

# The loanable funds fallacy: saving, finance and equilibrium

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The loanable funds controversy cannot be settled without prior agreement on the meanings of income and equilibrium. The essential claim of loanable funds theory is that disequilibrium in the goods market affects the rate of interest. This paper introduces financial accounting concepts and a new understanding of the principle of effective demand to clarify that loanable funds theory relies on a concept of income other than current income, namely yesterday's income in the case of Robertson, or full-employment equilibrium income in the case of Hicks. In Robertson's case, this is a matter of bad accounting, a confusion between an income statement and a balance sheet. In Hicks's more subtle case, it is about the inapplicability of Walras' Law to a monetary economy. Keynes's principle embodies a Marshallian concept of system equilibrium under which the goods market is treated as never in disequilibrium in the sense required by loanable funds theory.

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## 1. Introduction

Axel Leijonhufvud (2006) has recently restated his view that the validity of Keynes's *General Theory* (1936, hereafter *GT*) turns on the so-called 'liquidity-preference vs. loanable funds' issue, arguing that Keynes fails in his attempt to discredit loanable funds theory. Jörg Bibow was the last contributor to this journal to make a further such attempt, drawing mainly on the disequilibrium analysis of Keynes's *A Treatise on Money* (1930) rather than *The General Theory*, but he has evidently failed to convince Leijonhufvud (together with most of the rest of the profession) that loanable funds theory is 'logically inconsistent and should thus be abandoned' (Bibow, 2001, p. 592). Leijonhufvud and Bibow are among a long procession of authors<sup>1</sup> since Keynes who have attempted, without undisputed success, to clinch the argument for one side or the other. The

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<sup>1</sup> Including, among others, Lerner (1938), Lutz (1938), Hicks (1939, 1989), Tsiang (1956), Foley (1975), Leijonhufvud (1981), Kohn (1981, 1986), Cottrell and Lawlor (1991), Chick (1997), Bibow (2000) and most recently Lawlor (1997, 2006).

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argument continues to draw protagonists because, indeed, as Leijonhufvud notes, so much turns on it.<sup>1</sup> It is clear that much of the debate is at cross purposes: what is still not clear is why. Any new contribution to the debate needs to identify what it is about the use of terms that makes the arguments of each side appear almost self-evident to the proponents and patent nonsense to their opponents.

My suggestion is that most of the confusion arises from different understandings of income and of equilibrium. The definition of income, over which Keynes (*GT*) took such pains and which Hicks (1939) and Hansen (1953) dismiss too lightly, is of central importance. Second, Keynes's definition of competitive equilibrium, in terms of the choices of entrepreneurs, investors and consumers, is radically different from the Walrasian concept of the preferred allocation of factor services, and corresponds to the difference between the observable monetary and a hypothetical 'real-exchange' economy. In the case of income, the new ingredient is an application of financial accounting concepts about which most economists do not trouble themselves. In the case of equilibrium, I draw upon a new understanding of Keynes's principle of effective demand set out in my previous work (Hayes, 2006, 2007) without which, I think, the question cannot be resolved. At one level, this is no more than a new exposition of Keynes's old ideas but clearly, if that is so, the exposition is the heart of the problem.

This paper uses the clarification of the definitions of income and equilibrium to address the two versions of loanable funds theory that survived the original 1930s controversy, following Robertson (1940) and Hicks (1939) respectively.<sup>2</sup> The Hicks version has been the more powerful, since Keynes did not answer it directly and it has sidelined the loanable funds debate, yet the Robertsonian version also still lingers on. Although both versions have been refined by later writers, there is continuity in the essential argument that disequilibrium in the goods market, usually expressed as a difference between planned saving and investment, affects the rate of interest. It is therefore a sufficient response to show that in Keynes's system there is no disequilibrium (appropriately defined) at any time, notwithstanding the presence of unemployed factors of production. The appearance of disequilibrium in loanable funds theory results from the use of a concept of income other than current income, namely yesterday's income in the case of Robertson, and full-employment income in the case of Hicks. In Robertson's case, this is a matter of bad accounting, a confusion between an income statement and a balance sheet. In Hicks's more subtle case, it is about the definition of equilibrium appropriate to a monetary economy.

## 2. The definition of income

Keynes devotes 38 pages (nearly 10% of *The General Theory*) to the problem of defining income and its relation to saving and investment (*GT*, pp. 37–40, 52–85). It is therefore most ironic that Hansen should state: 'The section on Income is of no great importance for

<sup>1</sup> Although Bibow observes that 'Today, the whole issue is simply ignored (or assumed away?) by the dominant neo-Walrasian school of thought' (2000, p. 825), for reasons that this paper clarifies. Matters are not helped by the fact that Leijonhufvud, who did so much to distinguish the economics of Keynes from Keynesian economics, has come down against Keynes on this point.

<sup>2</sup> 'Robertson' includes Tsiang (1956, 1980) and Kohn (1981, 1986) while 'Hicks' includes Patinkin (1958, 1976) and Leijonhufvud (1981, 1998). This classification conflicts with Leijonhufvud's own claim (1981, p. 195) to follow Robertson. I choose Hicks rather than Ohlin since the validity of Keynes's (1937) objection to the latter's concept of *ex ante* saving as a source of finance was explicitly conceded by Robertson (1940) and Tsiang (1980).

an understanding of *The General Theory* and may quite well be omitted if the student so wishes' (Hansen, 1953, p. 54). On the contrary, it is of paramount importance to recognise that Keynes defines *income* as the market value of output and not the value of expenditure,<sup>1</sup> which explains the attention Keynes gives to *user cost*, the value of the capital-goods consumed by firms in the production of output. Keynes approaches income from the supply as well as the demand side, in terms of production, a perspective thoroughly obscured by the income-expenditure model. As Colander (2001) reminds us, following Chick (1983), Keynes could just as well have called *GT* Chapter 3 'the principle of effective supply'.

Throughout Keynes's discussion, income, investment and saving are always money-values, not merely the nominal values of measures of homogeneous quantity. He spells out (*GT*, pp. 37–41) why it is neither legitimate nor necessary to invoke the quantitatively vague and causally misleading concept of aggregate real output. Income is intrinsically monetary in an economy in which output and capital-goods are heterogeneous, in other words, in any productive market economy, which itself presupposes a division of labour. Money is an integral part of the process of production and exchange outside a corn-model. When Keynes does refer to *real* income ('in some sense', *GT*, p. 91) he means money-income deflated by the wage-unit, not a measure of homogeneous output.

Nevertheless it is not the payment as such of money, but the readiness to enter into contracts for value (meaning money of account) that determines the quantities and prices of output in a monetary economy. A sale occurs when a contract to exchange one good (including a service, by a firm or a factor of production) for another, usually a sum of money, is fulfilled at the agreed price. If the good sold already exists, this contract is an agreement for sale on capital account and does not create income, nor does the creation of a debt. If the good sold is to be newly produced, the agreement is, directly or indirectly, an order for factor services, and a prelude to income. Income itself arises (is 'recognised' in accounting terminology) when the newly produced good or service is *delivered* (FASB, 1984, para 84). Whether on income or capital account, the sale is recorded as taking place on delivery.

For economic purposes, income arises when a good is newly produced, whether it is 'delivered' into the firm's own stock (gross investment, negative user cost) or delivered to a customer (a sale). Unlike production for stock, a sale creates a money-debt, an obligation of the buyer to pay the sum of money specified in the sale agreement, which the buyer must settle either on delivery or at some agreed future date after a period of trade credit. The sale has been made, whether or not the debt is settled. Indeed if the buyer defaults on the debt, the accountants treat this as a 'bad debt' rather than a cancellation of the sale which created the debt.

Corresponding to the debt from the customer, or the newly produced asset held in stock, on one side of the balance sheet, there has to be a matching increase in liability on the other side of the balance sheet, where liability can include net worth: such an increase in net worth is saving. In the case of factors, there is no difference of principle. You may receive your salary monthly, but you earn income every day that you go to work (as you will soon learn, if you leave a job during the month, and find your final pay-cheque reduced from the previous monthly amount). Every day that you turn up for work creates a debt from your

<sup>1</sup> Hansen misquotes Keynes as defining income as arising from ('springs from') sales (1953, pp. 28, 142) when Keynes in fact explicitly defines income as the value of output (*GT*, p. 20). The absence of this distinction between income and expenditure is a crucial step in Robertson's version of the loanable funds argument, see Tsiang (1956, p. 546, footnote 21).

employer, which is settled every month. At the same time you are incurring expense, perhaps on credit (such as utility bills), and your saving in any period presents the difference between income earned and expense accrued—irrespective of whether it is pay-day, or whether you pay your bills (see Table 1). In a more complicated case, many a business becomes insolvent with expanding sales and a full order book, not for a lack of retained earnings (saving), but because of a lack of money on the other side of the balance sheet. You cannot meet a payroll from the retained earnings account.

The matter is further complicated by the fact that most consumption (apart from services) is of existing goods, while most income arises as an addition to the capital stock, including both working and liquid capital (Keynes, 1930, p. 116). Pigou's analogy makes the point well:<sup>1</sup>

[Capital] may be likened to a lake into which a great variety of things ... are continually being projected ... Among them are things of long life, like elaborately built factories, things of moderate life, like machinery, and things of very short life, like material designed to be worked up into finished goods or coal destined to be burned. Length of life in this connection means, of course, length of life *as capital* in the industrial machine functioning as a going concern ... All things that enter the lake eventually pass out of it again ... But exits are not always, or indeed generally, made in the form of a passage outward of the actual elements that originally came in ... In one form or another, however, whatever enters also leaves. (Pigou, 1932, pp. 43–9).

Production takes time, a production period usually extending over many days, while income arises from day to day, where a 'day' is Keynes's quantum unit of time (the shortest interval after which a firm is free to revise its employment decision, *GT* p. 47, n 1). Thus in a capital-intensive mode of production, most factor income arises from gross investment, an addition to stocks, while most consumption (services apart) represents user cost, a depletion of the capital stock. For example, on Keynes's definitions, the purchase by a consumer of an apple does not add to economic income (ignoring the value added by the retailer), it merely reduces the capital stock: the value of the retailer's sale is matched by an equivalent user cost. The harvest of apples does add to income, even though the apples are put into the farmer's store.<sup>2</sup>

Production time is crucial to understanding the distinction between income and effective demand, which (contrary to received wisdom) are not commensurable. Section 4 will consider Keynes's theory of the different equilibrium prices implicit in these two measures. For the moment, let us note that the measure of income depends partly on spot market prices (for finished goods sold or held as liquid capital) and partly on the valuation of working capital. Note that the valuation of working capital does not alter the accounting identities. The standard accounting convention for all stocks is historic cost (or net realisable value, if less), which conservatively excludes the entrepreneur's profit over prime cost from recognised income until the new goods are sold. This accounting definition is not

<sup>1</sup> Leaving aside that the fluid metaphor begs the question of the measurement of heterogeneous capital.

<sup>2</sup> Randall Wray has brought to my attention the following passage from Boulding: 'The income and [expense] concepts, which are essentially value aggregates of additions to and subtractions from the total stock of assets, must be distinguished clearly from the receipts and expenditure concepts. Receipts consist of the additions to liquid assets or money. Expenditures consist of the subtractions from liquid assets or money. It is hardly any exaggeration to say that the failure to distinguish clearly between receipts and income on the one hand, and between expenditures and consumption on the other, has been the source of most of the confusion in economics, and, especially in macroeconomics, in the past generation.' (Boulding, 1950, p. 140). I have here replaced Boulding's 'outgo' with 'expense', in line with current accounting conventions (FASB, 1984, paragraphs 85–87). With this translation, the passage makes the point exactly, although any remaining ambiguity in usage could be dispelled by replacing 'expenditure' with 'payment'. Boulding has also anticipated my example of the earnings accrued by a worker.

Table 1. *Income, saving and cash flow*

<u>Opening balance sheet</u>			
Owed by employer (5 day's pay)	100	Owed to utility company	50
Owed by bank (bank money)	<u>200</u>	Cumulative saving (retained earnings)	<u>250</u>
	<u>300</u>		<u>300</u>
<u>Income account for three days</u>			
Utility consumption	20	Earnings for three days	60
Other consumption	30		
Saving	<u>10</u>		
	<u>60</u>		<u>60</u>
<u>Cash flow statement for three days</u>			
Payment to utility company	40	Payment by bank	70
Payment for other consumption	<u>30</u>		
	<u>70</u>		<u>70</u>
<u>Closing balance sheet</u>			
Owed by employer (8 day's pay)	160	Owed to utility company	30
Owed by bank (bank money)	<u>130</u>	Cumulative saving (retained earnings)	<u>260</u>
	<u>290</u>		<u>290</u>

the relevant measure of income for production and employment decisions, but the method of valuation does not alter the relationship between saving and investment.

So, income is always a matter of physical production for money-value. Upon consolidation and using Keynes's symbols to denote aggregate values,  $A$  represents total sales by firms and  $A_1$  total sales between firms, so that the aggregate value of sales to consumers ( $C$ ) is  $A - A_1$ . Aggregate current investment ( $I$ ) is sales between firms less user cost,  $A_1 - U$ . Entrepreneurial income or profit ( $P$ ) is total sales less total prime cost,  $P = A - F - U$ , where factor cost is  $F$ ; aggregate income ( $Y$ ) is the total income of factors and entrepreneurs  $Y = F + P = A - U$ . Therefore income equals consumption plus current investment  $Y = C + I = A - A_1 + A_1 - U$ . If saving (Keynes uses no symbol, perhaps pointedly, but call it  $S$ ) is defined as equal to income less consumption,  $S \equiv A - U - (A - A_1) = A_1 - U = I$ . Aggregate current investment and saving are identically equal—as a matter of double-entry book-keeping: 'saving is the accounting record of investment' (Moore, 2006). Net income, net investment and net saving present no subtle problem of definition, being arrived at in each case simply by the further deduction of supplementary cost  $V$ , the depreciation in the value of capital-goods independent of their use in production. Income is the concept relevant to production, and net income the one relevant to consumption.

Keynes places great store by the fact that 'income, thus defined, is a completely unambiguous quantity' (*GT*, p. 54). Contrast this with Hicks's claim (1939, pp. 176–84) that Keynes's definition, while accurate, is not useful and that the admitted identity of *ex post* saving and investment on this definition is a truism, that 'expresses nothing else but the mere fact that all the capital goods in the economy belong to somebody'. Hicks prefers a definition of income that includes capital gains and can differ from the value of output (by

which he means only final output, p. 286), and to limit the use of the income concept to rough generalisation rather than exact causal analysis—thus directly reversing Keynes's case for the use of money-income as a primary variable. Hicks defines income without reference to production, as 'what [a person] can consume during the week and still expect to be as well off at the end of the week as he was at the beginning'. This definition is *ex ante*, which Hicks regards as necessary if the concept is to be of any 'significance for conduct'. On this definition, the calculation of income (and not merely its determination) depends on the rate of interest: an example of what Keynes calls 'the perplexities which attend the definition of income' (*GT*, p. 67). Thus, according to Hicks, income *ex ante* cannot be measured precisely and income *ex post* has no causal or behavioural content, being 'without significance for the determination of prices'. For these reasons among others, Hicks argues that income is an unnecessary concept and that economic theory can do quite well without it (1939, p. 180).

### 3. Saving and finance: Robertson's version of loanable funds theory

Having established that income is created by production for money-value, the whole of *GT* chapter 7 addresses the attempts of various authors (including Keynes himself in his *Treatise on Money*, 1930) to escape the remorseless book-keeper's logic of the investment-saving identity. The most important problem lies in the perception of a relationship between saving and changes in the quantity of money and debts, represented by loanable funds theory, which seeks to maintain in a monetary economy the Classical linkage between the rate of interest and the rate of saving.<sup>1</sup> Robertson (1940) holds that saving is a form of cash flow (i.e. income realised in cash but not spent), and since investment at some point requires finance in cash, it seems reasonable to regard saving as part of the problem of finance. The rate of interest then clears the market for the demand and supply of finance, the demand for finance being driven by expected investment returns (productivity), the supply of finance being determined mainly by decisions to prefer future to present consumption (thrift), in the absence of monetary disturbances.

The problem with this version of loanable funds theory can be understood in terms of accounting concepts, as the confusion between income and cash flow, and between the two sides of a balance sheet; between a reserve in the sense of a liability, such as a retained earnings account, and a reserve in the sense of an asset, often a bank deposit. A cash flow statement reconciles the gross changes between two balance sheets (being statements of assets and liabilities at two different points in time), in terms of the acquisition and disposal of assets and liabilities on both income and capital account. An income statement over a period of time bears no simple relation to the balance sheets at each end of the period.<sup>2</sup> Aggregate saving is never independent of aggregate current investment, whereas saving and money (Keynes's cash or 'finance') always appear on opposite sides of a balance sheet (see Table 1). Like chalk and cheese, saving and money look very similar, but cannot

<sup>1</sup> The term 'Classical' is used throughout this paper in Keynes's sense, reflecting the division he sees in economics between theories of a real-exchange and of the monetary economy.

<sup>2</sup> The concept of a 'flow of savings' is dangerous: saving and cash flow should not be linked. I fear that, by using a phrase like 'if savers decide to hoard their planned savings', Bibow's critique remains entangled in neo-classical duck-weed (c.f. *GT*, p. 183), mixing discussion of consumption and portfolio decisions (2001, pp. 598–600) that Keynes deliberately and necessarily separates in *The General Theory*. Bibow's essay in logical refutation is for this reason unlikely to pin down the 'empirical' loanable funds theorists (2000, p. 821), who can take refuge among the weeds in the idea that 'in normal circumstances' their theory is a good approximation, rather than 'formal nonsense'. Terzi (1986) is vulnerable to the same criticism.

legitimately be interchanged or combined, as implied by the loanable funds equation  $S + \Delta M = I + \Delta H$  (c.f. Moggridge, 1971–89, Vol. XXIX, p. 276); ‘savings’ (meaning cumulative saving), despite common usage, are not ‘loanable funds’ at all. In Table 1, saving is 10 units, cumulative saving is 260 units, but ‘savings’ (in the popular sense, i.e. bank balances) have declined by 70, to 130 units.

As discussed in the previous section, income and saving are a matter of physical deliveries of newly-produced goods or services after taking into account the consumption of new and old goods. Aggregate income is the value of goods (new and old) delivered by firms to customers ( $A$ ) less the value of old goods sold or used in production, net of the value of new goods produced for stock ( $U$ ). Saving is the value of goods delivered by firms to customers ( $A$ ) less the value of old goods sold or used in production, net of the value of new goods produced for stock ( $U$ ) or delivered to consumers ( $C$ ). Aggregate current investment is the value of goods delivered to other firms less the value of old goods sold or used in production, net of the value of new goods produced for stock ( $U$ ) and has the same value as saving. Cash flows arise only on settlement of debts created by deliveries to customers (‘sales’), and are in logic an entirely separate matter. Once the sale agreements have been made, there is no means by which a change in the terms (including the rate of interest), on which cash is available to pay these debts, can alter the physical deliveries, barring contractual default. Of course, the terms of finance may prevent a firm or person entering into contracts in the first place, including carrying out production at a certain level. *GT Books III* and *IV* address in detail the influence of the rate of interest on the propensity to consume and the inducement to invest. This does not alter the fact that there is quite simply no direct connection between aggregate expense, cash flow and income. All three have quite distinct and separate meanings.

By contrast, Robertson defines disposable income as the income of the period previous to the current period for which expenditure is planned (c.f. Tsiang, 1956, pp. 545–52). In his scheme, income and planned expenditure refer to consecutive periods of time, so that in order for them to be brought into equilibrium with each other, they must first be translated to the supply and demand for cash balances at the intervening point in time.<sup>1</sup> Thus, leaving aside changes in idle balances as always, the supply of (active) cash balances represents the income of the last period, while the demand for cash balances comes from the expenditure planned for the current period. With disposable income already fixed in this way as a cash balance, the rate of interest brings the competing demands for this cash balance from consumption and investment plans into equilibrium. Yet if income is understood in terms of production rather than expenditure, income is never a cash balance, and cannot arise at a point in time, even though financial provision for future expenditure can be made at any time (e.g. the ‘finance motive’). Thus the flows of disposable income and of planned expenditure implicit in the *ex ante* loanable funds equation not only relate to different periods of time, they cannot exist at all, at any point in time, whether *ex ante* or *ex post* (Cottrell and Lawlor, 1991).

This point is fundamental. There is a world of difference (Foley, 1975) between a point in time and the infinitesimal interval or ‘slice of time’ that is at the heart of Tsiang’s (1956) process analysis and attempt to synthesise loanable funds and liquidity-preference theory. However short the accounting period, an income statement can never become a balance sheet. We are thus necessarily left with the supply and demand for a stock of money at a point in time and the need for a corresponding theory of the rate of interest.

<sup>1</sup> A detailed numerical illustration, similar to Table 1, can be found in Hayes (2006, pp. 108–12).

Nevertheless, while clarity over the definition of income suffices to eliminate the possibility of goods-market disequilibrium envisaged by Robertson, that is not the end of the matter. Hicks argues that the rate of interest can be thought of as determined in the bond market as much as in the money market, so that even if the demand for a given stock of money is always and necessarily equal to the supply, disequilibrium in the goods market still affects the rate of interest through the bond market. To this argument we now turn.

#### 4. Saving, finance and equilibrium: Hicks's version of loanable funds theory

Hicks is a more subtle fox than Robertson and does not commit the error of confusing contract with cash flow. His version of loanable funds theory hinges on Walras' Law that excess demands in all markets must sum to zero. Thus, an excess supply of goods (an excess of planned saving over planned investment) must be matched by an excess demand for securities (including money). If the money market is represented by the over-determining  $(n + 1)^{\text{th}}$  equation of the general equilibrium system (Hicks, 1939, pp. 153–62), this excess planned saving translates into an excess demand for bonds, a reduction in the rate of interest, and a tendency to restore equilibrium in the goods market. If prices and wages are flexible, changes in the interest rate and relative price structure as a whole make plans consistent so that in each period (or 'week') investment *ex ante* equals saving *ex ante*, as well as *ex post* (Hicks, 1939, p. 183).

Hicks recognised that the Walrasian system was a poor description of the real world but he saw this as a problem of stability, while clinging to general equilibrium as the analytical benchmark. Clower (1965) and Leijonhufvud (1968) spelt out how Walras' Law has no causal force to restore equilibrium like gravity; it is a purely theoretical construct that could apply in practice only in a clearing house where the self-employed owners of factors could exercise an excess demand for goods even when their services were in excess supply. Not only money, but wage-labour too, are inessential to the Walrasian scheme. By contrast, Keynes's principle of effective demand represents a quite different concept of the equilibrium of the monetary economy that altogether supersedes the Walrasian concept of general equilibrium and makes Walras' Law irrelevant.

Since it seems now impossible to reclaim the term 'general equilibrium' from its Classical usage without increasing confusion, this paper refers to *system equilibrium* as the still more general case, encompassing both Walrasian full-employment general equilibrium and Keynes's competitive equilibrium of 'industry as a whole', with or without full employment. Keynes's argument has been obscured and lost because most of the profession has insisted on forcing his ideas into the Walrasian framework, in which, logically, unemployment can only arise through sticky wages or prices or other imperfections (including coordination failures) and in which, it is claimed, loanable funds and liquidity-preference theory are interchangeable. Nevertheless this is not a matter of convenience, as Hicks would have it (1939, p. 161), nor of the short versus the long run in modern parlance: *only* Keynes's concept of competitive equilibrium makes sense in a monetary economy—in other words, any actual market or 'entrepreneur' economy with a wage-dependent workforce (Moggridge 1971–89, Vol. XXIX, pp. 76–79). Keynes's challenge goes far deeper than is generally perceived, let alone accepted.

Both Hicks and Keynes employ a notion of temporary equilibrium, meaning that the prices and quantities of current output are determined today with reference to a state of expectation of future prices (Arrow and Hahn, 1971, pp.

33–40).<sup>1</sup> This is not quite the same idea as Marshall's market-period equilibrium since both writers, in different ways, allow the temporary equilibrium to determine the short-period decisions on the employment of factors. In Hicks's case, this is accomplished through the device of the 'week', an indefinite period in terms of calendar time in which supply and demand determine prices and employment each 'Monday' and these translate into output over its course. Thus, the income expected by each agent and the corresponding employment of factors are determined each Monday by market clearing in the familiar general equilibrium fashion and the income is realised by the end of the week. Equilibrium over time is established if plans and outcomes, *ex ante* and *ex post*, are consistent.

In Keynes's case, by contrast, equilibrium is struck each quantum 'day', both for the level of expected income that governs today's employment (effective demand) and for the value of current output (income). First, as I have argued at length elsewhere (Hayes, 2006, 2007), Keynes's effective demand is a far more complex idea than is generally recognised. It may be understood, in brief, as the present value of the total income (including factor income) expected by entrepreneurs, represented by the addition produced by today's employment to the value of heterogeneous final output in short-term forward markets for delivery at the end of various production periods, of differing lengths, at forward prices that clear offers by employers of factors and bids by dealers in goods. The key to this interpretation is Keynes' primary definition of effective and aggregate demand in terms of the expectations of entrepreneurs (*GT*, p. 25), rather than (in the first instance) of the expenditure decisions of consumers and investors, and the analytical division of entrepreneurs into two groups on either side of the market, as employers and dealers (see Moggridge, 1971–89, Vol. XIII, p. 616, and Marshall, 1920, p. 283). This formulation allows the state of short-term expectation to be represented numerically by the matrix of equilibrium forward prices implicit in effective demand, which may shift from day to day with the state of long-term expectation or independently. Thus, in contrast to the standard view (e.g. Hansen, 1953), short-term expectations (meaning expected prices) are treated as determined continuously (i.e. from day to day) by supply and demand: the point of effective demand has nothing to do with the fulfilment of expectations.<sup>2</sup> The notion of equilibrium over time is redundant.

Second, income is also an equilibrium value and the relation between saving and investment is not only an accounting identity but also an equilibrium. Here the distinction between income, meaning total current income including entrepreneurial profit, and factor income alone is important. Factor income arises as factors are employed, at a money cost fixed at the time of hire. Effective demand includes both factor income and profit expected to be realised at various future dates; total current income includes both factor income and profit realised today. Thus, the difference between effective demand and income is the difference between expected and realised profit, but the expectation and the realisation bear no direct relationship to each other in time or otherwise:

*Time* relationship between effective demand and income incapable of being made precise. In case of factors other than entrepreneurs and rentiers the two are more or less simultaneous. For the

<sup>1</sup> Arrow and Hahn refer to Keynes's concept of system equilibrium with non-clearing factor markets as a 'quasi-equilibrium' (1971, p. 366). Hicks in his original review (1936) recognised the similarity of Keynes's treatment of short-term expectation to his own, but Hicks does not make the all-important distinction between short- and long-term expectation.

<sup>2</sup> Employers' expectations are fulfilled by forward contract. Dealers' expectations, equal to the forward prices in equilibrium, may be disappointed tomorrow but that does not alter the fact that the point of effective demand is an equilibrium in today's state of expectation. Disappointment means the state of expectation has changed and the point of effective demand has shifted.

latter income becomes [determinate] and is transferred at varying subsequent dates. No definite relationship between aggregate effective demand at one time and aggregate income at some later time. This does not matter. Employment is determined *solely* by effective demand which is influenced by realised results up to date irrespective of the date to which the decision relates. (Moggridge, 1971–89, Vol. XIV, pp. 179–180; ‘determinate’ replaces ‘determinant’).

Put simply, total current income is determined by the current expenditure decisions of consumers and investors, while factor income is determined by the expectations of entrepreneurs. These two sets of decisions interact but are causally independent.<sup>1</sup> The equilibrium level of total current income is struck each day (the ‘market-period’ aspect of Keynes’s day) for an equilibrium level of employment and factor income determined simultaneously and independently by the quite separate principle of effective demand (the ‘short-period’ aspect).

Having emphasised so much that income is the value of current output and not expenditure, it may seem odd to state that current income (the value of current output) is determined by expenditure. The first thing to note is that consumption expenditure is necessarily on finished goods, which represent only a small proportion of today’s production or gross output (excluding services). Although it is conceivable that the current output of finished goods, coming off the conveyor belt as it were, may vary with spot market demand, the supply conditions are those of Marshall’s market period: ‘supply is taken to mean the stock of the commodity in question which is on hand or at all events “in sight”’ (Marshall 1920, p. 314). Next, note that the consumption of finished goods does not (with the minor qualification just noted and ignoring retail value added) represent income; the consumers’ income arises from producing an addition to the capital stock (gross investment), but their expenditure may simply represent additional user cost. Conversely, the market-period supply offers of firms will take into account their expectations, so that they may raise spot prices rather than accept stock depletion. Keynes describes the establishment of equilibrium in *The General Theory* (*GT*, pp. 123–4). Finally, the valuation of working capital is derived from the expected prices of the finished products, which are uncertain and only partly influenced by spot prices. Nevertheless, working capital can be given an objective value, in principle, in the same manner as fixed capital, by the assumption of perfect competition.<sup>2</sup>

The determination of the value of current output is a matter of Marshallian market-period equilibrium, where competition for the supply of finished goods and capital-assets on hand reconciles the planned expenditures of consumers and investors (including entrepreneurs) and gives rise to an equilibrium outcome. Keynes writes:

That there should be such a thing as a market value for output is, at the same time, a necessary condition for money-income to possess a definite value and a sufficient condition for the aggregate amount which saving individuals decide to save to be equal to the aggregate amount which investing individuals decide to invest. (*GT*, p. 64)

<sup>1</sup> There may be second-order feedback from income to effective demand through changes in the prices of capital goods via the aggregate supply function, through the effect of changes in spot prices on expectations, and through changes in the rate of interest via the transactions demand for money. Put another way, the competitive determination of income reconciles the two sets of decisions relating to time-preference, the propensity to consume and the preference for liquidity (*GT*, p. 166).

<sup>2</sup> The assumption that an asset can be transferred without transaction cost, to whichever entrepreneur values it most highly, allows its price to be defined uniquely in terms of the prospective yield over its economic life, abstracting from the circumstances of particular entrepreneurs and investors; I believe this is Keynes’s method. Without perfect competition for capital-goods, income is either indeterminate (since it is in the eye of the [be]holder of the asset) or must be arbitrarily fixed by an accounting convention.

It should now be clear that there can be no disequilibrium in the goods market in Keynes's system. Both current income and factor income are equilibrium values. The competitive determination of current income necessarily reconciles planned investment and saving or, more precisely, the plans of investors (including the holders of existing stocks of liquid and working capital) and consumers, with each other and with the level of factor income determined by effective demand.

Why then does Hansen claim that Keynes did not see clearly that 'saving and investment, while always *equal [ex post]*, are not always or necessarily in *equilibrium [ex ante]*' (1953, p. 60)? For a detailed answer I must refer the reader elsewhere (Hayes, 2007) but, in summary, Hansen (and nearly all the profession ever since) understands effective demand as equilibrium income (an essentially Swedish concept that plays no role in *The General Theory*: quite different from income as an equilibrium value). He misinterprets the dynamic passages of *The General Theory* (*GT*, pp. 47–51, 122–4, 287–8) in terms of the convergence of expectations to an equilibrium between plan and outcome over time (again a concept alien to Keynes), rather than a convergence from short-period to long-period equilibrium.<sup>1</sup> Hansen did not have the benefit of the above quoted passage from Keynes's 1937 lecture notes (Moggridge, 1971–89, Vol. XIV, pp. 179–180), which is fatal to the income–expenditure interpretation. The lack of a 'relationship between aggregate effective demand at one time and aggregate income at some later time' only 'does not matter' if Keynes has in mind a quite different concept of equilibrium from Hansen's. For, if effective demand is to be understood as the *ex ante* income that determines employment, equilibrium between *ex ante* and *ex post* can only be achieved if the two are commensurable.

Similarly, Hicks's planned saving and investment can be understood as plans made on the assumption of full-employment factor income. Clearly plans are different if employment is constrained by effective demand below the full-employment level. Yet Hicks's benchmark is undoubtedly full-employment equilibrium, so that unemployment is the result of wage-rigidity, albeit this may be the condition of stability when prices are tending to fall (1939, pp. 258–69). He bases his discussion of stability on divergences from full-employment equilibrium, in which:

If [the state of expectation is] given, the demand for securities can be taken as formally equivalent to a demand for given quantities of physical commodities to be supplied in the future; the price of these commodities (the only part of their price which can vary) being the rate of interest ... the individual behaves exactly as if he were buying the commodities now. (Hicks, 1939, p. 249).

It is precisely this claim to which Keynes objects, when he writes:

Those who think in this way are deceived, nevertheless, by an optical illusion, which makes two essentially different activities appear to be the same. They are fallaciously supposing that there is a nexus which unites decisions to abstain from present consumption with decisions to provide for future consumption; whereas the motives which determine the latter are not linked in any simple way with the motives which determine the former. (*GT*, p. 21).

An act of individual saving means – so to speak – a decision not to have dinner today. But it does not necessitate a decision to have dinner or to buy a pair of boots a week hence or a year hence or to consume any specified thing at any specified date (*GT*, p. 210).

<sup>1</sup> Keynes's long-period equilibrium (*GT*, p. 48) is not to be confused with Marshall's long-period stationary state, since it is merely the equilibrium to which the economy would converge if the state of expectation persists long enough for the capital stock to adjust so as to be fully consistent with it. Relative to long-period equilibrium, a position of short-period equilibrium is indeed a position of disequilibrium, but not in the sense required by loanable funds theory.

Leijonhufvud (1981, pp. 131–202) makes the full-employment equilibrium benchmark completely explicit and recognises the stark dividing line between *The General Theory* and Keynes's earlier neoclassical work. He emphasises correctly that the core of the problem of effective demand is that the market rate of interest does not automatically provide the intertemporal coordination between investment and consumption attributed to it by Classical theory, but retains the Wicksellian faith in a natural rate that would do so in the absence of monetary disturbances. He rejects liquidity-preference theory as 'theoretically unsound, empirically false, and practically dangerous'. He sees a choice only between Walrasian general equilibrium and a wholesale rejection of equilibrium attributed to the 'Cambridge Keynesians' (notably Robinson, Kaldor and Shackle). He does not consider the possibility that the principle of effective demand, the backbone of *The General Theory*, represents an alternative definition of equilibrium.

Thus, Hicks's version of loanable funds theory can be no more separated from the Walrasian concept of general equilibrium than Keynes's liquidity-preference theory can be from the principle of effective demand. Since these two concepts of system equilibrium are structurally incompatible, it is no surprise that the loanable funds debate has been at cross-purposes. Resolution of the debate requires prior agreement on the appropriate concept of competitive equilibrium for a monetary economy.

## 5. Conclusion

Without clarity as to the meaning of fundamental concepts such as income and equilibrium, debates such as 'loanable funds versus liquidity-preference' are at cross-purposes and cannot be brought to a satisfactory conclusion.

Both streams of loanable funds theory postulate that disequilibrium in the goods market affects the rate of interest. Robertson's version has persisted mainly because of the received interpretation of income as the value of expenditure; on such terms, it is only possible to find Robertson and his followers idiosyncratic, not simply wrong. The correct definition of income as the value of current output, whether sold or not, is essential if the perennial confusion between saving and finance is to be avoided: savings (i.e. cumulative saving) are not 'loanable funds' at all.

Hicks's version of loanable funds theory is based on Walras' Law, and therefore on the Walrasian concept of general equilibrium. It has not yet been sufficiently recognised that Keynes's principle of effective demand represents a quite different theory of competitive system equilibrium (with flexible prices) appropriate to the monetary economy, in which there is never any disequilibrium in the goods market, save in the Marshallian sense that market-period and short-period equilibrium may represent departures from the expectation-contingent long-period equilibrium defined by Keynes. Much confusion has resulted from trying to force the Marshallian *General Theory* into the Walrasian framework.

The distinction between income and effective demand, and in particular the determination of employment as an equilibrium value by the state of expectation of entrepreneurs, is central to the argument against the use of the Walrasian theory of system equilibrium to describe the monetary economy that we observe around us. One corollary is that flexible nominal factor prices are incapable of clearing factor markets: perfect competition is insufficient to achieve and maintain full employment. Another is that, without Walras' Law and the idea of excess planned saving, the loanable funds theory of interest falls to the ground.

## Bibliography

- Arrow, K. J. and Hahn, F. H. 1971. *General Competitive Analysis*, San Francisco, Holden-Day
- Bibow, J. 2000. The loanable funds fallacy in retrospect, *History of Political Economy*, vol. 32, 789–831
- Bibow, J. 2001. The loanable funds fallacy: exercises in the theory of disequilibrium, *Cambridge Journal of Economics*, vol. 25, 591–616
- Boulding, K. E. 1950. *A Reconstruction of Economics*, New York, John Wiley
- Chick, V. 1983. *Macroeconomics after Keynes*, Oxford, Philip Allan
- Chick, V. 1997. The multiplier and finance, pp. 164–82 in Harcourt, G. C. and Riach, P. A. (eds), *A 'Second Edition' of the General Theory*, Vol. 1, London, Routledge
- Clower, R. W. 1965. The Keynesian counterrevolution: a theoretical appraisal, pp. 103–25 in Hahn, F. H. and Brechling, F. P. R. (eds), *The Theory of Interest Rates*, London, Macmillan
- Colander, D. 2001. Effective supply and effective demand, *Journal of Post Keynesian Economics*, vol. 23, 375–81
- Cottrell, A. C. and Lawlor, M. S. 1991. Natural rate mutations: Keynes, Leijonhufvud and the Wicksell connection, *History of Political Economy*, vol. 23, 625–43
- FASB (Financial Accounting Standards Board). 1984. 'Statement of Financial Accounting Concepts No. 5: Recognition and Measurement in Financial Statements of Business Enterprises', Norwalk, CT, FASB
- Foley, D. K. 1975. On two specifications of asset equilibrium in macroeconomic models, *Journal of Political Economy*, vol. 83, 303–24
- Hansen, A. H. 1953. *A Guide to Keynes*, New York, McGraw-Hill
- Hayes, M. G. 2006. *The Economics of Keynes: A New Guide to The General Theory*, Cheltenham, UK and Northampton, MA, Edward Elgar
- Hayes, M. G. 2007. The point of effective demand, *Review of Political Economy*, vol. 19, 55–80
- Hicks, J. R. 1936. Mr Keynes' theory of employment, *Economic Journal*, vol. 46, 238–53
- Hicks, J. R. 1939. *Value and Capital*, Oxford, Clarendon Press
- Hicks, J. R. 1989. *A Market Theory of Money*, Oxford, Oxford University Press
- Keynes, J. M. 1930. *A Treatise on Money*, reprinted as Vol. V and VI in Moggridge, D.E. (ed.) 1971–89. *The Collected Writings of John Maynard Keynes*, London, Macmillan for the Royal Economic Society
- Keynes, J. M. 1936. *The General Theory of Employment, Interest and Money*, reprinted as Vol. VII in Moggridge, D.E. (ed.) 1971–89. *The Collected Writings of John Maynard Keynes*, London, Macmillan for the Royal Economic Society
- Keynes, J. M. 1937. The 'ex ante' theory of the rate of interest, reprinted as pp. 215–23 in Vol. XIV of Moggridge, D.E. (ed.) 1971–89. *The Collected Writings of John Maynard Keynes*, London, Macmillan for the Royal Economic Society
- Kohn, M. 1981. A loanable funds theory of unemployment and monetary disequilibrium, *American Economic Review*, vol. 71, 859–79
- Kohn, M. 1986. Monetary analysis, the equilibrium method, and Keynes's 'General Theory', *Journal of Political Economy*, vol. 94, 1191–224
- Lawlor, M. S. 1997. The Classical theory of the rate of interest, pp. 343–67 in Harcourt, G. C. and Riach, P. A. (eds), *A 'Second Edition' of the General Theory*, Vol. 1, London, Routledge
- Lawlor, M. S. 2006. *The Economics of Keynes in Historical Context: An Intellectual History of the General Theory*, Basingstoke, Palgrave Macmillan
- Leijonhufvud, A. 1968. *On Keynesian Economics and the Economics of Keynes: A Study in Monetary Theory*, New York, Oxford University Press
- Leijonhufvud, A. 1981. *Information and Co-ordination: Essays in Macroeconomic Theory*, Oxford, Oxford University Press
- Leijonhufvud, A. 1998. Mr Keynes and the moderns, *European Journal of the History of Economic Thought*, vol. 5, no. 1, 169–88
- Leijonhufvud, A. 2006. Keynes as a Marshallian, pp. 58–77 in Backhouse, R. E. and Bateman, B. W. (eds), *The Cambridge Companion to Keynes*, Cambridge, Cambridge University Press
- Lerner, A. P. 1938. Alternative formulations of the theory of interest, *Economic Journal*, vol. 48, 211–30

- Lutz, F. A. 1938. The outcome of the saving-investment discussion, *Quarterly Journal of Economics*, vol. 52, 588–614
- Marshall, A. 1920. *Principles of Economics* (8th edn, 1949 pagination), London, Macmillan
- Moggridge, D. E. (ed.) 1971–89. *The Collected Writings of John Maynard Keynes*, London, Macmillan for the Royal Economic Society
- Moore, B. J. 2006. *Shaking the Invisible Hand: Complexity, Endogenous Money and Exogenous Interest Rates*, Basingstoke, Palgrave Macmillan
- Patinkin, D. 1958. Liquidity-preference and loanable funds: stock and flow analysis, *Economica*, vol. 38, 300–18
- Patinkin, D. 1976. *Keynes's Monetary Thought*, Durham, NC, Duke University Press
- Pigou, A. C. 1932. *The Economics of Welfare*, (4th edn), London, Macmillan
- Robertson, D. H. 1940. *Essays in Monetary Theory*, London, Staples Press
- Terzi, A. 1986. The independence of finance from saving: a flow-of-funds interpretation, *Journal of Post Keynesian Economics*, vol. 9, 188–97
- Tsiang, S.-C. 1956. Liquidity-preference and loanable funds theories, multiplier and velocity analyses: a synthesis, *American Economic Review*, vol. 46, 539–64
- Tsiang, S.-C. 1980. Keynes's finance demand for liquidity, Robertson's loanable funds theory, and Friedman's monetarism, *Quarterly Journal of Economics*, vol. 94, 467–91