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CLASSICAL, LOANABLE-FUND, AND KEYNESIAN INTEREST THEORIES

By ALVIN H. HANSEN

Keynes attacked the classical theory of interest on the ground that it is indeterminate. According to classical theory the rate is determined by the intersection of the investment demand-schedule and the saving-schedule — schedules disclosing the relation of investment and saving to the rate of interest. No solution, however, is possible because the position of the saving-schedule will vary with the level of real income. As income rises, the schedule will shift to the right. Thus we cannot know what the rate of interest will be unless we already know the income level. And we cannot know the income level without already knowing the rate of interest, since a lower interest rate will mean a larger volume of investment, and so, via the multiplier, a higher level of real income. The classical analysis, therefore offers no solution.

Now exactly the same criticism applies to the Keynesian theory. According to the Keynesian theory the rate of interest is determined by the intersection of the supply-schedule of money (perhaps interest inelastic, if rigorously fixed by the monetary authority) and the demand-schedule for money (the liquidity-preference schedule). This analysis also is indeterminate because the liquidity-preference schedule will shift up or down with changes in the income level. Here we are concerned with the total liquidity-preference schedule including both the "transactions" demand and the "asset" demand for money. If we separate the total demand schedule for money into its two component parts, we could perhaps argue that the "pure" liquidity-preference schedule is independent of the level of income.[1] But this does not help matters, since we cannot know, given the total money supply, how much money will be available *to hold as an asset* unless we first know the level of income. Thus the Keynesian theory, like the classical, is indeterminate. In the Keynesian case the money supply and demand-schedules cannot give the rate of interest unless we already know the income level; in the classical case the demand and supply schedules for saving offer no solution until the income is known. Keynes' criticism of the classical theory applies equally to his own theory.

1. In fact since expectations are influenced by the level of income this is not a permissible assumption. The liquidity preference case is therefore even weaker than here indicated.

Precisely the same is true of the loanable-fund theory. According to the loanable-fund analysis, the rate of interest is determined by the intersection of the demand-schedule for loanable funds with the supply-schedule. Now the supply-schedule of loanable funds is compounded of saving (in the Robertsonian sense) plus net additions to loanable funds from new money and the dishoarding of idle balances. But since the "savings" portion of the schedule varies with the level of "disposable" income,[2] it follows that the total supply-schedule of loanable funds also varies with income. Thus this theory is also indeterminate.

In the loanable-fund theory, the relevant supply-schedule is conceived of in terms of loanable funds (i.e., "voluntary" saving plus new money). In the neo-classical theory of Pigou, however, the relevant supply-schedule is conceived in terms of saving out of current income. "Saving is defined as the excess of total income received over income received for services in providing for consumption."[3] Again, in the same vein, "aggregate money saving" is defined as the "excess of money income over expenditures on consumption goods."[4] Here income, consumption, and saving, all apply to the same period. Money savings are that part of current income which is not consumed. Now current income is derived from current expenditures. Whether or not current income is fed in part from the injection of new money or from the activation of idle balances, makes no difference whatever from the standpoint of the Pigouvian or neo-classical definition.[5] Income is income whether it springs from the spending of funds borrowed from banks or from the spending of "prior" income; and saving from such income is saving even though bank credit played a role in the process of income creation.[6] Accordingly, in Pigouvian or neo-classical theory, "saving" is in effect the same thing as "loanable funds." In Robertsonian language, however, "loanable funds" consist of voluntary saving (i.e., saving out of "disposable" income) plus borrowed bank funds and activated idle balances. In Pigouvian language, saving out of current income may well exceed "voluntary" (or Robertsonian) saving in so far as current income is increased by bank loans or the injection of idle balances.

2. "Disposable income" is here used in the Robertsonian sense, i.e., "yesterday's" income.

3. See A. C. Pigou, *Employment and Equilibrium*, p. 30.

4. *Ibid*, p. 31.

5. "It is important to be clear about the implications of these definitions when people or governments borrow from the banks. Everybody agrees that money so borrowed only becomes income when it is paid out, for services rendered, to factors of production" (*ibid*, p. 30).

6. *Ibid*, p. 30.

Thus the Pigouvian supply-schedule of savings amounts to the same thing as the Robertsonian or Swedish supply-schedule of loanable funds. It is therefore not necessary to distinguish further between them, and hereafter I shall refer only to the neo-classical[7] theory on the one side, and the Keynesian on the other.

The neo-classical formulation and the Keynesian formulation, taken together, do supply us with an adequate theory of the rate of interest. From the neo-classical formulation we get a family of saving-schedules at various income levels. These together with the investment-demand schedule[8] give us the Hicksian "*IS* curve." In other words, the neo-classical formulation tells us what the various levels of income will be (given the investment-demand schedule and family of saving-schedules) at different rates of interest.

From the Keynesian formulation we get a family of liquidity preference schedules at various income levels. These together with the supply of money fixed by the monetary authority, give us the Hicksian "*L* curve" (which I prefer to call the "*LM* curve").[9] The *LM* curve tells us what the various rates of interest will be (given the quantity of money and the family of liquidity-preference curves) at different levels of income. But the liquidity schedule alone cannot tell us what the rate of interest will be.

The "*IS* curve" and the "*LM* curve" are functions relating the two variables: (1) income and (2) the rate interest. Income and the rate of interest are therefore determined together at the point of intersection of these two curves or schedules. At this point income and the rate of interest stand in a relation to each other such that: (1) investment and saving are in equilibrium (i.e., actual saving equals desired saving) and (2) the demand for money is in equilibrium with the supply of money (i.e., the desired amount of money is equal to the actual supply of money).

Thus a determinate theory of interest is based on: (1) the investment demand function, (2) the saving-function (or conversely the

7. The classical theory may be said to coincide with the neo-classical or Pigouvian theory in the special case in which no new money is being created by the banking system and in which idle balances are not being dishoarded.

8. Perhaps a family of investment-demand schedules, one for each level of income. Everyone will agree that a *change* in the level of income affects the volume of investment, but not everyone will agree that the *level* of income is a determinant of *net* investment.

9. See my *Monetary Theory and Fiscal Policy*, Chapter 5. The "*LM*" curve represents a situation in which $L = M$ in an equilibrium sense, L meaning the demand for money, and M the supply of money. Similarly the "*IS*" curve indicates a condition in which $I = S$ in an equilibrium sense (i.e., the multiplier process has fully worked itself out).

consumption function), (3) the liquidity preference function, and (4) the quantity of money. The Keynesian analysis, looked at as a whole, involved all of these. But Keynes never brought them all together in a comprehensive way to formulate an integrated interest theory. He failed to point out specifically that liquidity preference plus the quantity of money can give us not the rate of interest, but only an "*LM* curve." It was left for Hicks[1] to supply us with the tools needed for a comprehensive analysis.

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1. *Econometrica*, Volume V, 1937, 147–59.