Revenues and demand in a monetary economy of production

Edouard Cottin-Euziol, Nicolas Piluso

Refutations of Say's Law and Dynamics of a Monetary Economy of Production

Edouard Cottin-Euziol[1]

Abstract:

In a monetary economy of production, Say's law is invalid for several reasons. On the basis of some of these refutations (Schmitt, 1984; Renaud, 2000), it is possible to state that the revenues generated by the production process are structurally lower than the supply price of production. We study here the dynamics of such an economy and obtain two main results. First, the long-term debt level of this economy has to increase during a growth phase to enable demand to grow at the same pace as supply. Secondly, due to the repayment of this debt, the gap between supply and net revenues generated by the production process widens along a growth phase.

Keywords: Say's law, Monetary Economy of Production, Economic Growth, Bank Credit, Debt level

JEL Classification: E12; E2; E30; E42; G21

[1] LEGO, Université de Bretagne-Sud, rue André Lwoff, 5600 Vannes. Email : edouard.cottin-euziol@univ-ubs.fr.

1. Introduction

In an article published in this journal, Jean-François Renaud (2000) discuss the possibility of the monetary realization of profits in a post Keynesian framework and concludes that "*In the absence of compensatory factors […] the rule of a monetary economy of production is the structural inferiority of expenditures in relation to the supply price of total production and the consequent invalidation of Say's law*" (*ibid*, p.302). According to Renaud, production fails to create a revenue, or a purchasing power, equal to its value and external compensatory factors as "*government public deficits, trade surpluses and, to a lesser extent, consumer credit*" (*ibid*, p.302) are then required to sell the entire production.

This kind of refutation of Say's law, based on the discrepancy between revenues and the supply price of production, has rarely been questioned by economists, apart from a few exceptions (Sismondi 1819; Malthus 1820; Schmitt 1984). Refutations of Say's law rely much more frequently on the difference between revenues and demand. If we consider the latter explanation true, then Say's law is not valid either because of hoarding or a lack of demand for loanable funds compared to savings. In the first case, however, Say's law is not valid because firms create insufficient purchasing power to buy what they produce. In other words, economic agents have to spend more than their revenues just to buy what they produce.

Renaud's article is directly linked to the famous *paradox of profits*, which has recently led to an abundant literature (Zazzaro 2003; Rochon 2005, 2009). However, other contributions have been made to explain the existence of a gap between revenues and the supply price of production. According to Schmitt (1984), this would happen if firms finance their production expenditure on their profits rather than by short-term bank credits. According to Cottin-Euziol and Rochon (2013), the repayment of the principal of past bank credits used to finance investments represents a cost for firms generating no revenues and could explain the existence of a gap between revenues and the supply price of production. In both cases, revenues would be insufficient to buy the entire production of an economy.

In this article, we explore this issue along two lines. First, we combine these different explanations, which has to our knowledge not yet been done. Secondly, we study the dynamics of an economy in which economic agents have to get into debt just to buy what they produce. This should lead to high global debts, both public and private, after a certain period of time and, consequently, increased fragility of the economy. We consider whether the results of this study can explain some global patterns regarding the indebtedness of modern economies.

For this purpose, section 2 deals with the notion of a monetary economy of production, which forms the framework of the refutations of Say's law mentioned above. In section 3, we discuss these different refutations, based on the discrepancy between revenues and demand. Section 4 presents a very simple model based on these refutations, which aims to represent the functioning of an economy where revenues are lower than the supply price of production. In sections 5 and 6, we study, respectively, the evolution of the long-term debt and the gap between net revenues and supply, according to the model presented in section 4. Finally, we give our conclusions in section 7.

2. The main features of a monetary economy of production

In the 1930s, Keynes called for the development of a monetary theory of production, as opposed to the real exchange economy built by classical economists (Keynes 1930, 1937a, b). Such a framework was for him necessary to understand macroeconomic dynamics and imbalances.

Afterwards, mainly post-Keynesian economists developed his project (Graziani 2003; Rochon *and* Seccareccia 2013). Based on their work, we can distinguish three main principles forming the foundation of a monetary theory of production. The first principle is the *essentiality of money*, the second refers to *endogenous money*, and the third to *debt-money*. In this section, we return successively to these three principles.

According to the principle of essentiality (Parguez 2003), money is not only a medium of exchange, but also and above all an essential condition for the realization of production. Taking its roots in Keynes' Treatise on Money (Keynes 1930) and in the finance motive (Keynes 1937a, b), this principle explains that firms need an access to money in order to trigger their production process. The focus is thus placed on the desire to spend money rather than to hold it. Money is not only regarded as a stock, but also as a flow, necessary for the financing of production. This principle is closely related to the one of historical time. Indeed, firms need money to produce because the process of production takes time and precedes the selling of goods.

The second principle is the endogenous nature of money. This notion, developed among others by Robinson (1956), Kaldor (1970) and Moore (1988), states that the quantity of money is mainly determined by the issue of bank assets for creditworthy agents. Money is then detached from any reference to a standard and banks can grant credit theoretically without any limitation, obtaining afterwards the reserves required by the law. It is assumed here that there is an institutional mechanism in place to allow this endogenous monetization of bank reserves to occur. This does not mean that the access to bank credits cannot be constrained, but rather their scarcity cannot be explained by limits in the emission of money[2], as was the case, for example, under a gold standard system. According to the above cited authors, interest rates are exogenous and no longer natural.

The third principle is that the main counterpart of money is represented by credits offered by financial institutions to firms, states and households. As stated by Rochon (2003, p. 123), "*Capitalist economies are debt economies: production cannot be separated from the discussion over credit, bank and debt*". Economic actors will then have to repay borrowed sums to banks, leading to a destruction of money. The functioning of economies is therefore characterized by the flux and reflux of money, mainly from banks to firms and firms to banks. This principle is at the core of the Monetary Circuit Theory (Graziani 1990, 2003; Piégay *and* Rochon 2003; Rochon 2009) and Stock-Flow Consistent Models (Godley *and* Lavoie 2007).

Combining these three notions, we obtain the description of an economy in which money is necessary for production, is endogenous and relies on the issue of bank credits. Contrary to a non-monetary economy, the supply price of production, revenues and expenditures are not necessarily identical in a monetary economy of production. Several refutations of Say's law have been formulated within this framework to explain how revenues could be lower than the supply price of production in an economy. We explore these refutations in the next section.

3. Refutations of Say's law in a monetary economy of production

Since its enunciation in 1803 (Say 1803), the validity of Say's law has been the subject of numerous debates (Sowel 1972). It remains the central pillar of the neoclassical theory and an unrealistic construction according to most heterodox schools of thought. In this section, we

[2] For a further discussion on this point, we refer to the debate between Horizontalists, who maintain that the money supply curve is horizontal and Structuralists, who consider that it is to certain extent positive (Moore, 1988).

present different refutations of this law in the context of a monetary economy of production where overproduction can be explained by a lack of revenues generated by the production process.

The first refutation relates to the non-injection by firms of the sums allowing them to make profits. This refutation relies historically on the work of Sismondi (1819) and Malthus (1820) and is directly linked to the recent debates among monetary circuit theorists about the monetary origin of profit (Zazzaro 2003; Rochon 2005, 2009). For example, let us consider a growing economy in which firms expect to make more profits period after period. According to the following expression, firms are not able to realize their expected profits on the basis of the revenues injected into the economy while producing:

$$W_t + \pi_{t-1} < W_t + \pi_t^e \qquad (1)$$

where π_{t-1} denotes the amount of profits made by firms in period $(t-1)$, π_t^e is the profits that firms expect to make in period t and W_t is the expenditure of firms.

In this case, even if all the revenues injected within the monetary circuit are spent, the resulting demand would be lower than the supply price of production. Denis (1997, 1999) and Renaud (2000) have proposed refutations of Say's law based on this argument. Revenues are therefore insufficient to buy the whole production, even in the absence of saving.

A second kind of refutation relies on the fact that firms will finance a proportion of their production costs through their retained earnings. This refutation was proposed by Schmitt (1984). According to this refutation, the entire sale of production requires at least that retained earnings are spent to buy production or investment goods, and so are added to the global demand. If, on the contrary, production costs are partly financed on retained earnings instead of being financed by short-term bank credits, this will create a discrepancy between the supply price of production and revenues. Indeed, retained earnings will have been used to produce goods instead of being used to consume the goods produced. Therefore, the production process will generate insufficient revenues to enable the selling of the whole production. Taking sf_w as the proportion of retained earnings used to self-finance production expenditures and combining this with (1), we obtain the following inequality:

$$W_t + (1 - sf_w)\pi_{t-1} < W_t + \pi_t^e \qquad (2)$$

Finally, a third refutation is based on the repayments of long-term bank credits. Indeed, bank credits issued during a given period will have to be repaid during the following periods. This means that firms, households and States will have to devote a part of their revenues to make these repayments. Repayments will thus reduce revenues and profits, and hence also the level of disposable income and demand in the economy. Therefore, long-term bank credits, which increased demand in the past, will decrease it in the future when they need to be repaid. The repayment of past bank credits will then modify the dynamics of the economy, as has been highlighted in two recent studies (Cottin-Euziol *and* Rochon 2013; Cottin-Euziol 2015). By adding the repayments of past bank credits to the previous expression, we obtain inequality (3):

$$W_t + (1 - sf_w)\pi_{t-1} - A_t < W_t + \pi_t^e \qquad (3)$$

These different refutations could explain why revenues can be structurally lower than the supply price of production. We note that these refutations are valid because we are considering a monetary economy. Indeed, in a non-monetary economy, in which production costs are paid in kind and profits are made in kind, none of these refutations are valid. In the next section, we present a simple model taking these refutations into account.

4. A simple representation of a monetary economy of production

In the previous section, we provide some reasons why revenues can be lower than the supply price of production in a monetary economy. If these explanations are true, then economies should suffer chronic overproduction and firms would accumulate more unsold goods or underused capital whatever their decisions of production. However, economies do not behave in that way. This can only be explained if expenditures exceed revenues, due to the issue of bank credits. For example, governments can implement a budget deficit in order to increase global demand and profits (Kalecki 1943). Firms and households also have access to bank credits to increase their spending over their income during a certain period of time. These different elements will then contribute to increasing the level of demand in the economy. Money creation by bank credit plays a crucial role here, as it is the only way to add purchasing power to that created by firms while producing.

According to the above considerations, a monetary economy of production could be described as a system in which the revenues generated by production, and hence the demand resulting from these revenues, are structurally lower than the supply price of production. Nevertheless, such an economy does not face chronic overproduction because bank credits issued in response to financing the investments of firms, or the requirements of households and States, can also increase the level of demand. If these credits are sufficient, the whole production can be sold and all the factors of production can be used.

We illustrate this simple representation of a monetary economy of production in equations (4) and (5) below. Due to the refutations of Say's law mentioned above, we consider a structural gap (x) between revenues (R) and the supply price of production (Y). Revenues generated by production are therefore structurally lower than the supply price of production. However, the level of demand (D) can reach the supply price of production if enough long-term bank credits (BC) are issued to finance the investments of firms or the requirements of households and States.

$$R_t = (1 - x_t)Y_t \qquad with\ 0 < x < 1 \tag{4}$$

$$D_t = f(R_t) + BC_t = f\big((1 - x_t)Y_t\big) + BC_t \tag{5}$$

As long as these bank credits are sufficient to enable the demand to grow at the same pace as the global supply, firms will not have unsold goods. Production and investment decisions are then likely to maintain at a high level. On the contrary, if these bank credits are not sufficient, firms will remain with unsold goods, which will affect their future decisions of production and investment.

To complete this representation, we need to consider the repayments of these long-term bank credits. Indeed, bank credits issued during a period to fill the gap between demand and supply will have to be repaid during subsequent periods. These repayments may therefore increase this gap in the future by decreasing revenues and the level of demand, as explained in the previous section. More bank credits will then have to be issued in the future to counterbalance these repayments, leading to more repayments, which will modify the dynamics of the economy.

To be more precise, the repayment of a bank credit comprises two parts: the interest, which forms the bank's revenues, and the principal, which eliminates the corresponding credit line. The interests paid represent the bank's earnings, so they cannot be regarded as an outflow. On the contrary, the principal repayments of past bank credits reduce the money stock and constitute an outflow outside the economic circuit. Such repayments will therefore decrease the

level of demand and increase the gap between demand and supply. By considering capital repayments (A), we obtain two new equations (6) and (7). In equation (6), *net revenues* (R^{net}) are equal to the level of revenues in the economy within a given period after the repayment of past bank credits:

$$R_t^{net} = (1 - x_t)Y_t - A_t \quad (6)$$

In equation (7), *net demand* (D^{net}) represents the level of demand that can be reached in an economy based on production decisions, bank credits issued within the period and the repayment of past bank credits:

$$D_t^{net} = f((1 - x_t)Y_t) + BC_t - A_t \quad (7)$$

The volume of repayments within a period depends on the volume of bank credits issued during the previous periods:

$$A_t = f(BC_{t-1}, BC_{t-2}, \dots) \quad (8)$$

Equation (7) can then be rewritten as follows:

$$D_t^{net} = (1 - x_t)Y_t + BC_t - f(BC_{t-1}, BC_{t-2}, \dots) \quad (9)$$

This equation provides us with a simple representation of the dynamics of a monetary economy of production. Long-term bank debts are necessary to enable the selling of the entire production. However, debt repayments tend to increase the gap between global demand and the supply price of production in the future. Using this equation, we focus in the next section on the required level of long-term bank debt in such an economy. In section 6, we discuss the evolution of the structural gap between revenues and supply throughout a growth phase, considering the repayment of past bank credits.

5. The required level of long-term debt in a monetary economy of production

In the previous section, we consider a monetary economy of production in which revenues are insufficient to enable the selling of the entire value of production. Nevertheless, long-term bank credits issued in response to the financing requirement of firms, households and States can increase the level of demand arising from these revenues and enable it to reach the value of production. In this section, we explore how these financing requirements – and hence the level of long-term debt in an economy of production – could evolve during a growth phase.

To determine this level of long-term debt, we need to calculate the volume of money which has to be injected throughout the periods to fill the structural gap between revenues and the supply price of production. By assuming a constant gap between the two, we can rewrite equation (4) as follows:

$$R_t = (1 - x)Y_t \quad (10)$$

The amount of long-term bank credits which has to be issued within each period to fill this gap is then:

$$BC_t = Y_t - R_t = xY_t \quad (11)$$

Starting from an initial period 0, we can determine the required amount of long-term bank debt (B) in this economy for a given period. This debt corresponds to the sum of all the injections of

long-term bank credits required to fill the structural gap between revenues and supply from period 0 to the current period, as presented in equation (12).

$$B_t = xY_0 + xY_1 + xY_2 + \cdots + xY_t \quad (12)$$

Assuming a constant growth rate (g) of supply, we obtain the following geometric series:

$$B_t = x\frac{Y_t}{(1+g)^t} + x\frac{Y_t}{(1+g)^{t-1}} + \cdots + x\frac{Y_1}{1+x} + xY_t \quad (13)$$

Using the formula of the sums of terms of a geometric series, we can compute the value of such a series:

$$B_t = xY_t\frac{1-\frac{1}{(1+g)^t}}{1-\frac{1}{1+g}} = x\frac{1+g}{g}Y_t\left[1-\frac{1}{(1+g)^t}\right] \quad (14)$$

For a long enough period of time, we can determine the ratio of long-term bank debt to supply required to balance revenues and the supply price of production. This ratio gives us the level of indebtedness of the economy:

$$\frac{B_t}{Y_t} = x\frac{1+g}{g} \approx \frac{x}{g} \quad (15)$$

According to this equation, the amount of long-term debt in a monetary economy of production will depend mostly on the structural gap between revenues and supply, as well as on the growth rate of the economy. It can reach high values, showing that a monetary economy of production can be highly leveraged. For example, if the structural gap between revenues and supply is identical to the growth rate of the economy, the quantity of long-term debt would have to reach more than 100% of the value of production to enable revenues to grow at the same pace as supply. To take a numerical example, if the nominal growth rate of the economy is about 3% and revenues within each period represent 97% of the supply price of production, then it would be necessary to have a long-term debt representing about 100% of the supply price of production. With a lower growth rate or a larger structural gap between revenues and the supply value of production, this long-term debt could reach much higher values. This result could help us understand why economies rely nowadays on such high debt to GDP ratios.

It is important to note that in no case this quantity of debt means that people in this economy live beyond their means. Indeed, just considering a closed economy, society cannot as a whole consume more than it has produced. The debt simply reflects the fact that monetary injections are necessary, beyond the short-term injections made by firms to finance their production costs, in order to fill the gap between revenues and supply.

6. The evolution of the structural gap between revenues and supply throughout a growth phase

We consider here the consequences of the repayments of long-term debt on the gap between net revenues and supply. As explained in the introduction and in the previous section, debt repayments will reduce revenues in the economy, and hence the level of demand. More long-term bank credits will then have to be issued within a given period to offset the repayment of long-term bank credits issued in the past. In our study, *net revenues* refer to the level of revenues generated by the production process minus the volume of repayments. We investigate here how

these repayments might modify revenues and the gap between net revenues and global supply throughout a growth phase.

For this purpose, we first incorporate equation (8) into equation (6), while assuming, as in the previous section, a constant structural gap between revenues and supply. We thus obtain the following equation:

$$R_t^{net} = (1-x)Y_t - f(BC_{t-1}, BC_{t-2}, \dots) \qquad (16)$$

As previously stated, we assume a constant growth rate of supply. By considering the results obtained in the last section, equation (17) can be used to express the volume of long-term bank credits as a function of the value of global supply:

$$R_t^{net} = (1-x)Y_t - f(B_t) = (1-x)Y_t - f\left[x\frac{1+g}{g}Y_t\left(1-\frac{1}{(1+g)^t}\right)\right] \qquad (17)$$

As proposed by Rochon (2009) in the framework of a single period, let us assume that a part ρ of this debt is repaid within each period. Equation (14) becomes:

$$R_t^{net} = (1-x)Y_t - \rho x\frac{1+g}{g}Y_t\left(1-\frac{1}{(1+g)^t}\right) \qquad (18)$$

We can then determine the value of the ratio of net revenues to global supply:

$$\frac{R_t^{net}}{Y_t} = 1 - x - \rho x\frac{1+g}{g}\left(1-\frac{1}{(1+g)^t}\right) \approx 1 - x - \rho\frac{x}{g}\left(1-\frac{1}{(1+g)^t}\right) \qquad (19)$$

This ratio gives us the gap between the level of net revenues and supply within a period t. Therefore, it reflects the amount of long-term bank credits which need to be granted within a period *t* to enable global demand to reach the supply price of production. This gap between net revenues and supply will increase for higher values of the structural gap (x) and repayment rate (ρ). On the contrary, it will decrease for a higher value of the economy growth rate, all things being equal.

We can now draw a curve (Figure 1) showing the evolution of the ratio of net revenues to global supply throughout a growth phase. For the hypothetical period 0, it will depend on the structural gap between supply and demand. It will then decrease, due to the repayment of past bank credits, until it reaches the threshold value of $\left(1 - x - \rho\frac{x}{g}\right)$ after a long period.

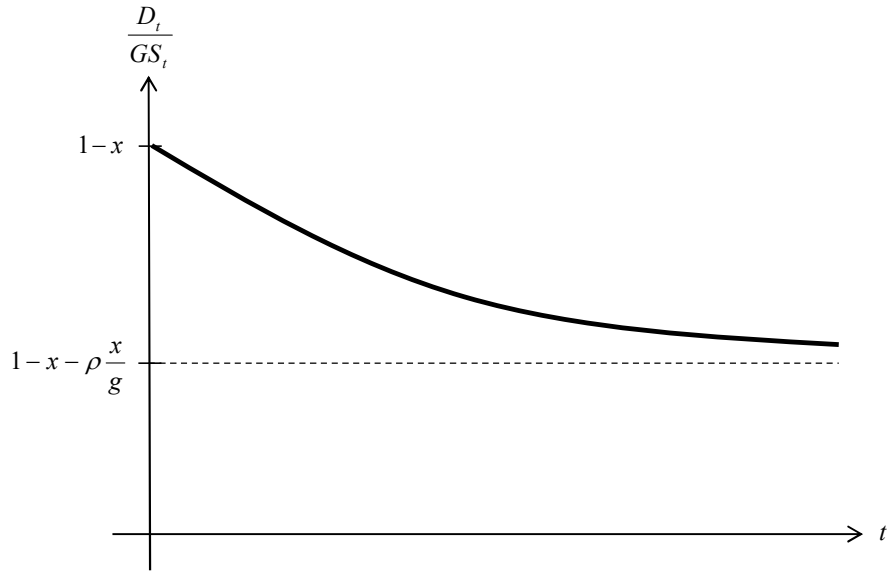

Figure 1: Evolution of the ratio of net revenues to global supply throughout a growth phase

The main result of this study is that the ratio of net revenues to global supply decreases throughout a growth phase. To take an example, if the structural gap between revenues and the supply price of production corresponds to 3%, assuming the growth rate of the economy is about 3% and 10% of the global debt is repaid every year, then the level of net revenues will decrease progressively until it represents 87% of the value of production.

This can be explained by the depressive effect of the repayment of long-term bank credits on revenues. While bank credits fill the gap between revenues and supply in the past, they will increase this gap in the future. This means that more and more bank credits, in relation to the level of global supply, will have to be issued during a growth phase to enable the selling of the whole production, leading to more and more repayments. In other words, it becomes more and more difficult to maintain a balanced growth between revenues and the supply price of production throughout a growth phase because of the natural fall in disposable revenues with increasing indebtedness. Such a result could therefore help us understand why economies often face overproduction crises after several years of growth.

7. Conclusion

In the General Theory, Keynes (1936) regards Say's law as the *classical theory's "axiom of parallels"* and suggests building a non-Euclidean economic theory instead. The monetary economy of production, in which Say's law is not validated for the reasons previously discussed, clearly fulfils this prophesy. It is thus possible to build a model in which revenues generated by production appears to be structurally lower than the supply price of production.

A structural gap will therefore appear between demand and supply that can only be filled if enough credits are issued by banks in response to the requirements of households, firms and governments. Indeed, bank credits will increase expenditures and demand over and above the net revenues of the economy. The structural gap will depend on the configuration, at any given moment, of the social and institutional patterns framing the economy. For example, a balance of power less favourable towards labour, as has existed since the middle of the 1970s, should widen the gap. It then becomes necessary for economic individuals to incur more long-term

debts in order to enable global demand to reach global supply. However, the repayment of these long-term bank credits will widen the gap between demand and supply in the future, as such expenditure will decrease disposable income, requiring even more bank credits to be issued in the future.

Considering all the above, we have built a very straightforward model which yields two main results. The first result is that a monetary economy of production requires an increasing long-term debt throughout a growth phase, in order to enable the selling of the production. This long-term debt can reach high amounts in comparison to the value of production, which could help us understand why the level of debt is high in our economies. The second result is that the gap between the net demand arising from production and the value of global supply widens during a growth phase. Combined with the analysis of the regulation theory (Benassy *et al.* 1979) and past explanations of business cycles, this result could contribute to understanding why economies often face overproduction crises after several years of growth.

These two results are fundamentally linked to the monetary nature of economies and the banking nature of money. In a non-monetary economy, where profits are made in kind and production costs are paid in kind, none of the features highlighted here would have appeared. This strengthens the idea that building a proper monetary theory of production is essential to understanding the functioning and dynamics of our economies.

Bibliography

BENASSY, J.P., BOYER, R. and GELPI, R.M. 1979. "Régulation des économies capitalistes et inflation", *Revue Economique* 30(3): 397-441.

COTTIN-EUZIOL, E. 2015. "The repayment of bank credits having financed investments in the Domar model", *Brazilian Keynesian Review* 1(2): 212-217.

COTTIN-EUZIOL, E. and ROCHON, L.P. 2013. "Circuit with multi-period credit", *Review of Political Economy* 25(3): 461-475.

DENIS, H. 1997. *Profit, équilibre et emploi*. Paris: Economica.

DENIS, H. 1999. *La 'loi de Say' sera-t-elle enfin rejetée?* Paris: Economica.

GODLEY, W. and LAVOIE, M. 2007. "*Monetary Economics: An Integrated Approach to Credit, Income, Production and Wealth"*. London: Macmillam.

GRAZIANI, A. 1990. "The theory of the monetary circuit", *Economies et Sociétés* 24(6): 7-36.

GRAZIANI, A. 2003. *The Monetary Theory of Production*. Cambridge: Cambridge University Press.

KALDOR, N. 1970. "The new monetarism", *Lloyds Bank Review* 97: 1-7.

KALECKI, M. 1943. *Studies in economic dynamics*. London: Unwin University Books.

KEYNES, J. M. 1930. *A Treatise on Money*. London: Macmillan.

KEYNES, J.M. 1936. *The General Theory of Employment, Interest and Money*, London: Macmillan.

KEYNES, J.M. 1937a. "Alternative Theories of the Rate of Interest". *Economic journal* 47: 241-53.

KEYNES, J.M. 1937b. "The 'Ex-Ante' Theory of the Rate of Interest". *Economic Journal* 47: 663-9.

MALTHUS, T. R. 1820. *Principles of Political Economy*. New York: A.M. Kelley.

MOORE, B.J. 1988. *Horizontalists and Verticalists: the macroeconomics of credit money*. Cambridge: Cambridge University Press.

PARGUEZ, A. 2003. "Monnaie et capitalisme : la théorie générale du circuit", in *Théories Monétaires Post Keynésiennes*, edited by P. Piégay and L.P. Rochon. Paris: Economica.

PIEGAY, P. and ROCHON, L.P. 2003. « Monnaie endogène et économies monétaires de production : l'apport des théories monétaires postkeynésiennes ». In *Théories Monétaires Post Keynésiennes*, edited by P. Piégay and L.P. Rochon. Paris: Economica.

RENAUD, J. F. 2000. "The problem of the monetary realization of profits in a Post Keynesian sequential financing model: two solutions of the Kaleckian option", *Review of Political Economy* 12: 258−303.

ROBINSON, J. 1956. *The Accumulation of Capital*, London: Macmillan (1969).

ROCHON, L. P. 2003. "On Money and Endogenous Money: Post Keynesian and Circulation Approaches". In *Modern Theories of Money*. Northampton: Edward Elgar.

ROCHON, L. P. 2005. "The existence of monetary profits within the monetary circuit". In *The Monetary Theory of Production: Tradition and Perspectives*, edited by G. Fontana & R. Realfonzo. Basingstoke: Palgrave Macmillan.

ROCHON, L. P. 2009. "The existence of profits within the monetary circuit: the unanswered questions revisited". In *The Political Economy of Monetary Circuits*, edited by J. F. Ponsot & S. Rossi. London: Palgrave Macmillan.

ROCHON, L.P. and SECCARECCIA, M. 2013. *Monetary Economies of Production: Banking and Financial Circuits and the Role of State*, Edward Elgar Publishing Ltd, Northampton.

SAY, J.B. 1803. *Traité d'économie politique : ou simple exposition de la manière dont se forment, se distribuent et se consomment les richesses*. Paris: Economica.

SCHMITT, B. 1984. *Inflation, chômage et malformations du capital, Une macroéconomie quantique*. Paris: Economica.

SISMONDI, J.C.L. 1819. *Nouveaux principes d'économie politique*. Paris: Calmann-Levy, (1971).

SOWELL, T. 1972. *Say's law : an historical analysis*. Princeton: Princeton University Press.

ZAZZARO, A. 2003. "How Heterodox is the Heterodoxy of Monetary Circuit Theory? The Nature of Money and the Microeconomics of the Circuit". In *Mordern Theories of Money : the nature and the Role of money in Capitalist Economy*, edited by L.-P. Rochon and S. Rossi. Northampton: Edward Elgar.