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**Price and Prejudice**  
**The statics and dynamics of money-wage flexibility**

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### **Abstract**

Keynes's dynamic, open-end approach to money-wage flexibility is contrasted with the subsequent rehabilitation of the static analysis of the problem, which has led to the 'closure' of the Keynesian system and the vindication of the economy's capacity for self-adjustment. Not even in static analysis, it is further maintained, can money-wage flexibility be counted on to bring about a rise in aggregate demand and employment. For the flaws in the logical basis of the decreasing relationship between the demand for capital and the rate of interest undermine the 'Keynes effect,' so that the AD curve — predominantly governed by the deflation-induced redistribution of real wealth from debtors to creditors — assumes an upward-sloping shape at all price levels. As against the claim that after a sufficiently long period of time the 'Pigou,' or 'real balance' effect, will prevail over the above redistribution (or 'reverse Pigou') effect, it is contended that long-lasting excess capacity and unemployment will cause both the productive capacity installed to shrink and 'discouraged' workers to leave the labour market. Unemployment may thus disappear through an entirely different road than those envisaged by believers in the self-adjusting properties of the economic system.

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## PRICE AND PREJUDICE

### The statics and dynamics of money-wage flexibility

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#### Introduction

In the last decade of the twentieth century concern over the havoc wrought by deflation in Japan and the threat of contagion of ‘nipponitis’ to other developed economies aroused new interest in deflation as a theoretical subject, but does not appear to have undermined the reassuring belief (‘prejudice’) that, as a rule, money-wage flexibility (‘price’) can be counted on to make the economic system self-adjusting.<sup>1</sup> To tell the story of how the above belief, peculiar to ‘classical’ economics, survived Keynes’s critique is among the aims of the present paper.

The idea put forward by Keynes in chapter 19 of the *General Theory* — partly relying on his own and Irving Fisher’s previous analyses of

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<sup>1</sup> Since Krugman (1998), responsibility for the disruptive consequences of the Japanese deflation has frequently been blamed upon the operation of the ‘liquidity trap’ (rescuing this concept from the oblivion to which it had been condemned since the inflationary 1970s), rather than upon deflation *as such*. Thus a special section on deflation-induced stagnation in Japan has been inserted in latest-vintage textbooks (see, *e. g.*, Blanchard, 2003), while retaining the idea that under normal conditions falling money wages and prices, far from being harmful to the economy, cause it to move down along a well-behaved AD function.

deflation — is that under money-wage flexibility any departure from full employment would trigger a cumulative fall in prices and aggregate demand. What makes the real-world economy stable is indeed, in his opinion, the circumstance that money wages *do not* fall without limit as long as labour supply exceeds labour demand.

Some aspects of Keynes's (1923) and Fisher's (1932, 1933) analyses of deflation will be examined in section 1 as a preliminary to the reconstruction — offered in section 2 — of Keynes's (1936) treatment of money-wage flexibility. Fisher's and Keynes's approaches, it will be pointed out in the above sections, are dynamic in nature, in the sense that both authors are concerned with the fall in (money wages and) prices *as a process*.

In section 3 we shall illustrate a scarcely noticed aspect of Keynes's position, namely, its open-endedness as far as the final outcome of the deflationary process is concerned. A critical appraisal of the subsequent rehabilitation of the static analysis of money-wage flexibility — with its accompanying 'closure' of the Keynesian system, and vindication of the economy's capacity for self-adjustment — will be provided in section 4.

Not even in static analysis, it will be contended in the next two sections, can money-wage flexibility be reckoned to bring about a rise in aggregate demand and employment. The reader will be firstly reminded, in section 5, that the logical basis of the decreasing relationship between the demand for capital (as a stock and as a flow) and the rate of interest has been recognized to be flawed. As a consequence, it has been pointed out in

Garegnani (1978-79), what has become known as the ‘Keynes effect’<sup>2</sup> falls to the ground. This being so — we shall maintain in section 6 — the deflation-induced redistribution of real wealth from debtors to creditors will result in a completely (rather than partly, as in Tobin, 1978) upward-sloping AD curve.

As against the claim that the ‘Pigou,’ or ‘real balance’ effect (as called in Patinkin, 1948 and 1956, respectively) will eventually get the upper hand over the above redistribution (or ‘reverse Pigou’) effect, we shall maintain in section 7 that whenever the task of causing aggregate demand to rise is assigned to a mechanism which takes a considerable time to produce its effects, a further difficulty arises. For long-lasting excess capacity will cause the productive capacity installed (which Keynes was taking as given) to shrink. Moreover, persistent unemployment will probably result in ‘discouraged’ workers leaving the labour market. Unemployment may thus disappear through an entirely different road than those envisaged by believers in the self-adjusting properties of the economic system.

### **1. Fisher and Keynes on deflation**

In Keynes’s *Tract on Monetary Reform*, published in the aftermath of the severe post-World War I deflation, a fall in prices is said to effect a redistribution of real wealth from those ‘who make the decisions which set

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<sup>2</sup> ‘By the Keynes-effect I mean the hypothesis, granted by Keynes, that an increase in the supply of money, measured in stable purchasing power and caused by falling prices, reduces the rate of interest and thereby favourably influences the volume of investment’ (Haberler 1958, p. 491, note 3).

production in motion' to those 'who are inactive once they have lent their money' (Keynes, 1923, p. 30). In chapter 4, section 1 of the *Tract* a debt is acknowledged, in this connection, to Irving Fisher's article 'Devaluation versus Deflation,' published in one of the 'Reconstruction in Europe' supplements to *The Manchester Guardian Commercial*, of which Keynes was the editor (11<sup>th</sup> supplement, 7 December 1922). The title of the section is the same as that of Fisher's article.

Some ten years later observation of the disaster caused by falling prices in the Great Depression led Fisher to elaborate his celebrated *Debt-Deflation Theory of the Great Depressions* (Fisher, 1933; see also 1932). According to this theory, over-indebtedness, which (together with the over-investment and over-speculation it makes possible) characterizes the later stages of a boom, 'will tend to lead to liquidation, through the alarm either of debtors or creditors or both' (Fisher, 1933, pp. 341-42), thus triggering a chain of repercussions including 'distress selling;' 'contraction in deposit currency, as bank loans are paid off;' 'a slowing down of velocity of circulation;' 'a fall in the level of prices;' 'a still greater fall in the net worth of business, precipitating bankruptcies;' 'a like fall in profits,' which causes 'a reduction in output, in trade and in employment of labour.' Falling profits, bankruptcies and unemployment give rise to 'pessimism and loss of confidence.' (*ibid.*, p. 342).<sup>3</sup>

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<sup>3</sup> It may be observed, *en passant*, that — although Fisher's analysis is conducted on the basis of the quantity theory of money — the fall in prices can be conceived of as the consequence of nothing but the 'distress selling' of products aimed at raising the money required to pay off debt, thus making reference to the quantity theory of money unnecessary.

The fall in prices, Fisher contends, will cause not only ‘a rise in the real, or commodity, rates’ (in spite of the accompanying ‘fall in the nominal, or money, rates’) (*ibid.*, p. 342), but also a rise in the real debt to be paid off. Thus,

deflation caused by the debt reacts on the debt. Each dollar of debt still unpaid becomes a bigger dollar, and if the over-indebtedness with which we started was great enough, the liquidation of debt cannot keep up with the fall of prices which it causes. In that case, liquidation defeats itself. While it diminishes the number of dollars owed, it may not do so as fast as it increases the value of each dollar owed... *The more the debtors pay, the more they owe*. The more the economic boat tips, the more it tends to tip. It is not tending to right itself, but is capsizing (*ibid.*, 1933, p. 344).

Although no reference to the above analysis can be found in Keynes’s *General Theory*, the rise in the real burden of debt plays a key role in his account of the consequences of deflation. ‘Indeed if the fall of... prices goes far,’ he observes, ‘the embarrassment of those entrepreneurs who are heavily indebted may soon reach the point of insolvency’ (Keynes, 1936, p. 264). The consequent *inability* to carry out investment and production plans<sup>4</sup> will adversely affect aggregate demand and the expectation of future yield from capital assets, thus causing the *willingness* to invest, too, to fade away.

In the *Tract* Keynes draws attention not only to the consequences of an *actual* fall in prices, but also to those of an *expected* fall. ‘During the lengthy process of production,’ he observes,

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<sup>4</sup> As pointed out in Keynes (1931), the fall in the price of assets, which takes place as a part of the general process of deflation, is also liable to cause serious embarrassment of the banks, with negative repercussions on their lending policy.

the business world is incurring outgoings in terms of *money* — paying out in money for wages and other expenses of production — in the expectation of recouping this outlay by disposing of the product for *money* at a later date... Now, it follows from this that if prices are expected to fall... entrepreneurs will be reluctant to embark on lengthy productive processes involving a money outlay long in advance of money recoupment — hence unemployment (Keynes, 1923, pp. 33-34).

The same ‘monetary’ approach to the problem<sup>5</sup> is to be found in the *General Theory*, where the marginal efficiency of a capital asset is said to result from the *sum of money* to be spent on its purchase and the *money yield* expected from its employment in production. Given the schedule of the marginal efficiency of capital, investment will be pushed to the point where the marginal efficiency of capital equals the (long-term) *nominal rate of interest*. An implication of this is that

The expectation of a fall in the value of money stimulates investment, and hence employment, because it raises the schedule of the marginal efficiency of capital, *i.e.* the investment demand schedule; and the expectation of a rise in the value of money is depressing, because it lowers the schedule of the marginal efficiency of capital (*ibid.*, pp. 141-2).

This, Keynes asserts, is ‘the truth behind Professor Irving Fisher’s... distinction between the money rate of interest and the real rate of interest’ (*ibid.*, p. 142). Fisher is, however, wrong

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<sup>5</sup> In the preparatory notes for *The Monetary Theory of Production* — this being the original title of what was to become *The General Theory of Employment, Interest and Money* — Keynes makes the point that Marx was right in pointing out that ‘the nature of production in the actual world is not, as economists seem often to suppose, a case of *C-M-C*’, *i.e.* of exchanging commodity (or effort) for money in order to obtain another commodity (or effort). That may be the standpoint of the private consumer. But this is not the attitude of *business*, which is a case of *M-C-M*’, *i.e.* of parting with money for commodity (or effort) in order to obtain more money’ (Keynes, 1932, pp. 81).



in supposing that it is the rate of interest on which prospective changes in the value of money will directly react, instead of the marginal efficiency of a given stock of capital (*ibid.*, p. 142).

Widely shared as it is, this reading of Fisher's position should be qualified to the effect that in his view the adjustment of the money rate of interest to inflation or deflation takes a considerable time, during which the real rate ('so light in the way up and so heavy in the way down'; Fisher, 1932, p. 107) changes pro-cyclically (see Tobin, 1985, p. 36 and 1987, p. 375) — this being in fact an important aspect of his theory of business cycles, as expounded in Fisher (1923) and (1925), as also of his account of the dynamics of the Great Depression (Fisher, 1932, 1933).<sup>6</sup> Needless to say, the above qualification makes Fisher's view of the impact of (expected) deflation on investment less far from Keynes's than the latter was prepared to concede.

## **§ 2. Keynes's case against money-wage flexibility**

In the *General Theory* the arguments reviewed in section 1 above come into consideration as part of a more general argument, aimed at showing that the fall in money wages cannot be relied upon as a means to reach full employment. The latter argument is conducted in two stages. It is firstly contended (in chapter 2) that, *if aggregate demand remains unchanged*, employment and the real wage (equal to the marginal productivity of labour) remain unchanged, too; this amounts to saying that a

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<sup>6</sup> As will be recalled, reference to falling prices causing 'a rise in the real, or commodity, rates' is made in a passage from Fisher (1933) quoted earlier in this section.

fall in money wages has no other effect than to cause money prices to fall in the same proportion. Subsequently (in chapter 19) it is contended that the fall in money wages and prices is ineffective in causing aggregate demand to rise — and is, indeed, a source of instability. (In chapters 3 to 18 money wages are assumed to remain constant. ‘But this simplification,’ Keynes warns his readers, ‘is introduced solely to facilitate the exposition. The essential character of the argument is precisely the same whether or not money wages... are liable to change;’ Keynes, 1936, p. 27.)

The only way in which a fall in money wages and prices can affect aggregate demand, Keynes submits in chapter 19, is through its effects on the three ‘independent variables’ (*ibid.*, p. 245) of his system — the marginal propensity to consume, the schedule of the marginal efficiency of capital and the rate of interest (see *ibid.*, p. 260). Now, as far as the marginal propensity to consume is concerned, the influence of the redistribution of real income (mainly from entrepreneurs to rentiers) operated by a fall in money wages and prices ‘is more likely to be adverse than favourable’ (*ibid.*, p. 262). A further transmission mechanism explored by Keynes goes from a fall in money wages and prices to a fall in the demand for money and in the rate of interest, and from the latter to a rise in investment. To rely on this mechanism (the ‘Keynes effect’) would, however, be wrong, in Keynes’s opinion, for two independent reasons. The first reason is that the long-term rate of interest may prove poorly sensitive to increases in the quantity of money in terms of the wage-unit. The second is that falling money wages and prices adversely affect the marginal efficiency of capital.

As far as the rate of interest is concerned, Keynes makes the point that

Just as a moderate increase in the quantity of money may exert an inadequate influence over the long-term rate of interest, whilst an immoderate increase may offset its other advantages by its disturbing effects on confidence; so a moderate reduction in money-wages may prove inadequate, whilst an immoderate reduction might shatter confidence even if it were practicable (*ibid.*, pp. 266-67).

We are thus referred back to chapters 13 and 15 of the book, where the efficacy of an increase in the quantity of money in forcing down the rate of interest is discussed. In chapter 13 Keynes submits that

a large increase in the quantity of money may cause so much uncertainty about the future that liquidity-preferences due to the precautionary motive may be strengthened; whilst opinion about the future of the rate of interest may be so unanimous that a small change in present rates may cause a mass movement into cash (*ibid.*, p. 172).

Near-unanimity of opinion is treated as the normal case in chapter 15, where the rate of interest is described as a ‘highly conventional’ phenomenon, and its actual value is said to be ‘largely governed by the prevailing view as to what its value is expected to be’ (*ibid.*, p. 203). While ‘The short-term rate of interest is easily controlled by the monetary authorities,’ Keynes contends, ‘the long-term rate may prove more recalcitrant’ (*ibid.*, p. 203) — and may even ‘fluctuate for decades about a level which is chronically too high for full employment’ (*ibid.*, p. 204). A few lines below we read:

The difficulty in the way of maintaining effective demand at a level high enough to provide full employment, which ensues from the association of a conventional and fairly stable long-term rate of interest with a fickle and highly unstable marginal efficiency of capital, should be, by now, obvious to the reader (*ibid.*, p. 204).

Needless to say, the above difficulty is bound to become much greater if the task of forcing down the rate of interest is to be assigned to the fall in money wages and prices, rather than to the ‘persistence and consistency of purpose of the monetary authority’ (*ibid.*, p. 204).

Let us now turn to the second of the two reasons, referred to above, why Keynes holds that the ‘Keynes effect’ does not work. His position, as reconstructed in section 1 above, is that while the *actual* fall in prices causes the real burden of debt to increase, thus bringing about financial distress and bankruptcies, their *expected* fall undermines the profitability of investment.<sup>7</sup> To this it must now be added that in Keynes’s opinion the actual fall in prices will normally generate the expectation of a further fall (see *ibid.*, pp. 263 and 265; see also section 4 below). It follows that, even in the event that a fall in (money wages and) prices is capable of forcing down the rate of interest, any favourable effect this may be expected to have on investment is likely to be outweighed by ‘the schedule of the marginal efficiency of capital... falling more rapidly than the rate of interest’ (*ibid.*, p. 173).

Joint consideration of the above two reasons leads Keynes to conclude that

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<sup>7</sup> A further consequence of the expectation of a fall in prices is ‘the postponement of both investment and consumption’ (*ibid.*, p. 263).

if labour were to respond to conditions of gradually diminishing employment by offering its services at a gradually diminishing monetary wage, this would not, as a rule, have the effect of reducing real wages and might even have the effect of increasing them, through its adverse influence on the volume of output (*ibid.*, p. 269).

This being so, it is obvious that in the real-world economy the stickiness of money wages (to be distinguished from their *assumed* constancy) plays the all-important role of preventing unemployment from setting in motion a disruptive deflationary process.

### **§ 3. Alternative resting places**

Suppose, however, that money wages *were* flexible. What would the final outcome of the deflationary process be like? The problem is touched upon incidentally in a handful of passages, scattered in different chapters of the *General Theory*. Workers, we find it stated in chapter 18,

will not seek a much greater money-wage when employment improves or allow a very great reduction rather than suffer any unemployment at all... whether or not this conclusion is plausible *a priori*, experience shows that some such psychological law must actually hold. For if competition between unemployed workers always led to a very great reduction of the money-wage, there would be a violent instability in the price-level. Moreover, there might be no position of stable equilibrium except in conditions consistent with full employment; since the wage-unit might have to fall without limit until it reached a point where the effect of the abundance of money in terms of the wage-unit was sufficient to restore full employment. At no other point could there be a resting place (*ibid.*, p. 253).

The foregoing passage appears to suggest that the continuous growth in the quantity of money available for satisfying the speculative and precautionary

motives may eventually sweep away all the obstacles lying in the way of full employment.

A passage in the Appendix to chapter 14 qualifies the above reasoning to the effect that liquidity preference may ‘become absolute,’ thus preventing the rate of interest from falling further, before full employment is reached:

...in the extreme case where money-wages are assumed to fall without limit in face of involuntary unemployment through a futile competition for employment between the unemployed labourers, there will... be only two possible long-period positions — full employment and the level of employment corresponding to the rate of interest at which liquidity preference becomes absolute (*ibid.*, p. 191).

Reference to liquidity preference becoming absolute is, indeed, ambiguous, since such a thing may occur at *any* level of the rate of interest, provided expectations as to the future rate are unanimous (see *ibid.*, p. 172; see also section 2 above). What Keynes appears to have in mind here is, however, a threshold below which the rate of interest *cannot possibly fall*. Such a ‘lower limit,’ we read in a passage from chapter 16, ‘in present circumstances may perhaps be as high as 2 or 2½ per cent, on long term’ (*ibid.*, p. 219; see also p. 309, note 1). The ‘possibility... that, *after the rate of interest has fallen to a certain level*, liquidity-preference may become virtually absolute’ is also referred to in a passage from chapter 15. Of this ‘limiting case,’ Keynes observes, ‘I know of no example... hitherto,’ although it ‘might become of practical importance in the future’ (*ibid.*, p. 207).

Observe that only the first of the two above-described ‘long period positions,’ namely full employment, is described as ‘a stable equilibrium.’ In the second — a situation in which the rate of interest has reached its lower limit — money wages will continue to fall until (we may imagine) they become zero.<sup>8</sup> Alternatively, money wages may be thought to become zero *before* the rate of interest has reached its lower limit. Such a possibility is contemplated in a passage from chapter 21, where the fall in money prices is said to lead to one of *three* possible ‘resting places:’ full employment, a situation in which the rate of interest has reached its lower limit and one in which money wages are zero:

If... money-wages were to fall without limit whenever there was a tendency for less than full employment... there would be no resting place below full employment until either the rate of interest was incapable of falling further or wages were zero (*ibid.*, p. 304).

Keynes’s analysis of the deflationary process is, thus, open-end in character. Whether wages become zero before or after the rate of interest has reached its lower limit — or whether they stop falling before having become zero because full employment is somehow established — will depend on exactly how liquidity preference and the inducement to invest

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<sup>8</sup> For a critique of the idea that Keynes proved the possibility of an unemployment *equilibrium* with flexible money wages, see Patinkin (1948), p. 562. ‘What Keynesian economics claims,’ he observes, ‘is that the economic system may be in a position of underemployment *disequilibrium* (in the sense that wages, prices and the amount of employment are continuously changing over time) for long, even indefinite, periods of time’ (*ibid.*, p. 563; see also Patinkin, 1974, p. 3 and Leijonhufvud 1968, p. 161).

(and to consume) are affected by deflation. And this, in Keynes's opinion, is a matter on which no general rules can be laid down.

#### 4. 'A world of difference'

In order to turn the lower limit to the rate of interest — the 'liquidity trap,' as it is so often called<sup>9</sup> — into the only obstacle capable of preventing money-wage flexibility from securing full employment, two steps are required. The first step consists in removing all the obstacles other than the above limit that may prevent a rise in the quantity of money from forcing down the rate of interest. This is done by assuming away the disturbing effects of unanimity of expectations (for all rates of interest higher than the minimum one) and making liquidity preference independent of any change that may occur in the quantity of money. The nature and purport of this step will be easily grasped by comparing the difficulties Keynes envisages the monetary authorities encountering in their attempt to force down the rate of interest, described in section 2 above, with the fairly automatic consequences of a rise in the quantity of money made possible by the perfectly stable, mainly risk-based liquidity-preference function contemplated in Hicks (1937) or Modigliani (1944).

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<sup>9</sup> As for this expression, it may be observed that its inventor, Dennis Robertson, used it in a sense that has hardly anything to do with the lower limit to the rate of interest. See Robertson (1940), pp. 19 and 34-36. See also Robertson (1936), p. 190. Elsewhere in the latter paper Robertson does refer to the lower limit to the rate of interest limit, but only to state that it *does not* stand at the basis of Keynes's view of the rate of interest as a purely monetary phenomenon. (Robertson, 1936, p. 183).



The second step consists in treating a fall in money wages and prices as perfectly equivalent to a rise in the quantity of money. According to Modigliani's well-known formulation, unemployment results from

a basic maladjustment between the quantity of money and the wage rate. It is the fact that money wages are too high relative to the quantity of money that explains why it is unprofitable to expand employment to the 'full employment' level (Modigliani, 1944, p. 77).

The view that money wages are sticky is, according to Modigliani, the central aspect of Keynes's position, and the ultimate reason why his conclusions differ from those of 'classical' economics. If, however, wages were flexible, this would correct the 'basic maladjustment' no less effectively than an increase in the quantity of money. The only case in which neither remedy is effective — the case of 'liquidity trap' — is dubbed by Modigliani 'the Keynesian case' (*ibid.*, p. 74). The resulting 'closure' of the Keynesian system can be described as near perfect, since the 'Keynesian case' is, in Modigliani's words, 'the exception and not the rule' (*ibid.*, p. 76).

As against the equivalence between a fall in money wages and a rise in the quantity of money, Keynes had pointed out beforehand that

while a flexible wage policy and a flexible money policy come, analytically, to the same thing inasmuch as they are alternative means of changing the quantity of money in terms of wage-units, in other respects there is, of course, a world of difference between them (Keynes, 1936, p. 267).

In Modigliani's article one part of this 'world of difference' — the effects of deflation on the financial situation of entrepreneurs — is ignored outright.

Another part is, instead, explicitly assumed away. 'In order to simplify our task,' Modigliani writes,

our analysis proceeds in general, under 'static' assumptions; this does not mean that we neglect time, but that we assume the Hicksian (total) 'elasticity of expectation' to be always unity... Since all the theories we examine or formulate in this paper are concerned with the determinants of equilibrium and not with the explanation of business cycles, this simplification, although it is serious in some respects, does not seem unwarranted (Modigliani, 1944, pp. 45-46).

In Hicks's own words a unity 'elasticity of expectation' implies that

a change in current prices will change expected prices in the same direction and in the same proportion; if prices were previously expected to be constant at the old level, they are now expected to be constant at the new level; changes in prices are expected to be permanent (Hicks, 1939, p. 205).

What the above assumption rules out is both the 'favourable' contingency in which 'money wages are believed to have touched the bottom, so that further changes are expected to be in the upward direction' (Keynes, 1936, p. 265), and the 'unfavourable' contingency in which 'the reduction [in money wages] leads to the expectation... of a further wage-reduction in prospect' (*ibid.*, 263). It is, however, the latter contingency that Keynes regards as normal 'under a system of free wage bargaining,' while the former would require the wage reduction to 'be accomplished by administrative decree,' as may perhaps happen 'in Italy, Germany or Russia, but not in France, the United States or Great Britain' (*ibid.*, p. 269).<sup>10</sup>

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<sup>10</sup> According to Oskar Lange (1944, p. 83), the 'very special conditions' (including favourable 'elasticities of price expectations') under which 'price flexibility result[s] in the automatic maintenance or restoration of equilibrium of demand and supply of factors of

## **5. Money-wage flexibility and the investment function**

In the above discussion it has been taken for granted that investment is a decreasing function of the rate of interest. However, in the aftermath of World War II this appears to have been far from undisputed. For the experience of the 1930s had caused considerable distrust in the efficacy of cheap-money policy in fostering investment; and the relevance of rate-of-interest considerations for investment decisions had been cast doubt on by the surveys conducted before the war by the Harvard Business School (see Ebersole, 1938) and the Oxford Economists' Research Group (see Wilson and Andrews, eds., 1951; see also Shackle, 1946).

As a result, it was not uncommon to find Keynesian authors holding that 'producer expenditures for capital equipment are insensitive to changes in the rate of interest' (Klein, 1947, p. 64) and even criticizing Keynes for having made use of 'the marginal efficiency of investment (itself a first cousin of the old productivity concept)' and the implied notion of a rate of

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production' may have been 'approximately realized in the long run during a period which extended from the 1840's until 1914. During this period, price flexibility was a workable norm of long-run economic policy. The feeling of stability and security of the economic order which permeated this period (with possible exception during the years 1873-1896), created a strong belief in a "normal" level of certain economic quantities, including prices. Long-range effective price expectations were, therefore, prevailingly inelastic.' Reference to 'people's sense of normal prices' is also made by Hicks (1939, p. 298) as setting 'a limit to the fall in wages' and encouraging entrepreneurs to think that prices have reached the bottom. As far as the latter point (price expectations) is concerned, he observes that 'when prices have fallen to a certain extent, there will be some entrepreneurs... who will begin to think that the prices which have now been reached are abnormally low, and will therefore begin to develop production plans on the basis of a probability of rising prices in the future.' It is worth emphasizing that what Lange describes as a 'very special' state of affairs, prevailing under well defined institutional and historical conditions, is treated by Hicks as a normal occurrence.

interest which ‘would call forth a full employment rate of investment’ (Musgrave, 1948, p. 79).<sup>11</sup> In the same vein, Tobin made the point that Modigliani’s ‘Keynesian case’ was by no means the only exception to the ‘wage-rigidity explanation of unemployment;’ for a zero interest-elasticity of the demand for investment ‘would constitute another and very important exception’ — this consideration being ‘supported by the evidence that interest calculations play an insignificant part in business investment decisions’ (Tobin, 1947, p. 576 and p. 576, note 1).

In the 1950s the findings of the empirical studies carried out in the 1930s began, however, to come in for critical reappraisal and to be regarded as reflecting the special conditions of the Great Depression (see Schlesinger 1960, pp. 602-3). It was increasingly argued that although investment may be less responsive to changes in the rate of interest than is assumed by the ‘classical’ theory, it is more so than some Keynesians previously held (see White, 1956, p. 113). In the end, recognition of a considerable interest-elasticity of investment became the cornerstone of the new consensus view among American economists — aptly described in the fifth edition of Paul Samuelson’s textbook as ‘a grand neoclassical synthesis’ (Samuelson, 1961, p. 403).

According to neoclassical theory — accepted by the ‘Classics,’ Keynes and the neoclassical synthesis alike — the interest-elasticity of the demand for investment, or for capital as a flow, reflects the interest-elasticity of the demand for capital as a stock, investment being the means

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<sup>11</sup> See Keynes (1936), p. 223, where reference is made to a rate of interest ‘which is consistent with full employment.’

by which the gap between the desired and the existing ‘quantity of capital’ is bridged. In the long run the relentless action of the systematic forces tending to cause the demand for capital to rise as the rate of interest falls — the substitutability in production between capital and labour and the substitutability in consumption between goods produced with different proportions of capital to labour — will easily outweigh, it is maintained, the capricious and ephemeral influences which make the marginal efficiency of capital ‘fickle and unstable’ (Keynes, 1936, p. 204; quoted more fully in section 2 above).

However, it has been shown by Sraffa (1960) that the substitutability between capital and labour — and, by implication, the substitutability between consumer goods produced with different proportions of capital to labour — cannot be reckoned to work systematically in the direction assumed by the neoclassical theory. Once this is recognized, the familiar decreasing relationship between the demand for capital and the rate of interest turns out to be devoid of any theoretical ground (see Garegnani, 1966, 1970 and Samuelson, 1966). And the same is true, as pointed out by Garegnani (1978-79), of the relationship between the demand for *investment* and the rate of interest<sup>12</sup> (Nor can believers in the existence of such a

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<sup>12</sup> For the derivation of the investment function from the demand function for capital as a stock, see Garegnani (1978-79), Part I, section 5. The ‘popular derivation’ of the investment schedule based on an array of alternative investment opportunities, and ‘making no explicit reference to capital intensity,’ is discussed by Ackley (1961, pp. 472-73, note 6). The author shows that the schedule obtained by arraying the investment opportunities from the highest return to the lowest *for any given rate of interest* ‘cannot serve as the basis for any theory of investment,’ namely, for an explanation of what happens *if the rate of interest changes*. The point is further elaborated in Bonifati and Vianello (1998), pp. 115-117. See also Garegnani (1978-1979), part II, p. 78, note.

relationship take much comfort from post-World War II empirical studies on the subject.)<sup>13</sup> The thesis that money-wage flexibility is unable to secure full employment through its effects on the rate of interest — argued by Keynes on dynamic grounds — is thus reasserted on static grounds, and placed on a more comprehensive theoretical basis than the one which Keynes himself was able to provide.

## 6. The ‘Pigou effect’ and the ‘reverse Pigou effect’

Since Patinkin (1948), and its (1951) revised version, the ‘classical’ position was, however, increasingly defended on a new static ground: the ‘Pigou effect,’ the canonical references for which are Haberler (1937)<sup>14</sup> and Pigou (1943). The transmission mechanism implied — the discouragement of saving consequent upon the increase in the real value of the net wealth of the private sector denominated in money<sup>15</sup> — was such as to ensure that

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<sup>13</sup> Surveys of such studies, made at different points in time, suggest that ‘demand factors as represented by the accelerator are more important than relative prices in determining investment’ (Junankar 1972, p. 69), or that ‘on balance, the response of investment to price variables tends to be small and unimportant relative to quantity variables’ (Chirinko, 1993, p. 1906). According to Hasset and Hubbard (1996), empirical work trying to relate investment to the cost of capital has been generally disappointing, in spite of the considerable ingenuity devoted to the task of making empirical results conform with the ‘theoretical high ground;’ recent studies, using micro-data and addressing problems of measurement errors and misspecification of adjustment costs, appear to ‘have reached more promising results,’ though ‘one should be cautious ... in moving from the microeconomic evidence to aggregate predictions’ (p.32).

<sup>14</sup> Patinkin’s reference is to the third (1941) edition of *Prosperity and Depressions*. However, as has been pointed out by Laidler (1999, p. 288, n. 10), the relevant passage can also be found in the first (1937) edition.

<sup>15</sup> Kalecki (1944, p. 132) appears to have been the first to notice that to the extent that money ‘is “backed” by credits to persons and firms... to the gain of money holders there

under money-wage flexibility a full employment equilibrium existed also in the cases of an infinite interest-elasticity of the demand for money and of a zero interest-elasticity of the demand for investment.

In a passage inserted in the 1951 version of Patinkin's paper it is incidentally observed that the 'Pigou effect' may be jeopardized by debtors being 'discouraged by a price decline much more than creditors are encouraged,' and that 'a persistent price decline will cause a wave of bankruptcies,' in most of which 'creditors also lose' — the author's conclusion being that only 'further investigation' will tell us whether a price decline does indeed have a positive net effect on total expenditure (see Patinkin, 1951, p. 263). Similar considerations stand at the basis of Tobin's 'reverse Pigou effect' (Tobin, 1978, p. 15). As against the fashionable assumption that 'agents are all alike' (*ibid.*, p. x), Tobin observes that 'Debtors are debtors because they have high propensities to spend' (Tobin, 1975, p. 197), be it for consumption or investment purposes. It follows, he contends, that the redistribution of real wealth operated by deflation causes the propensity to spend of the community to fall.<sup>16</sup>

The consequences of money-wage flexibility are analysed by Tobin by combining the 'reverse Pigou effect' with the 'Keynes effect'. While the 'Keynes effect' works in the conventional direction, shifting the LM curve

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corresponds an equal loss of the bank debtors.' We leave aside the question, raised by Barro (1974), of whether government bonds should be reckoned as a part of the net wealth of the private sector.

<sup>16</sup> The financial difficulties of both debtors and creditors, too, are referred to by Tobin as a channel through which deflation exerts a negative influence on aggregate demand (see Tobin, 1978, pp. 10-11). This aspect is further elaborated in Caskey and Fazzari (1987).

to the right, the ‘reverse Pigou effect’ shifts the IS curve *to the left*. Whether aggregate demand and production rise or fall, will depend on the relative strength of the two effects — the traditional curvature of the LM ensuring, however, that the ‘Keynes effect’ becomes weaker and weaker as the price level and the rate of interest fall, to vanish altogether as soon as the ‘liquidity trap’ prevails. The resulting AD curve, as drawn by Tobin (see *ibid.*, p. 17), is upward-sloping at price levels corresponding to low interest rates, though at higher price levels and interest rates it assumes its traditional downward-sloping shape. If, however, as held long ago by Tobin himself (and many others) on empirical grounds and later argued by Garegnani on theoretical grounds, no decreasing relationship can be established between investment and the rate of interest (see section 5 above), then the ‘reverse Pigou effect’ has no need to outweigh the ‘Keynes effect’ in order to cause aggregate demand to fall, this implying that the AD curve is upward-sloping at all price levels.

According to Tobin (1978, pp. 11-12), the ‘reverse Pigou effect’ operates under the ‘short run’ assumption that debts contracted when money wages and prices were higher are still in existence. If, instead, the ‘long run’ assumption is made that that no existing debt was contracted when prices were higher, then the ‘Pigou effect’ will reign undisturbed, ensuring that (the net wealth of the private sector denominated in money being taken as given) employment is the higher, the lower money wages and prices.

## **7. Static analysis and the real-world economy**



A dynamic theory is, in Haberler's words, 'a theory that explains how a situation grows out of the foregoing' (Haberler, 1958, p. 250).<sup>17</sup> As far as the problem of money-wage flexibility is concerned, a more specific reference is Tobin's distinction between the (static) 'price level effect' and the (dynamic) 'price change effect' (Tobin, 1975, p. 197). What Keynes claims is, in Tobin's words, that '*declining* money wage rates are unfavourable to aggregate demand' (ibid., p. 195). What Modigliani (1944)<sup>18</sup> and Patinkin (1948) claim (and Tobin concedes, if only as far as the 'long run' is concerned) is, instead, that *lower* money wages entail a higher aggregate demand.

As we have seen in section 4 above, Modigliani endeavours to shorten the distance between static and dynamic analysis by assuming the 'elasticity of expectation' to be always unity. Patinkin's position is different. He acknowledges that 'The end result of letting the Pigou effect work itself out may be a disastrous deflationary spiral, continuing for several years without ever reaching any equilibrium position' (Patinkin, 1948, p. 558). While, however, making this point consistently and as forcefully as possible

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<sup>17</sup> Frequent reference to expectations made by Keynes, Haberler observes, 'has given the impression to many readers that the *General Theory of Employment* is a dynamic theory' (Haberler, 1958, p. 252). What makes a theory truly dynamic is not, however, that 'it runs in terms of expectations' (ibid., p. 252), but that it endeavours to account for 'the formation of expectations' (ibid., p. 253). Although 'Mr. Keynes has, of course, much to say' on this subject, Haberler submits, 'the dynamic aspects do not penetrate the heart of his theory' (ibid., p. 253). Whatever one may think of this reading of the matter as far as 'the skeleton of Mr. Keynes's theory' (ibid., p. 251) is concerned, it surely does not apply to Keynes's treatment of money-wage flexibility.

<sup>18</sup> Though Modigliani (1944) sails most of the time in the wake of Hicks (1937), the latter does not pay attention to the fall in money wages as a way of increasing aggregate demand. This is why we took Modigliani, rather than Hicks, as our main reference.

(see Patinkin, 1976, 1974 and 1987), he describes it as relevant to economic policy rather than to economic theory. Thus, the first part of his 1948 paper (sections 1 to 9) is devoted to illustrating the ‘Pigou effect’ and to stressing its importance in static analysis; in the second part of the paper (sections 10 to 12) it is, instead, contended that ‘dynamic considerations invalidate’ the use of price decline ‘as an immediate policy, regardless of its merits in static analysis’ (Patinkin, 1948, p. 557).<sup>19</sup>

We are thus faced with an analysis which admittedly provides no key to current economic affairs and the policy measures to be adopted. If such an analysis is to be given any meaning at all, we submit, it must be believed to capture certain underlying tendencies of the real-world economy which, although temporarily outweighed by factors working in the opposite direction, are bound to assert themselves over a sufficiently long span of time — say, long enough for repayment and bankruptcies to have cleared the ground from debts contracted when prices were higher (as in Tobin’s ‘long run’), and expectations of further deflation to have been superseded by

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<sup>19</sup> According to Kalecki, the smallness of the wealth capable of serving as a basis for the ‘Pigou effect’ implies that the required fall in money wages and prices ‘would catastrophically increase the real value of debts, and would consequently lead to wholesale bankruptcy and a “confidence crisis.” The “adjustment” would probably never be carried to an end: if the workers persisted in their game of unrestricted competition, the Government would introduce a wage stop under the pressure of employers’ (Kalecki, 1944, p. 132). In static analysis, however, the size of the relevant wealth can in no case prove insufficient to generate full employment. This remains true, Patinkin contends, even if the fall in money wages and prices is accompanied by a larger fall in the money value of such assets as houses and shares. For (as privately pointed out to him by Milton Friedman) no matter how low the value of houses and shares is taken to be ‘the real value of the fixed stock of money,’ and thus of the overall wealth of the private sector, can be made as large as desired by reducing the price level sufficiently’ (Patinkin, 1948, p. 550; see also Friedman, 1948, p. 259, note 17).

more encouraging ones. No solid ground for the above belief can, however, be found.

What Patinkin says of ‘a successful anti-depression policy’ — namely, that ‘it should be able to achieve its objective rapidly’ (Patinkin 1951, p. 272) — is, indeed, true also of the theoretical mechanism to which one assigns the task of securing full employment. For persistent excess capacity will lead to dismantlement or lack of replacement of existing equipment. If in the initial situation the productive capacity installed was sufficient to employ the whole labour force of the country (as assumed by Keynes), this will no more be so (see Garegnani, 1978-1979, Part I, p. 337). The fall in actual and potential employment, it may be added, is liable to have negative effects on the rate of participation, and thus on the amount of the labour force. And the economy will presumably change also in other, less predictable ways.

Somehow or another, the deflationary process will eventually come to an end, just as (if we are allowed to transplant into the present context a celebrated metaphor from the *Tract*) ‘when the storm is long past the ocean is flat again’ (Keynes, 1923, p. 65).<sup>20</sup> But where the boat will have been carried by the wind cannot be known in advance. (If, as Fisher imagines, it has capsized, it will require some effort to refloat it and make it capable of sailing again.)

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<sup>20</sup> As pointed out by Ginzburg (1986, pp. 70-71, note 9), here Keynes is echoing a metaphor employed by J. S. Mill in his *Principles*.

## REFERENCES

Barro, R. (1974): 'Are Government Bonds Net Wealth?,' *Journal of Political Economy*, Vol. 82, No. 6, November/December, pp. 1095-1217.

Bellofiore, R., ed. (1986): *Tra teoria economica e grande cultura europea: Piero Sraffa*, Milano, Franco Angeli.

Blanchard, O. (2003): *Macroeconomics*, 3<sup>rd</sup> edition, Upper Saddle River, Prentice-Hall.

Bonifati, G. and Vianello, F. (1998): 'Il saggio dell'interesse come fenomeno monetario e il saggio di rendimento del capitale impiegato nella produzione,' in De Vecchi and Marcuzzo, eds. (1998), pp. 93-118.

Chirinko, R. S. (1993): 'Business Fixed Investment Spending: Modeling Strategies, Empirical Results, and Policy Implications,' *Journal of Economic Literature*, Vol. 31, No. 4, December, pp. 1875-1911.

De Vecchi, N. and Marcuzzo, M. C., eds. (1998): *A cinquant'anni da Keynes: Teorie dell'occupazione, interesse e crescita*, Milano, Unicopli.

Ebersole, J. F. (1938): 'The influence of Interest Rates upon Entrepreneurial Decisions in Business — A Case Study', *Harvard Business Review*, Vol. 17, No.1, Autumn, pp. 35-39.

Fisher, I. (1923): 'The Business Cycle Largely a "Dance of the Dollar",' *Journal of the American Statistical Association*, Vol. 18, No. 144, December, pp. 1024-1028.

Fisher, I. (1925): 'Our Unstable Dollar and the So-Called Business Cycle,' *Journal of the American Statistical Association*, Vol. 20, No. 150, June, pp. 179-202.

Fisher, I. (1932): *Booms and Depressions*, New York: Adelphi.

Fisher, I. (1933): 'The Debt-Deflation Theory of Great Depressions', *Econometrica*, Vol. 1, No. 1, October, pp. 337-357.

Friedman, M. (1948): 'A Monetary and Fiscal Framework for Economic Stability,' *The American Economic Review*, Vol. 38, No. 3, June, pp. 245-264.

Garegnani, P. (1978-79): 'Notes on Consumption, Investment and Effective Demand,' *Cambridge Journal of Economics*, Vol. 2, No. 4, December 1978, pp. 335-353 (Part I) and Vol. 3, No. 1, March 1979, pp. 63-82 (Part II).

Ginzburg, A. (1986) 'Sraffa e Keynes su inflazione e deflazione,' in Bellofiore, ed. (1986)

Haberler, G. von (1937): *Prosperity and Depression. A Theoretical Analysis of Cyclical Movements*, Geneva, League of Nations.

Haberler, G. von (1958): *Prosperity and Depression. A Theoretical Analysis of Cyclical Movements*, New Revised and Enlarged Edition, Cambridge, Massachusetts, Harvard University Press.

Harris, S. E., ed. ([1947] 1960): *The New Economics. Keynes' Influence on Theory and Public Policy*, London: Dennis Dobson Ltd, fourth impression.

Hassett, K. A. and Hubbard, R.G. (1996): 'Tax Policy and Investment', *NBER Working Paper 5683*, (July).

Hicks, J. R. (1937): 'Mr. Keynes and the "Classics"; a Suggested Interpretation', *Econometrica*, Vol.5, No. 2, April, pp. 147-159.

Hicks, J. R. (1939): *Value and Capital. An Inquiry into Some Fundamental Principles of Economic Theory*, Oxford, at the Clarendon Press.

Hicks, J. R. (1957): 'A Rehabilitation of "Classical" Economics,' *The Economic Journal*, Vol. 67, No. 266, March, pp. 278-89.

Junankar, P.N. (1972): *Investment: Theories and Evidence*, Macmillan, London

Kalecki, M. (1944): 'Professor Pigou on the "Classical Stationary State." A Comment,' *The Economic Journal*, Vol. 54, No. 213, April, pp. 131-132.

Keynes, J. M. (1923): 'A Tract in Monetary Reform', *Collected Writings*, vol. IV.

Keynes, J. M: (1925a): 'The Economic Consequences of Mr. Churchill', *Collected Writings*, vol. IX, pp. 207-230.

Keynes, J. M. (1931): 'The Consequences to the Banks of the Collapse of Monetary Values', *Collected Writings*, vol. IX, p. 150-163.

Keynes J. M. (1932): 'The Distinction between a Co-operative Economy and an Entrepreneur Economy,' *Collected Writings*, vol. XXIX, pp. 76-87.

Keynes J. M. (1936): 'The General Theory of Employment, Interest and Money' *Collected Writings*, vol. VII.

Klein, L. R. (1947): *The Keynesian Revolution*, London etc., Macmillan.

Krugman, P. R. (1998): 'It's Baaack!: Japan's Slump and the Return of the Liquidity Trap,' *Brookings Papers on Economic Activity*, No. 2.

Laidler, D. (1999): *Fabricating the Keynesian Revolution. Studies in the Inter-War Literature on Money, the Cycle and Unemployment*, Cambridge, CUP.

Lange, O. (1944): *Price Flexibility and Employment*, The Principia Press, Bloomington, Indiana.

Leijonhufvud, A. (1968), *On Keynesian Economics and the Economics of Keynes*, New York etc., Oxford University Press.

Modigliani, F. (1944): 'Liquidity Preference and the Theory of Interest and Money,' *Econometrica*, Vol. 12, No. 1, January, pp. 45-88.

Modigliani, F. (1963): 'The Monetary Mechanism in Its Interaction with Real Phenomena,' *Review of Economics and Statistics*, Vol. 45, No. 1, February, Part 2, Supplement, pp. 79-107.

Musgrave, R.A. (1948): 'Credit Controls, Interest Rates and Management of Public Debt', in *Income, Employment and Public Policy. Essays in Honor of Alvin H. Hansen*, New York, Norton & Co.

Patinkin, D. (1948): 'Price Flexibility and Full Employment', *The American Economic Review*, Vol. 38, No. 4, September, pp. 543-564.

Patinkin, D. (1951): 'Price Flexibility and Full Employment', revised edition, in AEA, *Readings in Monetary Theory*, London, Allen and Unwin, 1951, pp. 252-283.

Patinkin, D. ([1956] 1965): *Money, Interest and Prices. An Integration of Monetary and Value Theory*, second edition, New York, Harper and Row.

Patinkin, D. (1974): 'The Role of the "Liquidity Trap" in Keynesian Economics,' in *Banca Nazionale del Lavoro Quarterly Review*, No. 108, pp. 3-11.

Patinkin, D. (1976): 'Keynes's Monetary Thought: A Study in its Development,' *History of Political Economy*, Vol. 8, No. 1, Spring, pp. 1-150.

Patinkin, D. (1987): 'Real Balances', in J. Eatwell, M. Milgate and P. Newman, eds., *The New Palgrave: A Dictionary of Economics*, London, Macmillan.

Pigou, A. C. (1943): 'The Classical Stationary State,' *The Economic Journal*, Vol. 53, No. 212, December, pp. 343-351.

Robertson (1936): 'Some Notes on Mr. Keynes' General Theory of Employment,' *The Quarterly Journal of Economics*, Vol. 51, No. 1, November, pp. 168-191.

Robertson (1940): 'Mr. Keynes and the rate of interest,' in *Essays in Monetary Theory*, London, P. S. King & Son, pp. 1-38.

Samuelson (1961): *Economics*[. *An Introductory Analysis*], fifth edition, McGraw-Hill

Samuelson, P. A. (1963): 'A Brief Survey of Post-Keynesian Developments,' in *The Collected Scientific Papers of Paul A. Samuelson*, vol. II, The M.I.T. Press, Cambridge (Mass.), 1966, pp. 1534-1550.

Samuelson (1966): 'A Summing Up,' *The Quarterly Journal of Economics*, Vol. 80, No. 4, November, pp. 568-583.

Samuelson, P. A. and Nordhaus, W. D. (1985): *Economics*, twelfth edition, New York, McGraw Hill.

Shackle, G. L. S. (1946): 'Interest Rates and the Pace of Investment,' *The Economic Journal*, Vol. 56, No. 221, March, pp. 1-17.

Schlesinger, J.R. (1960): 'Monetary Policy and Its Critics', *Journal of Political Economy*, vol. 58, No. 6, December, pp. 601-616.

Sraffa (1960): *Production of Commodities by Means of Commodities. Prelude to a Critique of Economic Theory*, Cambridge, CUP:

Tobin, J. (1947): 'Money Wage Rates and Unemployment', in Harris (1947), pp. 572-587.

Tobin, J. (1975): 'Keynesian Models of Recession and Depression,' *The American Economic Review*, Vol. 65, No. 2, May, pp. 195-202.

Tobin, J. (1978): 'Real Balance Effects Reconsidered', in *Asset Accumulation and Economic Activity*, Oxford, Basil Blackwell, 1980.

Tobin, J. (1985): 'Neoclassical Theory in America', *American Economic Review*, Vol. 75, No. 6, December, pp. 28-38.



Tobin, J. (1987): 'Fisher, Irving,' in J. Eatwell, M. Milgate and P. Newman (eds.), *The New Palgrave: A Dictionary of Economics*, London, Macmillan, pp. 369-76.

White, W. H. (1956): 'Interest Inelasticity of Investment Demand — The Case from Business Attitude Surveys,' *The American Economic Review*, Vol. 46, No. 4, September, pp. 565-587.

Wilson, T. and Andrews, P. W. S., eds. (1951): *Oxford Studies in the Price Mechanism*, Oxford, Oxford University Press.

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