absorb the commodity surplus generated by the ongoing accumulation

process. These external markets are, for Kalecki, a needed stabilizing factor. There is an ambiguity in Luxemburg's original mode of thought, because she refers to exports as such. Of course, imports detract from the addition to effective demand, and therefore reduce the number of outlets for surplus production. The 'new' demand for surplus commodities is given only by net exports towards non-capitalist areas. Net exports have to be matched by a corresponding export of capital from the capitalist world towards the non-capitalist world – that is, the capitalist sector has to lend capital to the non-capitalist sector, if it wants to sell its commodities. Such a blunder leads Luxemburg to overestimate the weight of external markets in capitalist development, ignoring the importance of other factors (such as technological innovations). It is true, however – Kalecki stresses – that external markets temporarily allow solution of the contradiction of global capitalism.

Among the 'external' outlets absorbing the commodity surplus and allowing the accumulation process to go on, Luxemburg also includes government purchases, and most of all military expenditure. Again, Kalecki reproaches Luxemburg for considering the whole of government expenditure as an 'external market'. The financing of that expenditure must be accounted for. If it comes from taxes levied on wage earners, there is an equivalent reduction in consumption. On the contrary, government expenditure financed by taxes levied on capitalists, or thanks to loans, contributes to solving the problem of effective demand, since there is no corresponding reduction in investment or consumption. It is as if capital is exported to an internal 'foreign' market, created by government. This is why Kalecki considers government expenditure as 'internal exports', and sees it as an alternative to a trade-balance surplus as a solution to Luxemburg's problem. This Kaleckian mechanism is indeed 'internal' to the economy, but 'external' to the capitalist class as a whole.

This reading of Luxemburg's work was very influential in shaping Kalecki's own view. As early as 1939 Kalecki remarked that Marx did not pay attention to what happens if investment is not sufficient to secure a steady expansion of output. Luxemburg was instead lucid in stressing that, if there are savings from capitalists, their profits can be realized only if they spend a corresponding amount as investment. As a consequence, Kalecki saw in Luxemburg an ante-litteram Keynesian: *'Luxemburg considered impossible the persistence of net investment (at least in the long run) in a closed capitalist economy; thus, according to her, it is only the existence of exports to the non-capitalist countries which allows for the expansion of a capitalist system'.* (Kalecki, 1939, p. 255). Kalecki (1939, p. 255) concluded on this ground that: *'[t]he theory cannot be accepted as a whole, but the necessity of covering the 'savings gap' by home investment or exports was outlined by her perhaps more clearly than anywhere else before the publication of Mr Keynes's General Theory'.* Let us turn now to the analysis of Joan Robinson with respect to Luxemburg's work.

Joan Robinson: the 'inducement to invest'

An even more positive reading of Luxemburg's argument in her Accumulation of Capital can be found in Joan Robinson's 'Introduction' to the English translation of that book. Robinson simplifies the main thread of Luxemburg's 1913 book, translating it into Keynesian language (Robinson, 1951). In her view, this should allow us to get over the misunderstandings elicited by Luxemburg's analysis. Luxemburg is not concerned with the equilibrium between investments and savings (which are always equal ex post), but rather with the existence of a suitable 'inducement to invest' within capitalism as a closed economy. What motive may capitalists have to enlarge the stock of their capital as a real magnitude? How may they entertain expectations of selling the additional amount of commodities produced by means of the new, additional capital? The answer to these questions may only lie in an 'ever-expanding market', that is to say, capitalists must anticipate an increased demand for commodities. According to Marx, a 'dynamic', Schumpeterian competition process among capitalists to earn a profit from large-scale production forces them to increase their capital and invest. Luxemburg, instead, looks for a prospective demand outside the sphere of production. In this regard, Marxian reproduction schemes provide no help: they give a snapshot of ex post monetary magnitudes, and say nothing about ex ante demand and profit outlook for capitalists. Of course, if capitalists actually decide to accumulate what they save as a surplus, final commodity demand will absorb total output. But the final question is for Luxemburg a prior one: why should capitalists decide to invest? What motive do they have to increase the stock of capital?

Luxemburg refers to an analytical framework where, with a constant real wage, technical progress translates into an increase in the productive power of labour and a fall in the value of individual commodities. In this setting, the value of labour power becomes smaller period after period. This is nothing but the law of the tendency of the 'relative' wage to fall stressed in her Introduction to Political Economy. Joan Robinson forgets to add that this law gives room for an increase in real wages as long as their rate of growth is lower than the growth of the productive power of labour. The rate of surplus value thereby increases. Since the share of surplus (value) in the value added by living labour (to wit, net income) goes up, the amount of real savings is also rising. On these hypotheses, the problem Robinson raises is more serious than in Marx's original schemes, because the equilibrium rate of accumulation is higher than when the rate of exploitation remains constant. Luxemburg also assumes that the 'value composition of capital' – that is, the ratio of constant capital to variable capital – grows over time, as this is in the nature of technical progress assumed by Marx in Capital, volume III. This is an assumption that Robinson rightly rejects, because it ignores that technical change may devalue the individual value of the goods that constitute the elements of constant capital, so that productivity may increase together with a falling of the value of capital per person employed. Yet this assumption may be maintained, provided we suppose that technical progress is labour-saving and capital-using.

On these hypotheses, the economic system cannot avoid a disproportionality crisis. The output of the first sector producing capital goods falls short of the needs of constant capital in the whole economic system, while the output of the second sector exceeds consumption coming from the two sectors taken together. This is not surprising, as it is implicit in the logic of the reproduction schemes. In itself, the aforementioned argument is silent about the occurrence of a general overproduction crisis because of a lack of effective demand. Moreover, Luxemburg's analysis is invalidated by 'overdetermination' of the model, as she maintains the assumption that the annual net investment of each sector must be equal to annual savings within the same sector. We may add that this is at odds with Luxemburg's stressing that Marx's correct point of view to rewrite the schemes of reproduction is that of the third volume of Capital – namely, the point of view of 'total capital'. Further, the above assumption is not only absolutely unrealistic; it is also inconsistent with the tendential equalization of profit rates, and with the mobility of capital among sectors as something essential to the nature of capitalism. If we remove this spurious over-determination of the model, it is clear that an equilibrium path may always be written on paper. As long as total investment demand absorbs total savings of both sectors taken together, there is no capitalist breakdown. *'But here we find the clue to the real contradiction. These quantities may conceivably fit, but there is no guarantee that they will'* (Robinson, 1951, p. xxxiv). If the propensity to save by the capitalist class exceeds the accumulation rate dictated by technical progress, crisis can be averted only if there is an outlet for investment outside the capitalist system. *'We can substitute for a supposed logical necessity a plausible hypothesis about the nature of the real case'* (p. xxxiv).

When income distribution and the propensity to save of capitalists generate savings in excess of new investment, there is a chronic excess of the potential supply of real capital over its demand. The system has to fall into a 'chronic depression', as both Keynes and Hansen suggested. Capitalism can ward off the crisis only by incessantly conquering non-capitalist areas, overcoming the contradictions inherent in the lack of demand.

The Anti-Critique: the circuit of money and the issue of finance

Both Kalecki and Robinson read Luxemburg through the spectacles of the principle of effective demand. Their interpretation is much richer than those provided by both orthodox and heterodox Marxists. They highlight how the deficiency of demand is for Luxemburg a structural feature constraining the accumulation of capital in a closed capitalist system without the state. However, both authors see in (net) exports nothing but the solution to the difficulty of realizing current surplus value, and both divorce her problem from her adherence to the Marxian labour theory of value. Kalecki adds that 'internal exports' – that is, government expenditure not financed by taxes levied on workers – may substitute for foreign outlets as a solution.

In this way, two aspects of Luxemburg's argument are lost. The first is that the lack of effective demand originates exactly from the tendential fall in relative wages, which is nothing but the other side of the coin represented by relative surplus value extraction. It is the latter that opens the way, at the same time, to the savings gap and the increasing likelihood of the eruption of disproportionalities. The second aspect is that the solution Luxemburg seeks for the contradiction she detected must be represented by a 'productive' expenditure, that is, in something which is in itself an increase in capitalist investment (Bellofiore, 2009b; see also Bellofiore, 2004).

There is another point missing in the way Michał Kalecki and Joan Robinson approach Luxemburg's work. They seem completely unaware that Luxemburg is a forerunner of what nowadays is known as the theory of the monetary circuit (see Graziani, 2003, but also Deleplace and Nell, 1996; Rochon and Rossi, 2003). The point is mostly implicit in the Accumulation of Capital – the book Kalecki and Robinson commented upon. This point is however quite explicit in the Anti-Critique, a pamphlet that Luxemburg wrote during her imprisonment and posthumously published in 1921. In the latter book, Luxemburg adopts an entirely macroeconomic, sequential, and monetary view of the economic process, and clarifies her focus on the problem of the 'monetization' of the surplus. In that work, Luxemburg is not merely putting the accent on the increasing chance of an inherent lack of effective demand and on the intrinsic instability of a closed capitalist system. Of course, the share of commodity output containing the latent surplus value extracted in the immediate production process has to be actualized 'against money' before it can be advanced to start a new productive cycle. But Luxemburg is bringing to light a further, connected, and very decisive issue: since the demand for the commodity surplus must be a nominal expenditure flow of the same amount, where does the money backing that demand come from? In the answer, she links the finance to demand to the finance to production. Here we come definitely into 'circuitist' territory. Luxemburg's socialist critics completely misunderstood this question. Kalecki and Robinson do not confront it altogether.

Luxemburg's point is the following. It is the capitalist class itself that sets off the capitalist process as a monetary circuit through injections of purchasing power. Yet this means that what the capitalists get at the end of the circuit, as money 'valorizing' capital, can only be money they themselves brought into the system. Whatever the source of the extra demand for the commodity surplus, it is useless as long as it does not mean an addition of new money 'from outside'. Without this injection the capitalists taken together cannot realize an excess of money receipts over the money they had to advance to finance either production or their expenditure. On the one hand, as Luxemburg pertinently says, the money circulating among capitalists to replace old capital goods and to buy new capital goods cannot but be an 'internal affair'. By definition, she claims, no money surplus can stem from the capitalists themselves in the aggregate. On the other hand, the source of the money spent by workers (including the newly employed workforce) on consumption goods also flows out from capitalists' pockets. That is why Luxemburg insists again and again that from a macroeconomic point of view the money realizing surplus value can only come from 'external' buyers, who 'receive their means of purchase from an independent source of purchasing power, and do not get it out of the pocket of the capitalist like the workers' (Luxemburg, 1925, p. 57).

Luxemburg maintains that – in the commodity-money setting she shares with Marx – a problem like this cannot be solved by invoking an increase in gold-money output. A new production of gold as money would distract resources away from other capitalist productions to realize surplus value. The new inflow of gold-money would then be obtained through a reduction in the pace of potential capitalist accumulation. What Luxemburg needs as an answer to her question is not simply money 'oiling' the circulation of surplus value, but money that, while monetizing surplus value, is at the same time activating a new capitalistic cycle of accumulation: money as capital. She overlooks the fact that the banking system may multiply the credit available to capitalists on the basis of gold deposits, and increase the velocity of circulation of money. When this happens, capitalists would be able to realize the surplus commodities, although the total stock of gold-money remains unchanged. However, Luxemburg's instinct is right in resisting a solution to her problem via a systematic, continuous exponential rise in the velocity of circulation of money.

The monetary circuit

Only recently some authors – notably Trigg (2006, 2009) and Bellofiore (2009c) – have rediscovered in Luxemburg this mode of thought, which has remained hidden for almost a century. Trigg investigates mainly the Accumulation of Capital, while Bellofiore looks into the Anti-Critique: the latter is the text where it is possible to identify a first (though incomplete) scheme of a monetary circuit because of the particular attention devoted by Luxemburg to the inflow and outflow of money. The theory of a monetary circuit in its contemporary version (we refer here mainly to the scheme of thought put forward by Graziani, 2003) provides a picture of the capitalist economy as a monetary sequence of interrelated phases. A comparison with the theory of the monetary circuit can help us to explain both the strengths and weaknesses of Luxemburg's position.

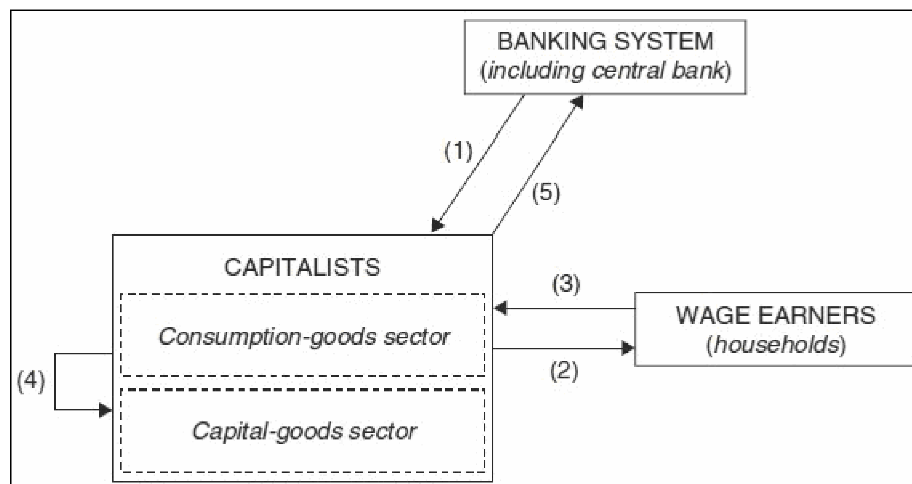

Figure 6.1 The monetary circuit in a pure credit capitalist economy

Figure 6.1 illustrates the triangular relation in a pure credit economy among bankers, industrial capitalists, and wage earners. The monetary sequence 'opens' with the bankers' decision to grant 'initial finance' to creditworthy industrial capitalists (arrow 1 in Figure 6.1). The latter have to ask banks for (credit-)money, because firms need to hire workers' labour power in order to begin the production process (arrow 2). For industrial capitalists, money represents the purchasing power to obtain workers' labour power, which is the only non-reproducible element ofthe system. Buying labour power is the only external purchase for the capitalist class as a whole, without which capitalist production could not even begin. In the simplest monetary circuit version, when production is over, wage earners cannot but spend the whole of their income in consumption goods, so that industrial capitalists recoup their 'final finance' (arrow 3). If we imagine a two-sector economy, and we abstract from capitalists' consumption and workers' savings, the profits of the second sector are spent on purchasing capital goods produced in the first sector (arrow 4). The monetary circuit 'closes' as soon as capitalists pay back to banks their single-period debt, that is, reimburse the principal and pay interest (arrow 5).

In the circuit approach, money is a purely social symbol without any intrinsic value, a mere bookkeeping liability for the issuing bank. Its supply is endogenous. On this point, the difference with respect to Luxemburg's view is clear. For her, money is 'gold', that is, the 'general equivalent', namely, the excluded commodity against which all other commodities have to be exchanged. The stress in the monetary circuit approach shifts from (gold as) the 'general equivalent' in universal commodity exchange to (non-commodity bank-) money as finance activating capitalist production. This difference notwithstanding, Luxemburg's analysis converges with the monetary circuit approach. Her question is: from where do the money inflows come to finance the aggregate demand, which monetizes the surplus that has been produced thanks to the advance of total money capital, including the money wage bill? Her model is actually the simplest model circuitists have in mind, with only one (crucial) difference: gold producers rather than banks as monetary capitalists. She also assumes a historically determined real wage for the working class, whereas circuit authors assume

that a real wage is set by capitalists' autonomous decisions about the structure ofoutput. But this is not a deep divergence. In fact, it is quite easy to consider Luxemburg's (and Marx's) hypothesis on the wage as a (theoretically grounded) special and relevant case of the circuitist perspective. According to Luxemburg, 'capital accumulation' means not only to produce a growing amount of commodities, but first and foremost to turn them into a growing amount of money. Capitalism is defined as that social situation in which industrial capitalists make more money through the advance of money, and the point of view is truly monetary and macroeconomic. The only source for the injections of money being the capitalist class (industrial capitalists are financed by gold producers), a pure capitalist system is simply impossible. Against those remarking that it is the same investment expenditure which could abstractly provide the demand realizing the already extracted surplus value, Luxemburg's answer is that this implicitly means that the finance to demand comes again from the capitalist class. Capitalists can get a bigger amount of money profits only if they themselves inject new money into the economic system.

One position among the circuit school is the following. If industrial capitalists are considered as a consolidated sector, money as a means of payment is completely unessential for the exchanges between capitalists. Surplus value is embodied in capital (and luxury) goods – namely, in the commodities that are exchanged among capitalists themselves. In this regard money simply acts as a 'lubricant oil', and may be ignored in the analysis without any theoretical misgivings. There is, however, no dichotomy between a real and a monetary sector. Money is not just a unit of account nor a stock of wealth. It is finance: it is the essential means of payment, which alone gives agents the purchasing power in order for them to enter the market. The supply of initial finance is the ingredient of any process of production, the monetary foundation for the autonomous decisions concerning the quantity (level) and quality (composition) of output. These considerations, while they are compatible with Luxemburg's stress on the point of view of 'total capital', show how the problem of the monetization of the surplus that she raises is inappropriate. It is also apparent that Luxemburg, though clearly providing an argument in terms of a monetary circuit, does not clearly distinguish within the capitalist class between the banking sector (which creates money, but does not produce commodities) and the industrial sector (which produces commodities, but does not create money). All her stress on volume III of Marx's Capital notwithstanding, she does not include in her analysis the important developments in the theory of money where Marx examines interest-bearing capital, credit, and fictitious capital. If we consider the division in the capitalist class between firms as a whole (industrial capitalists) and the banking system (monetary capitalists), the difficulty Luxemburg raises can be translated as follows. Ignoring the payment of interest to banks, in a simple reproduction scheme the same amount of credit money is created and destroyed in each period. In this respect, according to the now well-known definition provided by Keynes, finance is nothing but a 'revolving fund'. As a consequence, at the end of each circuit, industrial capitalists have to settle their single-period (short-term) debt to banks. This seems unproblematic, because in a closed economy, if there are no workers' savings, industrial capitalists receive back all the money they injected into the system. Of course, the problem partially disappears for those who do not consider money as 'currency' that lubricates the intra-capitalist-class exchanges. Other positions within the circuit tradition would take more seriously the problem of the monetary realization of the surplus. It is in this perspective that the Luxemburg–Kalecki view stressing 'net exports' and 'internal exports' can be carried on.

Once the distinction between bankers and industrial capitalists is introduced as a defining feature of the analysis, a variant of Luxemburg's problem cannot be avoided: from where does the money come that allows the payment of money interest by firms to banks on initial finance? How can industrial capitalists pay interest on bank loans, in money, since what they can get from the commodity market is no more than the 'initial' finance they injected into it, an initial finance they obtained from the same banks? Whatever the limits of Luxemburg's approach to the monetary circuit, her dilemmas seem alive and well.

Profits and interest in a monetary circuit framework

The realization of aggregate profits and the payment of bank interest in money terms represent the most intricate rebus for the authors of the monetary circuit (Rochon, 2005, p. 125). The point is that if industrial capitalists use bank loans to finance current production, they cannot recover from the market more money than they injected into the system (even if both workers and capitalists have a unitary propensity to spend).

In particular, in a two-sector economy, without either foreign markets or government expenditure, only the consumption-goods sector is able to realize profits in monetary terms, and just in the measure in which wage earners spend their income on consumer goods. In contrast, even if there are no workers' savings and the consumption-goods sector completely turns its profit into (net) investment, the capitalists producing capital goods may at best realize an equilibrium between receipts and expenditures.

However, we know that, at the end of the period, industrial capitalists have to pay money interest on the loans to banks. This means that, with a positive bank rate of interest, capitalists producing capital goods systematically suffer monetary losses. The problem could be solved by explicitly considering banks' own contribution to total expenditure on consumption and investment. In this case, capitalists of both sectors would realize gross monetary profits, allowing capitalists to pay bank interest. There are, however, problems for this quite ad hoc solution. First, if banks appropriate a share of capital goods, the separation between the banking system and the industrial sector, which is a basic feature of the monetary circuit model, disappears. Secondly, even if we consider just the consumption of the bank personnel, the latter cannot purchase goods before obtaining income. In fact, banks cannot lend credit money to themselves: they do not have a right of seigniorage. A more reasonable solution is for banks to buy equities from firms.

Since the early 1980s, several explanations have been advocated to resolve the problem of the existence of profits and interest at the macroeconomic level in a circuit model (for a general overview, see Rochon, 2005). A first possibility is to consider 'total capital' and the involved aggregate theoretical view as a first approximation hypothesis, behind which there is the 'reality' of overlapping monetary circuits. The finance to production of some (subsequent) circuits realizes the surplus-value commodities of other (prior) circuits. The basic (hidden) hypothesis is that money injected as initial finance systematically exceeds money destroyed in settling debts to banks in each period. However, this solution goes against Luxemburg's concept of total capital as a 'real' abstraction. Further, it relies on 'a microeconomic explanation of what is a macroeconomic problem' (Rochon, 2005, p. 133).

A second possibility is to explicitly consider that a share of industrial capitalists suffer losses, which correspond to an equivalent amount of profits for their competitors. This is claimed to be the 'creative destruction' process induced by competition among industrial firms on the commodity market (Messori and Zazzaro, 2005). However, this solution raises two criticisms: first, it dodges Luxemburg's question about the necessity of financing demand; secondly, it involves the 'microfoundation' of a macroeconomic problem as well.

A last possibility is to assume the existence of two parallel circuits, the production circuit and the investment circuit. They are not two different overlapping circuits, but a single circuit that is divided on the basis of the related different transactions (Rochon, 2005, p. 136). Both circuits are necessary to pay back bank loans and to earn profits, but the production circuit ends within the single production cycle, whilst the investment circuit lasts for a number of periods of production.

This is a 'technical' solution, where an additional flow of money allows producers of capital goods to realize the share of product incorporating surplus value and hence to pay off bank interest. In this way, against Luxemburg, the economic system is able to achieve a dynamic growth equilibrium and hence to reproduce itself on an enlarged scale.

However, this equilibrium may be shown to be very unstable, assuming that it has been achieved (Desai and Veneziani, 2009, p. 50). It depends upon profit expectations of both banks and firms, so that every single deviation from the balanced-growth path gives rise to an explosive dynamics. In

practice, the only temporary and local solution to the realization problem, an alternative to increasing government debt, is net exports, namely, the answer provided by Luxemburg in her analysis of the Marxian reproduction schemes.

Conclusion

While most of her critics regard capitalism as a great barter economy, where money is an inessential 'veil' over real magnitudes, Rosa Luxemburg constantly asks how money enters the system and where extra money realizing surplus value comes from. Her answer is defective on analytical grounds, and is conditioned by a conception of money reducing it to gold. However, her works contain a clear model of the monetary circuit, where the notion of 'finance' is a basic feature of the analysis. Indeed, Luxemburg adopts an analytical point of view close to those adopted by old (Wicksell, Schumpeter, Keynes) and contemporary (Schmitt, Parguez, Graziani) authors of the monetary theory of production (see Bellofiore, 1992, 2005). Paradoxically, exactly what her critics dubbed as crass errors (namely,the emphasis on the monetization of surplus value and on the role of 'external' outlets), appear to be what make Rosa Luxemburg a lucid forerunner of today's theories of money, accumulation, and crisis. Her dead ends are the living questions in the heterodox monetary perspective.

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