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Cambridge’s Contribution to Endogenous Money: Robinson and Kahn on credit and money

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It is often claimed by American Post Keynesians that the theories of endogenous money originated in the mid-1950s as a result of articles published by Nicholas Kaldor and Hyman Minsky. This paper offers another possibility. It argues that, in the mid-1950s, both Joan Robinson and Richard Kahn offered insights into the workings of a credit economy that have been largely ignored by Post Keynesians and that are consistent with Post Keynesian monetary theory.

1. Introduction

American Post Keynesians (henceforth Post Keynesians) usually point to the important contributions of Nicholas Kaldor and Hyman Minsky in developing the theory of endogenous money. Minsky published two papers in 1957, which many Post Keynesians believe contain the seeds of endogenous money (Wray, 1992, p. 161; Dymski & Pollin, 1992, p. 41). Likewise, many see the beginnings of Post Keynesian monetary theory in Kaldor’s 1958 memorandum to the Radcliffe Committee (Musella & Panico, 1993; Targetti, 1992). The purpose of this paper is not to disprove this claim (see Rochon, 1999b for such an analysis); rather, it argues that Post Keynesians should embrace the work of two Cambridge economists whose work on money is usually ignored—Richard Kahn and Joan Robinson. Kahn and Robinson already had given us a well-defined theory...
of endogenous money by the late 1950s. Moreover, in a number of respects the approach of Kahn and Robinson is superior to that of Minsky and Kaldor.\(^2\)

The problems with the early contributions of Kaldor and Minsky are twofold. First, both authors accepted the causality inherent in Friedman’s Quantity Theory of Money. Rather than rejecting it outright, they criticized it timidly by arguing for a variable velocity of money. As a result, both argued that the Quantity Theory was weak and unreliable for policy. Secondly, they both attributed variable velocity to the existence of ‘near-monies’ (Kaldor) or financial innovations (Minsky). Money still caused nominal income, but for Kaldor and Minsky the causality was weak (see Moore, 1991, for a discussion of this in Kaldor’s early papers).

In contradistinction, Kahn and Robinson argued for reversing the causality. Their views on credit and money are thus consistent in many ways with the Post Keynesian theory of credit-money. They rest on a dynamic theory of banks at the core of the production process.\(^3\) If this interpretation is correct, Robinson and Kahn anticipated much of the current horizontalist/Post Keynesian view of money by as much as 15 years (using Kaldor’s (1970) Lloyd’s Bank Review article as a benchmark, Zannoni & McKenna, 1981, p. 479).

Kahn’s contribution to credit and money can be found in two short articles published in 1954 and 1958, the latter being his memorandum to the Radcliffe Committee. While still underdeveloped, these articles offer key insights into a theory of credit–money endogeneity.

As for Robinson, a discussion about the importance of her contribution to endogenous money may appear mildly bizarre to many Post Keynesians. After all, her name is associated neither with monetary policy, credit nor money. Imperfect competition, growth theory and the capital critique usually come to mind. Lavoie (1991, p. 264) goes even as far as to claim that in Robinson (1956), the ‘monetary apparatus appears to be rather traditional.’ Yet, Robinson made important contributions to the theory of money. She discusses money in two chapters of her 1956 book, as well as in countless other passages throughout the book. Despite the fact that the Accumulation of Capital remains central to the development of Post Keynesian economics, these chapters have somehow been overlooked. They contain rich and complex views on credit and money, and demonstrate a sound understanding of the dynamics of a monetary economy of production.

Post Keynesians generally see endogenous money as resulting from central bank decisions to accommodate fully the demand for reserves (Moore, 1988b), or from the ability of banks to innovate (Pollin, 1991). For Robinson, the central bank does not appear to play any significant role; rather, money is endogenous because of the nature of credit and money as bank debt. Moreover, it will be argued that Robinson may have understood the concept of horizontalism. She

\(^2\) Many differences arise when comparing Minsky and Kaldor to Robinson and Kahn. One principle is that both Minsky and Kaldor were responding to Friedman. This does not appear to be the case for Kahn and Robinson, especially the latter.

\(^3\) The demand for credit is not a demand for money for transactions purposes: credit creates money and so the two concepts are separate (Rochon 1999a; Realfonzo 2000). Credit is bank asset, while money is a liability. Moreover, the demand for credit is not the same as the demand for money.
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seemed, on the one hand, to recognize the exogeneity of the rate of interest and, on the other hand, to deny any correlation between the rate of interest and the demand for bank credit.

This paper contains three main sections. Section 2 sketches the broad themes of the Post Keynesian theory of endogenous money. Section 3 presents Kahn’s views on money. His 1958 memorandum emphasizes credit, the demand-determined supply of money (Kahn, 1972, p. 147), the exogeneity of the rates of interest (Kahn, 1972, p. 148) and loans-created deposits (Kahn, 1972, p. 147). While Kahn’s views are not always clearly spelled out, it is possible to interpret them as rejecting orthodox monetary thought. Section 4 shows that Robinson developed the more radical insights of Keynes on money along the lines of the finance motive.

2. Endogenous Money: a broad outline

This section sketches the basic elements of a theory of endogenous money. Its purpose is to offer a version of Post Keynesian monetary theory. This will help show that both Robinson and Kahn had these general arguments in their early monetary contributions.

2.1. Keynes and the Velocity of Money

Endogenous money is central to Post Keynesian macroeconomic theory. It links the real and monetary sides of the economy through the role played by commercial banks in meeting the requests of households, firms and the state to finance expenditures. This view stems primarily from the observation that, in historical time, savings can never precede investment. Banks are therefore integral to the production process. But banks are not financial intermediaries. They do not lend pre-existing funds (savings), and they cannot create money without a pre-existing demand from economic agents. Money is demand-determined and credit-led (Moore, 1988b). Unlike neoclassical theory, there can be no discussion of real variables without first discussing the role that credit and money play in the production process. The theory of output is thus also a theory of credit and a theory of money creation.

In developing a theory of endogenous money, where do we begin? Surely we cannot begin with the General Theory, where Keynes assumed an exogenous supply of money (one of the three ‘ultimate independent variables’). To explain changes in output within the concept of exogenous money, Keynes relied on changes in the velocity of money. However, there are two important problems with this approach. First, it maintains the causality inherent in the Quantity Theory of Money, albeit rendering it weaker. While money still causes income, the relationship between money and prices is unreliable given the instability of the velocity of money. This was precisely the position taken by the early Minsky (1957a,b), and even Kaldor (1958), who relied on financial innovations to explain how nominal output could increase without a prior increase in the

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4 See Rochon (1997) for a discussion of Keynes’s monetary views after the General Theory.
exogenously-controlled supply of money. The point of their argument, however, was not to develop a theory of endogenous money. It was to question the view that inflation was caused by monetary phenomena.

The second problem with the approach is that financial innovations are merely a shifting around of existing savings. When banks offer new types of financial assets this allows them to economize on reserves and supply new loans. The causality between savings and investment is not broken; nor is the causality between deposits and loans. The argument that output can be financed through a change in the velocity of money is not consistent with a theory of endogenous money since it re-establishes the Quantity Theory of Money.

After having defended the story about changes in velocity in the General Theory, Keynes realized the problem posed by this line of reasoning, but only after probing questions raised by Hugh Townshend. Townshend claimed (see Keynes, 1973, p. 242) that the quantity equation is ‘significant as an identity, though of no economic importance.’ His main criticism was that the velocity of money fails to take into consideration the ‘flow of cash in the industrial circulation (or to changes in the rate of this flow) as a whole’ (see also Townshend, 1937).

Finding Townshend’s criticism ‘well founded’, Keynes (1979, pp. 246–247) replied that the theory of the velocity of money ‘amounts to very little, contributes nothing to the understanding of the argument and is simply encouraging the reader to waste his time in a rather futile sort of way.’ Keynes (1979, pp. 246–247) associates his use of velocity with his failure fully to escape neoclassical theory: ‘I am conscious that this [velocity], like a good deal else in the book, is largely the product of the old associations of my mind, the result of always trying to see the new theory in its relation to the old one and to discover more affinities than really exist. When one has entirely sloughed off the old, one no longer feels the need of all that.’ The problem with recasting velocity in terms of a ‘positive doctrine’ is that it would be ‘more difficult to clean the thing up except by rather drastic changes. And here again the trouble really arises from my trying to produce a closer analogy between my terms and those previously employed than the circumstances really justify. … It would become so tortuous and complicated. … Here again the right solution probably lies in simply cutting it all out’ (Keynes, 1979, p. 246).

2.2. Post-Keynesians and Endogenous Money

While the treatment of money in the General Theory remains fairly traditional, Keynes did start to break free from this orthodoxy after the General Theory. The Post Keynesian theory of endogenous money must be seen as an attempt to complete this break and develop a monetary theory of production.

The Post Keynesian approach is set within a capitalist monetary production economy, within the context of historical time, where the past is known and cannot be changed, and where the future remains largely unknown and unknowable (Moore, 1979). The past gives us the existing capital stock dictating the capacity of the economy to produce. Uncertainty about levels of aggregate demand in the near future determines the degree to which capacity is used
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(production levels) (see Asimakopulos, 1991; Davidson, 1972). Expectations about the growth of aggregate demand in the future determine the demand for capital goods. This, in turn, increases the economy’s capacity to produce. Uncertainty therefore affects both short-run and long-run decisions by firms.

In sequential analysis in historical time, savings can only result from a prior act of expenditure. The creation of income, resulting from an increase in investment, leads to the creation of saving. Savings, therefore, cannot finance investment. In fact, savings are a residual that drains the system: it depletes effective demand. This means that savings cannot cause investment (Lavoie, 1992).

If savings cannot finance investment, there is a necessary gap—or an interregnum, as Keynes (1973, p. 219) puts it—between the time when firms incur costs of production and when they receive the revenues from the sale of their output. Firms must thus have access to a fund from which they can pay wages, interest costs and dividends (short-run credit). Firms also need a source of funds to finance the investment costs of their plans to expand production facilities (long-run credit).

By rejecting the orthodox causality between saving and investment, and by emphasizing historical time, Post Keynesians must explain how production expenses and investment expenditures are financed. Their answer is that commercial banks finance the credit that firms demand. Keynes made this argument clear in his finance motive articles. Initially, he argues that finance ‘may be provided either by the new issue market or by the banks—which it is makes no difference’ (Keynes, 1973, p. 208). He later clarifies this position by claiming that the ‘finance required during the interregnum between the intentions to invest and its achievement is mainly supplied by specialists, in particular by the banks’ (Keynes, 1973, p. 219). In the following paragraph, Keynes claims that the finance is ‘wholly supplied ... by the banks,’ which he describes as ‘substantially representative of real life.’ He reaffirms this position a year and a half later in his 1939 Economic Journal article: ‘It is the rôle of the credit system to provide the liquid funds which are required first of all by entrepreneurs during the period before his actual expenditure, and then by the recipients of this expenditure during the period before they have decided to employ it’ (Keynes, 1973, p. 285).

Banks are thus at the heart of the production process. They finance the credit that is needed to remunerate workers and cover other costs of production, and also to undertake investment (Arestis, 1992; Davidson, 1972, p. 270; Lavoie, 1992; Moore, 1988b). The central bank sets the rate of interest and acts as a lender of last resort. This point is now well accepted by all Post Keynesians (Moore, 1996; Wray, 1999). Hewitson (1995, p. 290) for example, argues that ‘it is the discount rate rather than base money which is the control variable.’ Rogers (1989, p. 253) claims that ‘the interest rate reflects psychological, institutional, and other historical factors which cannot be specified a priori.’ And Pasinetti (1974, p. 44) argues that the base rate is ‘determined exogenously with respect to the income generation process. Whether, in particular, liquidity preference, or anything else determines it, is entirely immaterial.’ The base rate therefore is seen as a ‘non-market conventional phenomenon’ (Deriet & Seccareccia, 1996, p. 140).
Post Keynesians also reject the existence of a natural rate of interest. According to Lavoie (1996, p. 281),

Those post-Keynesian or Institutionalist authors who claim to be describing monetary production economies are implicitly defining models where the natural rate of interest is irrelevant. … To define the proper foundations of a post-Keynesian monetary analysis, one must thus simultaneously and explicitly adopt an endogenous money approach (with generalized liquidity preference), and discard the notion of the natural rate hypothesis.

Not only does a theory of endogenous money require an exogenous rate of interest, it also requires the rejection of the natural rate of interest as well (Smithin, 1994).

Once the rate of interest is set, firms demand credit to finance their expenditures (Davidson, 1972; Moore, 1988b).\(^5\) Banks either extend a loan or simply give the firm a line of credit from which it can draw to cover expenditures at an interest rate reflecting a mark-up over the cost of funds (Moore, 1988a, p. 292; Seccareccia, 1996). Either way, it is the demand for bank credit that leads to the creation of money (Moore, 1988b). Money appears because of production plans by firms and not because of any exogenous decisions taken by central banks. Money, to quote Arestis & Driver (1988, p. 128), is ‘essentially an output variable responding to changes in the behaviour of private economic units [banks] rather than the behaviour of the monetary authorities.’

The creation of money through loans leads simultaneously to the creation of incomes for workers as well as for investment-goods firms. Remember, firms demand credit in order to pay wages to workers or purchase capital goods (revenue for the capital-goods firms). As a result, Godley & Cripps (1983, p. 82) argue that ‘The act of money creation is also an act of expenditure and (therefore) of income creation.’

In Post Keynesian theory, money therefore becomes part and parcel of the production process. Macroeconomics, the study of employment and output, cannot be separated from the study of money—they are interrelated. For this reason, Post Keynesians reject the Hicksian IS-LM model, which depicts the monetary and the real sectors as independent.\(^6\) Money, for Post Keynesians, is non-neutral both in the short run and the long run.

All of this means that Post Keynesians reject the causality inherent in the monetarist interpretation of the Quantity Theory of Money. Changes in the money supply do not cause changes in nominal output or changes in prices. Rather, more money results from more output or higher prices: money is an effect rather than a cause (Lavoie, 1992; Arestis, 1992). Firms decide on their expected levels of output; to carry out production, however, they need financing. Consequently, it is expected output that drives the money supply, with prices set according to a mark-up over costs and a target rate of return.

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\(^5\) Whether the rate of interest or changes in the rate of interest affect the demand for bank credit is still a point that needs to be clarified.

\(^6\) This implies that Davidson’s (1972) shifting IS-LM model must also be rejected, although it was an honorable attempt to link together the two sectors of the economy.
Emphasizing the role of banks in financing production does not necessarily lead to a theory of endogenous money. In some versions of neoclassical theory, especially in their New Keynesian incarnation (see Gertler & Gilchrist, 1993), banks also finance expenditures. Yet New Keynesians still see banks as financial intermediaries that bring together borrowers and savers. The transmission mechanism occurs through bank loans, but the supply of bank loans can still be determined by the central bank, reserves, and prior deposits. This is merely a restatement of the saving–investment causality: bank liabilities finance bank assets. Money is credit-driven but supply-determined.

In contrast, Post Keynesians argue that the causality needs to be reversed: it is bank assets that create bank liabilities (Lavoie, 1992; Pollin, 1991, 1996). In other words, loans create deposits. For this reason banks can meet the demand for loans without facing a predetermined supply of ‘loanable’ money.

As loans are extended and deposits are created in the process, the money supply increases. As deposits are created, banks must also meet reserve requirements. In fact, banks only seek reserves after they have made loans and created deposits. Consequently, reserves do not constrain the ability of banks to make loans. Moore (1989, p. 12) makes this argument clear: ‘Since reserves are ordinarily supplied endogenously on demand, they have no causal role in the money supply process.’ Similarly, Hewitson (1995, p. 287) argues that ‘loans are made, deposits are created, and banks only later seek the reserve assets required to support these deposits and meet reserve requirements.’

This last argument implies that the traditional view of the money multiplier must be rejected. According to this model, monetary expansion first begins with an increase in high-powered money that, given a reserve ratio and money multiplier, increases the money supply. The causality is still from reserves to money. In post-Keynesian theory, however, the expansion emanates from the demand side, resulting from the needs of production. Reserves only appear at the end of the monetary process.

Given their role as lender of last resort, the demand for reserves will be generally met by the central bank (Kaldor, 1982) to a greater or lesser degree. The point was well made by Forman et al. (1985, p. 30): ‘The central bank, in order to maintain the liquidity of the financial system, is forced to purchase government securities in the open market so as to accommodate, at least in part, the need for additional credit as the pace of economic activity quickens.’ Regardless of whether the central bank fully accommodates, banks are generally not constrained in terms of their reserves. At the very limit, banks can borrow reserves from the central bank, albeit at a ‘frown cost’, as Moore (1988b) tells us. They can even borrow them from other banks in overnight markets (Palley, 1991).

This implies that money creation is endogenous at the given rate of interest on bank loans. As Kaldor (1982), Moore (1988b), and Lavoie (1992) all suggest, the best graphical representation of the money supply (or, better yet, the credit

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7 Rochon (1999b) argues that even if the central bank does not fully accommodate, money is still fully endogenous. The degree to which the central bank meets the demand for reserves is at the heart of the debate between horizontalists and structuralists.
supply) curve is a horizontal line at a given exogenous rate of interest determined by the central bank. Moreover, if money only arises out of debt and the request for finance, then there can be neither excess supply nor any excess demand for money (Kaldor, 1982; Lavoie, 1992; Moore, 1988b). ‘Credit-money only comes into existence if it is demanded, so that in a pure credit money economy, supply can never be in excess of the amount individuals wish to hold.’ (Thirlwall, 2000, p. xiv).

Given the nature of a capitalist economy set in historical time, the money supply is endogenous. Money is credit-led but it is also demand-determined. This does not mean that there are no unsatisfied borrowers. However, loans cannot be made solely at the discretion of the banks. Firms must be willing to enter into debt. Banks will lend to those borrowers they deem creditworthy. Many customers will have their credit demand rejected. This does not change the fact that borrowing is made at the request of the firm. The money supply curve is still horizontal but the demand that they are willing to meet at the given rate of interest is from creditworthy customers.

If money is endogenous, it is the rate of interest that must be the exogenous variable. This implies that the rate of interest is determined neither by the demand and supply of saving nor the demand and supply of money. Central banks set the nominal rate of interest according to internal and external economic objectives (Lavoie, 1992; Moore, 1988b).  

In brief, the theory of endogenous money consists of the following five propositions:

1. The causality between money and income in the Quantity Theory is reversed. Specifically, causality runs from the expected (or desired) income of firms, to the demand for credit, and then to money and effective income.
2. The causality between reserves, deposits and loans is reversed (Pollin, 1991; Lavoie, 1992; Eichner, 1987). Reserves are endogenous and have no causal influence on loans. This implies that the money multiplier model must also be rejected.
3. The causality between savings and investment is reversed (Kregel, 1973; Davidson, 1972; Shapiro, 1977). Firms must finance production before any saving is generated.
4. The rate of interest is exogenous (Lavoie, 1996; Hewitson, 1995; Smithin, 1994; Wray, 1995); it is not determined by any market mechanism where demand and supply schedules interact.
5. The money supply is ‘demand-determined and credit-driven.’ Money is created ex nihilo; it is not a result of portfolio decisions. In this sense, money exists in a continuous circular flow and is a result of the demand for credit that allows firms to fulfill their expenditure plans. The supply of credit is endogenous, based on the decisions of commercial banks. Money is primarily a flow, created by credit, and it is extinguished through the repayment of loans (Eichner, 1987; Lavoie, 1984, 1992; Parguez, 1984, 1987).

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8 Smithin (1994), Pivetti (2000) and Rochon & Vernengo (2000) argue further that the central bank can also set the real rate of interest.
3. The Monetary Views of Richard Khan

This section shows that the theory of endogenous credit was held by Richard Kahn. Kahn’s views on money stem from two articles he wrote in the 1950s. The focus of each article is rather different. The earlier one focuses on the demand for money and liquidity preference but only briefly mentions the importance of bank credit. In the second article, Kahn analyzes how the rate of interest affects the demand for bank loans to finance investment.

The earlier article, originally published in 1954, is very much in the tradition of the General Theory. Kahn discusses money by emphasizing the motives for holding it, particularly the precautionary and speculative motives. Money is seen primarily as an asset, a component of portfolio choices. He thus stays within the elegant framework of liquidity preference. Money demand and supply determine the rate of interest; the importance of the credit market is only briefly mentioned.

After having defended earlier the General Theory against its critics, Kahn now criticizes, in his 1958 brief to the Radcliffe Committee, the General Theory for treating money in an orthodox fashion. His brief marks a departure from liquidity preference theory, and a movement towards a theory of endogenous money.

While Kahn’s unorthodox views on money were certainly influenced by Keynes, Wicksell also appears to have had an impact. In 1936, Kahn translated Wicksell’s Geldzins und Güterpreise (Interest Rates). Therefore, he was exposed very early on to the importance of credit and the endogeneity of money. Nonetheless, Kahn was slow to develop these views.

3.1. Liquidity Preference

‘Notes on liquidity preference’ was written largely in reaction to Hicks’s Value and Capital—or as an ‘assault’ on Hicks, as the author puts it (Kahn, 1972, p. 75). Kahn was critical of Hicks’s attack on the theory of liquidity preference developed by Keynes. Kahn (1972, p. 72) also objected to Hicks’s conclusion that, in Keynes, the rate of interest is left ‘hanging by its own bootstrap’.

Kahn wanted to show that, contrary to Hicks, the long-term rate of interest is not determined by expectations of future short-term interest rates, that is by ‘speculation on the future course of the short rate’ (Kahn, 1972, p. 72).9 According to Kahn (1972, p. 73), for this to be true, ‘What is required is not necessarily complete unanimity but the existence of a sufficient mass of like-minded persons, all holding the same views with complete conviction.’ Uncertainty appears to be ruled out and there is a ‘unique correlation between the expected time pattern of the long-term rate and that of the short-term rate’ (Kahn, 1972, p. 73).

Kahn argues that both rates are determined independently given the state of liquidity preference.10 While Hicks does not specifically reject the theory of

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9 Ironically, this position is also taken by the early Kaldor (1939) and Moore (1988b).
10 This position is also held by Lavoie (1992) and Rochon (1999b).
liquidity preference, he does argue that both rates were interdependent (Kahn, 1972, p. 77). For Kahn, however, the long rate is determined by forces in the present, the purchase of bonds, and it may only indirectly be influenced by the rate of interest on bills in the future.

It is true that normally a rise in short-term rates will cause the public to expect the persistence into the future of rather higher short-term rates than would otherwise have been the case. This will bring about—in a causative sense—an upward revision of expected long-term rates of interest, since the long-term rate of interest at every moment of time is known to be related to the short-term rate actually ruling at that time. This is not really a concession to Professor Hicks, as the causation is quite different from that envisaged by him, and it does not really amount to saying more than that the long-term rate of interest is influenced by expectations of banking policy (Kahn, 1972, pp. 76–77).

Kahn (1972, p. 77) argues that ‘current banking policy’ is the primary influence on the long-term rate. For instance, banks may wish to increase or decrease their holdings of bonds, in which case only the long rate is affected. Banks may decide, however, to change the composition of their portfolios by substituting bills for bonds, or vice versa. If banks decide to purchase bills and sell bonds, then both rates will be affected: the short rate will fall and the long rate will rise. Kahn (1972, p. 78) summarized his view as follows.

The fact that in the real world the two rates will be moved in opposite directions testifies that we live in a world of doubt and of disagreement and one in which different persons not only take different views and are influenced by different degrees of conviction, but are sensitive to risk in different ways. There is no factual basis for assuming that the relevant elasticity of substitution is infinite. Both blades of Marshall’s pair of scissors must be allowed freedom of movement.

While Kahn wanted to rescue Keynes from the attacks of Hicks, the article remains well within the tradition of the General Theory. It emphasizes money rather than credit, and it discusses liquidity preference and the different aspects of the demand for money, particularly the precautionary and the speculative purposes. Very little is said about credit or the endogenous component of money. In fact, one is hard pressed to find in this article any of the five characteristics of endogenous money defined in Section 2.

A single passage, however, does come close to the theory of endogenous money. Kahn (1972, p. 80) writes that:

part of the securities are held by the banks themselves; part of the securities held by the public is financed by the banks; and banks finance the holding of physical assets by businesses, thus reducing the supply of securities. The extent to which the banks hold securities, finance the holders of securities, and finance the holding of physical assets, is equal to the quantity of money. The quantity of money is the means by which the public holds that part of their wealth which is looked after by the banking system.

In this passage, it appears as if the quantity of money in circulation is endogenized by banks meeting the demand for bank credit by firms and households. Although Kahn fails to develop this notion further, this passage can
be interpreted as a first step toward recognizing credit as a monetary mechanism that affects real output. Not until his report to the Radcliffe Committee does Kahn more fully develop this view on credit. In this paper, the emphasis is placed more on bank credit as financing production.

3.2. The Radcliffe Committee

Kahn’s other important contribution to monetary theory comes four years later in a memorandum to the Radcliffe Committee. Instead of emphasizing money proper, Kahn emphasizes the importance of bank credit in influencing the real economy. In a sense, the memorandum elaborates on the paragraph quoted at the end of the previous section.

Kahn appears to be more heterodox and tries to differentiate himself from his orthodox counterparts. In fact, he (Kahn, 1972, p. 145) reminds his readers that his approach to monetary theory and policy ‘differs fundamentally from those treatments of the subject which attribute to the quantity or supply of money a direct influence on prices, or a direct influence on wages and so on prices.’ The emphasis now shifts away from the supply of money to the demand for bank credit.

For Kahn, monetary policy is a potent tool for regulating the pace of investment but not commodity prices. It is best represented as changing rates of interest influencing investment and the demand for bank credit, rather than the growth in the money supply. ‘It will be clear that I attribute to monetary forces a substantial influence on investment. … There always must be a monetary policy. … It is best expressed in terms of rates of interest on loans of various maturities and of the amount of bank advances’ (Kahn, 1972, p. 128).

Kahn therefore rejects the neoclassical argument that it is the money supply that is exogenous and subject to control by monetary authorities. For him, the rate of interest is the exogenous variable. The money supply then adjusts. Moreover, Kahn attributes to the money supply no causal influence on prices. ‘It is immaterial what changes in the quantity of money have to occur as part of the process of securing a particular behaviour of rates of interest’ (Kahn, 1972, p. 145).

Kahn does not see the supply of bank loans as pre-determined or exogenous. Instead, it responds to the demand for bank loans. On the demand-nature of the money supply, Kahn (1972, p. 147) argues that ‘if the quantity of money is increased, this means that the banks have increased their assets’—i.e. their loans. Kahn appears to be hinting that the quantity of money circulating is a result of increases in bank loans: ‘headaches arise only for those who are not content to leave the quantity of money to look after itself, … It is the behaviour of interest rates which matters and their influence on the level of demand, not the behaviour of the quantity of money’ (Kahn, 1972, p. 149).

As for the argument that the supply of credit or money is not exogenous, the author claims that ‘the word “finance” is a portmanteau term, incapable of quantitative definition (Kahn, 1972, p. 149). This appears to mean that the supply of bank loans is not limited by reserves or deposits. It could, of course, mean
simply that there exists a variable money multiplier. Yet, we already know from above that Kahn sees deposits as a result of bank loans.

This does not mean that the supply of bank credit is unlimited. In fact, Kahn argues there is some rationing but does not spell out the rationing mechanism. Nonetheless, his view is consistent with Keynes’s claim that there is always a ‘fringe of unsatisfied customers’ (Keynes, 1971, p. 327).

Kahn not only rejects the view of an exogenous supply of money, he also rejects the standard view of the money multiplier. ‘A minimum liquidity ratio provides a rather indirect and imperfect method of limiting the banks’ advances’ (Kahn, 1972, p. 150). He also dismisses the usefulness of attempting to control the money supply through the reserve requirements, thereby undermining the money multiplier model. Reserve requirements are at best a ‘rather indirect and imperfect method’ (Kahn, 1972, p. 150). Kahn (1972, p. 150) suggests instead that central banks exert direct control over credit advances, thus avoiding the ‘very unreliable and clumsy method’ of attempting to control the money supply.

As for interest rates, Kahn now adopts the position that Keynes held in the mid-1940s—the structure of interest rates was exogenous (see Rochon, 1997). Kahn (1972, p. 148) claims that ‘within wide limits it is possible to achieve any desired structure of interest rates.’ This suggests that the central bank can set exogenously not only the short-term rate of interest but also the long rate. This position differs from the one he previously adopted and is certainly different from the position held by Hicks that was discussed above. Kahn no longer considers the theory of liquidity preference a valid explanation of what determines interest rates.

Kahn rejects the Quantity Theory of Money. He also rejects the standard money–income causality, and the effect of demand on prices, claiming (Kahn, 1972, p. 137) that demand is ‘an unimportant influence on prices.’ He even argues for a reversed money—income causality: ‘If and when the quantity of money multiplied by the velocity of circulation does alter, it alters because the reduction in interest rates … [has] operated on demand and so on activity and perhaps prices and wages. It is an effect not a cause’ (Kahn, 1972, p. 147).

Kahn also rejects the causal role of the velocity of money, and not just its stability. This is already an important difference with Kaldor, whose own memorandum to the Radcliffe Committee emphasized the unreliability of monetary policy given variations in velocity due to financial innovations. For Kaldor (1958), the causality still ran from money to income, but it was ‘imprecise’ because of changes in the velocity of money.

For Kahn (1972, p. 147) this is not the case. Velocity is ‘a purely passive factor … [and] a bogus concept.’ He rejects the causality inherent in the Quantity Theory of Money (that \( MV \) determines \( PY \)) and warns the Committee that they\(^{12} \)

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\(^{11}\) In the later stages of his career, Hicks would come to accept the horizontalist theory of endogenous money (see Nell 2000).

\(^{12}\) Kahn’s rejection of the Quantity Theory of Money did not really come in the late 1950s. By his own admission, ‘my own prejudice against the Quantity Theory dates from August 1923, when I was just 18 years old’ (Kahn, 1984, p. 52). ‘Cross-evidence on this point is provided by Joan Robinson’s 1933 article on ‘the theory of money and the analysis of output’ … testifying to Kahn’s resolution
should view with suspicion any line of argument which attributes to the behaviour of the supply of money a significance of its own, apart from its relationship with rates of interest and bank advances. This is no hair-splitting matter. To regard it as such is to deny the importance of taking a purposive view of the ends of economic policy and of adopting means which, through some recognisable process of causation, are designed for the sake of the end in view and not from their own sake. (Kahn, 1972, pp. 147–148)

Kahn’s monetary analysis has led Lavoie (1991, pp. 265–266) to argue that Kahn’s brief to the Radcliffe Committee ‘announces Kaldor’s recent theory of endogenous credit-money much better than Kaldor’s own contribution to the Radcliffe Committee. On the subject of money, it seems that Kahn was a few steps ahead of his contemporaries.’ Indeed, his views on credit and money are consistent with the Post Keynesian view discussed above. Kahn attempted to undermine Friedman’s monetarism not by claiming that the velocity of money is variable; instead, he accuses Friedman of reading the causality backwards.

4. The Monetary Contributions of Joan Robinson

In the post-Keynes era, the capital controversies absorbed Cambridge for well over a decade. Yet, during this time, Joan Robinson offered a heterodox approach to credit and money that rested neither on the velocity of money nor on financial innovations.

Robinson was influenced by Keynes’s Treatise on Money and his Economic Journal articles on the finance motive, by the General Theory, by her studies of Wickell (see her Notes on Various Topics with respect to the natural rate, at the end of the Accumulation of Capital), and by her friendships with Kalecki and Kahn. Her approach was based on the ex nihilo creation of money arising out of bank credit used to finance working and fixed capital. The central bank plays no role and its absence is further proof that she was not seduced by Friedman’s theoretical model. She thus presented a positive, rather than a defensive, theory of money.

Accumulation of Capital contains many elements of current Post Keynesian thinking on monetary theory, including a recognition that credit is demand-determined and that the rate of interest is an exogenous policy variable.

Robinson sets her analysis within Keynes’s monetary production economy. According to the author (Robinson, 1956, pp. 25–26), ‘One of the purposes of economic theory is to look through the veil of money to the realities behind it.’ Such an economy is a wage economy set in historical time: ‘A wage economy requires money. An employer who is starting in business has to pay his workers before he has anything to sell so that he must have a stock of purchasing power (finance) in some form or other before he begins’ (Robinson, 1956, pp. 25–26).

Robinson begins with firms forming expectations of future sales and in an uncertain world. Since her analysis is also set in historical time, Robinson

Footnote 12 continued

in waving the anti-quantity theory flag at a time when Keynes and the ‘Circus’ were still groping for a way out of monetary orthodoxy’ (Dardi, 1994, p. 91; see also Turner, 1989, pp. 75–76).
recognizes that firms must have access to a ‘fund of finance’ before production begins. In a wage-economy, firms must demand credit. This breaks the orthodox causality between saving and investment. Robinson (1956, p. 276) claims that ‘it is necessary to guard against the confusion of thinking of rentier thriftiness as providing finance for investment. … [Saving] does not help by providing finance.’

The need for finance is therefore essential. This finance, Robinson (1956, pp. 9–10; 225) makes clear, comes from one of three places: retained earnings of firms from past periods of production, the issuing of new shares, or from banks although ‘Banks occupy a special place.’ Banks exist because of the absence of *ex ante* saving. Consistent with Keynes’s reversal of the orthodox causality between saving and investment, Robinson (1956, p. 401) claims that ‘it is normally true to say that if the rate of investment decided upon by entrepreneurs were higher, income (on any reasonable definition of income) would be higher and the rate of saving (on any reasonable definition of saving) would be greater. This is not a tautological statement. If it is to be attacked, it must be attacked for lack of relevance, not the lack of logic. … [The notion that] refraining from consumption provides finance … seems to be a pure confusion.’

Banksthereforeexisttosupplyfirmswiththenecessaryfinance.

The notes now circulating came into existence as the results of loans from the banks to entrepreneurs, who pay out wages in advance of receiving the proceeds of selling the goods which the workers produce. … Thus the quantity of notes outstanding is continuously being adjusted to the requirements of the circulation. When employment is increasing (or money-wage rates rising) the entrepreneurs are paying out every week more than they received from last week’s sales, so that the entrepreneurs, taken as a whole, are continually increasing their indebtedness to the banks, and the circulation increases as required. When the wages bill is declining, bills are retired and the circulation is shrinking (Robinson, 1956, pp. 226–227)

In this passage, Robinson makes several interesting statements that are close to the Post Keynesian theory of endogenous money—the need for finance to pay wages, the perpetual indebtedness of firms toward banks and the supply of money adjusting to the needs of trade. The real and monetary sides of the economy are intimately linked: ‘A stock of note is just as necessary for the conduct of industry as an outfit of productive equipment’ (Robinson, 1956, p. 227). Money is therefore endogenous, credit-led and demand-determined. There are no supply constraints.

Banks are special precisely because their liabilities are accepted as a means of payment. Bank deposits are therefore money. As Robinson (1956, p. 226)

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13 Bank financing of investment is necessary precisely because of the absence of *ex ante* saving. Robinson understood this clearly, and also Kalecki’s principle that investment causes profits (i.e. saving). She (Robinson, 1956, p. 242) claims that ‘the bolder each [investor] is, the better all will flourish, and the more cautious and conservative each is, the harder will profits be for all to come by.’ and (Robinson, 1956, p. 393) that ‘the less thrifty are the capitalists (entrepreneurs and rentiers combined) the higher is the rate of profit.’
Cambridge’s Contribution to Endogenous Money

argues, firms pay interest to banks because banks have the ability to issue money since ‘the notes of respected banks are accepted as money, or promises to pay.’

Although credit is used primarily for wages in her model, Robinson occasionally claims that investment is also financed through bank credit. In fact, she specifically recognizes that investment is jointly financed by bank credit and retained earnings (Robinson, 1956, p. 230).

Robinson (1956, p. 236) claims that banks ‘facilitate the supply of finance to excess-investors partly by lending.’ Banks therefore are at the center of the production and investment process, and there is no doubt Robinson is well aware of their importance in the endogenous creation (and circulation) of money. Banks allow production to proceed because of time and the separation of costs from proceeds. For Robinson (1956, p. 236) ‘If there were no banks, finance would be harder to come by, less convenient media of exchange would have to be used.’

Once credit has been demanded it must be supplied. Here banks have two important functions—they supply credit and they set the rate of interest. With respect to the rate of interest, Robinson does not specifically discuss the exogenous nature of the base rate, partially because the central bank is not prominent in her analysis. But she does discuss how interest rates on loans are set. While she accepts the mark-up approach, the rate is marked-up over bank operating costs rather than the base rate—a view that is consistent with the Post Keynesian approach and perhaps closest to the views of such Post Keynesians as Parguez (2000) and Rochon (1999b).

The rate of interest that banks charge depends on these factors plus the ‘subjective feeling’ of bankers. According to Robinson (1956, p. 227), ‘banks, within reason, can make the discount rate what they please. … Competition between them for business may drive it down to a level which just covers their expenses, or they may have an understanding amongst themselves that holds it at a level which enables them to earn profits comfortably,’ Robinson (1956, p. 236) also speaks of ‘fixing the rate for direct loans.’ I believe she is arguing that the interest rate banks charge on loans is exogenous and entirely within the discretionary powers of individual banks. This can be made compatible with the horizontalist argument that Kaldor would develop more than two decades later.

Securing a bank loan is not guaranteed, though. Borrowers must meet certain criteria. Banks must have some guarantee that firms will be able to repay the loan plus interest. In this sense, the supply of credit will depend on whether borrowers will meet the ‘creditworthiness criteria’ of banks (Robinson, 1956,

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14 Robinson (1956, p. 226) does make the financial innovations argument as well, saying that higher interest rates may encourage firms—not banks—to innovate in order to avoid higher interest payments. One way that they can do this is through inter-firm credit. This argument, however, is somewhat different from the arguments of Minsky and Kaldor. For the latter two authors, higher rates of interest lead banks to innovate, given exogenous reserves, thereby having a given stock of reserves supporting more loans and deposits. For Robinson, it is firms that innovate.

15 For Robinson (1956, p. 28), money is primarily a medium of circulation. Its other functions, that of a store of value and of a unit of account, are a consequence of its primary function.

16 It is only in 1970 that Robinson (1970, p. 507) finally admits that ‘it would have been much simpler to start by assuming a constant rate of interest and a perfectly elastic supply of money.’
p. 244). Only then will credit be given. These criteria are varied but they usually include the collateral of firms, their ‘reputation’ (Robinson, 1956, p. 50), and some financial ratios, such as interest payments to earnings (Robinson, 1956, p. 231), and debt to assets (Robinson, 1956, p. 244). What constitutes proper ratios or collateral, or how much the ‘reputation’ of the borrower counts is left to the ‘subjective attitude’ of bankers. ‘For entrepreneurs as a whole … there is a more or less definite limit to total borrowing power, depending upon the … strictness of the banks’ standard of creditworthiness and the state of mind of potential holders of bonds’ (Robinson, 1956, p. 244). This limit arises because banks and bond holders, as well as entrepreneurs, are subject to uncertainty. Thus, their animal spirits (i.e. their state of mind) will be a factor in their decision to meet the demand for credit. As Robinson (1956, p. 244) argues ‘Psychological factors come in on both sides of the account.’

Robinson does not assume that banks have a limited amount of credit to lend. The supply of credit is determined neither by saving nor deposits. There is no bank portfolio decision either to lend or purchase bonds. There is thus no a priori supply of credit. For Robinson, the notion of scarcity is non-existent in the context of finance. On at least two occasions, she makes this point clearly. First,

the supply of finance available at any moment cannot be given a definite quantitative meaning. It would be possible to define it in an economy where there was a definite set of individuals endowed with the character of entrepreneurs, who alone plan and organise schemes of investment, and where each one of them, at a given moment, had command of a definite quantity of uncommitted purchasing power. … There would then be a definite but extremely complicated multi-dimensional function relating the supply of finance to a complex of rates of interest for different borrowers, similar to the supply curve of a commodity. … Credit (borrowing power), however, is in reality very amorphous, and anyone who commands wealth is a potential entrepreneur, so that no such definite account of the conditions of supply of finance can be given. (Robinson, 1956, p. 402)

We find the same sense in the following passage: ‘When borrowing is possible the supply of potential finance cannot be so definitely conceived’ (Robinson, 1956, p. 83, n.2). These are illuminating passages because they show that Robinson rejects the notion of scarcity in the credit or money process. Supply adapts to demand; there cannot be an a priori supply of credit defined independently of the demand for credit.

This does not mean that credit is given to all who apply. As stated above, banks will refuse credit to those they do not see as creditworthy. While the supply of credit is not determined ex ante, Robinson (1956, p. 402) does claim that ‘it is possible to talk, however, of greater or less ease in the supply of finance, meaning, in a short-period sense, a better or worse state of confidence, making borrowing easier or harder, or in a long-period sense, a better or worse organisation of the financial system, improving or impairing the access of potential entrepreneurs to potential lenders.’

Once loans have been granted to entrepreneurs, money is created ex nihilo.
Thus, the supply of money is demand-determined. According to Robinson (1956, p. 11),

Loans made to one individual reappear as deposits in the accounts of others to whom he has made payments. Thus as well as taking part in the business of supplying finance to borrowers, the banks provide a convenient medium of exchange for settling debt, making payments, making both kinds of loans and dealing in property of all kinds.

Robinson makes a clearer statement that embodies some essential aspects of Post Keynesian monetary theory that are absent from Kahn’s analysis:

The size of the stock of notes required for the economy as a whole depends on the value of the weekly wage bill. … When an entrepreneur requires, for making payments in the near future, more notes than have come to hand from recent receipts, he can discount a bill; and when he finds himself with more than he needs, he reduces his outstanding bills (in order to save the interest) by paying off, with notes, those that are falling due and not renewing them. The notes then return to the banks. (Robinson, 1956, p. 226)

Once production has started, goods are brought to market and sold. At this point firms recapture part of their initial outlays. ‘By the time the first cycle of production and sales is completed (the length of the cycle depending on the period that it takes to put materials through the process of production and to market the product) he has recovered (if his operations are successful) the cost of materials and outlay of wages’ (Robinson, 1956, p. 5).

For production-good firms, wages will be spent on the purchase of consumption goods. The wages of workers (assuming no saving) thus come back to the firms in toto. However, once you add the consumption of investment-goods workers and that of interest-income earners (rentiers), then firms in the consumption-goods sector make a profit.

If we assume, in the first instance, that workers spend the whole of their wages as they receive them from week-to-week, then the wages bill for commodities (consumption goods) being currently produced is exactly covered by sales to the workers engaged in producing them. Workers engaged on investment and rentiers (including the households of [sic] entrepreneurs) are also buying commodities. This makes it possible for the selling value of commodities to exceed their wage costs. (Robinson, 1956, pp. 43–44)

Moreover, Robinson (1956, p. 402) understands the link between the demand for credit, the creation of income, and the circular flow of income and money. ‘The outlay of firms (costs of production, payments of interest, rent, etc., and distribution of profits) is the receipt of the public. The outlay of the public (purchases of consumption goods) is the receipts of the firms.’

This implies that the ‘quasi-rent’ of firms\(^{17}\) is equal to the wages of workers in the investment-goods sector and the consumption of rentiers out of their profit-income. Robinson (1956, p. 44) herself emphasizes this point: ‘The excess of the sales value of commodities over their wages cost is equal to the wages bill for gross investment plus expenditure on consumption of profits.’

\(^{17}\) For Robinson (1956, p. 13), quasi-rents are the ‘excess of proceeds over running costs,’ while profits are the ‘excess of quasi-rents over rent and amortisation.’
If savings do arise, they represent a drain on the system. ‘In so far as workers are spending less than their wages, their savings partly offset the wages bill for investment, and the gap between sales value and wages bill for commodities is pro tanto reduced’ (Robinson, 1956, p. 44). For Robinson (1956, p. 231), savings can be used for one of three things: ‘Buy bonds and to pay off bills.’ In a footnote, however, she then adds that a ‘third alternative [is] making deposits with the banks.’

This point was made in an earlier paper, but the argument is implicit in the Accumulation of Capital. Robinson (1952, p. 81) argues that ‘the purchase of securities out of savings which correspond to it are made only after the income which it generates has worked its way through the economy.’ Elsewhere, Robinson (1956, p. 231) argues that ‘savings, which accrue in the first instance as an excess of receipts of notes over outlays, are used to buy bonds and to pay off bills.’ To this, she (Robinson, 1956, p. 234) also adds that not all saving returns to firms since ‘a saver who is unwilling to take up bonds, and does not have outstanding bills of his own to retire, can make a deposit, losing the difference of interest between the deposit rate and the bond rate, but securing himself against the risk of a loss of capital.’

Robinson makes clear that the money in circulation is the result of the demand for it only. In this sense, there cannot be an excess supply of money. ‘When he finds himself with more than he needs, [the entrepreneur] reduces his outstanding bills (in order to save interest) by paying off, with notes, those that are falling due and not renewing them. … If they issue more notes than are required for use as a medium of exchange, the excess returns to them as deposits or in cancellation of bills.’ The end result is that ‘the outstanding amount of notes cannot exceed the amount that is required for convenience in circulation’ (Robinson, 1956, pp. 227, 235, 236).

The thrust of this analysis is to reject the Quantity Theory of Money. This rejection, however, does not rely on a variable velocity, as do the analyses of Minsky and Kaldor during the late 1950s. Rather, for Robinson (1956, p. 403), whether velocity increases or decreases is largely irrelevant, and ‘has no causal significance whatever.’

From this analysis, it is clear that Robinson understood the endogenous nature of the money supply. The characteristics of endogenous money defined in Section 2 are present in her analysis, making her a precursor to the Post Keynesian theory of endogenous money.

5. Conclusions

This paper has shown that some key notions of the Post Keynesian theory of endogenous money were alive and well in the works of Robinson and Kahn, although they were much further developed in Robinson’s analysis. Contrary to Lavoie (1985, p. 65), therefore, I do not believe that ‘Cambridge economists had

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18 Robinson (1956, p. 236) also says that ‘deposits provide a kind of placement which some owners of funds prefer to bonds.’
not really attempted … to distinguish their views on money from the typical
textbook interpretation of Hicksian economics.'

While Kahn had some interesting insights into the credit and bank system,
his views were not consistently and systematically developed into a whole
theory. That task fell to Robinson. Unfortunately, her views on credit and money
have been ignored by Post Keynesians. The task of this paper is to revive her
views and to place them at the center of Post Keynesian monetary economics.

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