Keynes, the Classics, and Pigou: A time preference theoretic view on Keynes and the Young Keynesians

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## Contents:

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Introduction</td>
<td>1</td>
</tr>
<tr>
<td>2. The quest for 'fair representation' of the Classics</td>
<td></td>
</tr>
<tr>
<td>1. The Classics in Hicksian interpretation</td>
<td>2</td>
</tr>
<tr>
<td>2. The alleged &quot;unfairness&quot; of Keynes' treatment of the Classics</td>
<td>3</td>
</tr>
<tr>
<td>3. Pigou as representative of the Classics</td>
<td>4</td>
</tr>
<tr>
<td>3. The time preference theory as common ground between Keynes and the Classics</td>
<td></td>
</tr>
<tr>
<td>1. Time preference analysis in Keynes' writings</td>
<td>6</td>
</tr>
<tr>
<td>2. The Keynesian consumption function as application of time preference analysis</td>
<td>7</td>
</tr>
<tr>
<td>3. The classical concept of equilibrium and the time preference theory of interest</td>
<td>8</td>
</tr>
<tr>
<td>4. Keynes' modus vivendi with classical time preference analysis and the Pigouvian challenge</td>
<td>10</td>
</tr>
<tr>
<td>5. Differential savings rates and the classical time preference theory of interest</td>
<td>11</td>
</tr>
<tr>
<td>4. The Pigouvian theory of money wages and interest</td>
<td></td>
</tr>
<tr>
<td>1. Variants of Pigouvian employment theory</td>
<td>16</td>
</tr>
<tr>
<td>2. The microfoundation of the 'simplified model'</td>
<td>18</td>
</tr>
<tr>
<td>3. The Pigouvian 'simplified model' in graphical representation</td>
<td>20</td>
</tr>
<tr>
<td>4. The Pigouvian model in the young Keynesian's debate</td>
<td>21</td>
</tr>
<tr>
<td>5. The Kaldorian synthesis</td>
<td></td>
</tr>
<tr>
<td>1. Kaldor's restatement of the Pigouvian case for money wage policy</td>
<td>24</td>
</tr>
<tr>
<td>2. Keynes and the Classics in the Kaldorian synthesis</td>
<td>25</td>
</tr>
<tr>
<td>3. The reception of Kaldor's analysis by Keynes and Pigou</td>
<td>28</td>
</tr>
<tr>
<td>6. The aftermath of the debate</td>
<td></td>
</tr>
<tr>
<td>References</td>
<td>34</td>
</tr>
</tbody>
</table>
1. Introduction

The question concerning the 'differentia specifica' between Keynes and his Classics is by now nearly half a century old, but it is still unresolved. The now common textbook story of the matter was given by Hicks (1937). He repeatedly claimed that his version of the matter was accepted by Keynes (See Hicks(1974;p.6) and Hicks(1973;p.10)).

Keynes did indeed state that he had "next to nothing to say by way of criticism" against Hicks' interpretation but hastened to continue in that context: "From one point of view you are perhaps scarcely fair to the classical view" (Keynes Collected Works -JMK henceforth- vol.XIV,p.79).

According to Keynes' own opinion Hicks(1937) clearly gave a misrepresentation of the Classics. Whether this was really just a trifle of a matter as Hicks seemed to believe can only be judged when an alternative, Keynes oriented, version of the classical view had been formulated.

Although Leijonhufvud(1968) and Malinvaud(1977) later tried to interpret the 'Keynes and the Classics' issue in novel terms, they both are quite outspoken that their respective versions have really very little to do with the views expressed by Keynes himself.  

In an earlier paper the author (Ambrosi(1984) ) had attempted to relate Keynes' authentic critique of the Classics to Pigou's Theory of Unemployment.

It will be seen below that such an approach might appear as unfair to Pigou's scope of economic analysis, however. In the present paper we will now turn to quite a different piece of analysis of Pigou's which appeared only after the General Theory (-GT henceforth-) had made its first impact and which was designed to deal with what Pigou considered as some unorthodox 'recent arguments' from the Keynesian quarters concerning the efficacy of money wage policy.

1) For a more detailed considerations of these interpretations in relation to Keynes' own views see the introduction in Ambrosi(1984)
With this article on money wages Pigou (1937) inspired a lively debate between Keynes and his disciples which is well documented (JMK,XIV,pp.234-268). The result were comments on Pigou by Keynes (1937) and by Kaldor (1937). These writings have been rarely considered in the Keynes-Classics debate of the last decades, although they document a restatement of central points of disagreement between the main protagonists of the Keynesian and the Classical school.

It will be argued below that from this discussion there emerges a view of Keynes and the Classics which is considerably different from the one suggested by Hicks (1937).
2. The quest for a 'fair representation' of the classics

1. The classics in Hicksian interpretation

Apart from being considered by Keynes as unfair to the true beliefs of the classics, the classical case in Hicks (1937) is a strange state of affairs indeed. Supposedly, full employment reigns in it. But if there is monetary expansion, Hicks' classical stretch of the money-market locus (LM-curve nowadays) goes to the right (in Hicks (1937), Fig. 10), cutting a falling IS-curve at a lower rate of interest and at a higher social income. If employment was indeed full, so that the elasticity of real output was very small, there cannot have been a considerable real expansion and prices must have risen accordingly.¹) In comparative static analysis the real rate of interest must also have fallen, it being the difference between the (decreased) money rate of interest and the rate of price change. Did

¹) The modern New Classical economists, referring to a Lucas supply function which associates unexpected price increases with real output expansion would not agree that full employment necessarily suggests a negligible elasticity of output. So they seem to be very close to Hick's classical case. But the question at hand deals with the details of the classical case in connection with the General Theory and not with the origins of the paradigm of the New Classical economics. This, however, would be an interesting topic in itself.
Keynes' classics really want to argue that monetary expansion had such important results for both, money and real rates of interest? According to Corry (1978; p. 20) the answer can only be negative:

"There can be no doubt that a central proposition of classical thought was that in full equilibrium changes in the quantity of money had no effect on the rate of interest."

But the question at hand concerns not Corry's historical classics like Hume, Smith, Ricardo and J.S. Mill. It concerns classics in the sense relevant for the doctrines of the General Theory and Keynes himself has been charged as being "grossly unfair" to the classical view. So the contradictions between Keynes and the historical Classics could originate from a misrepresentation of Keynes' own making.

2.2. The alleged "unfairness" of Keynes' treatment of the classics

There is one school of interpreters of Keynes who see in his classics the traits of convenient "straw-men" for Keynes' polemical fireworks (Leijonhufvud (1968, p. 32)). This makes it highly speculative to distill a consistent classical position from his writings, the reason being "simply that no single economist ever held all the ideas Keynes attributed to the "classics"... " (Blaug (1968, p. 662)). Thus Keynes appears himself to have been unfair to the classics in attributing to them a number of doctrines which none of them ever stated that way. But the opposite charge may also be found among historians of economic thought:

"... the classical model presented and rejected in Keynes' General Theory is entirely that of the first three sections of Pigou's Theory of Unemployment." (Corry(1978; p. 8))

It is then claimed that "Keynes' treatment of Pigou in the General Theory was grossly unfair." (op. cit. p. 11), because he neglected a number of further writings of Pigou, in particular those parts of Pigou's works where monetary matters are dealt with in greater detail. Answering to this charge it must
be said that Keynes (GT, appendix to ch.14) did in fact mention interest theoretic passages in Pigou's Industrial Fluctuations and his Economics of Welfare several times, quoting in extenso those passages which he thought to be of relevance for a theory of money interest rates and commenting on them. Keynes' conclusion was, however, that the "argument seems to stop just where it should begin." (GT,p.189 n.2) Even Pigou (1937) himself seems not to have believed that he had expressed his interest theoretic views sufficiently clearly before. At any rate he returned to them in the above mentioned discussion of real money wage rates in relation to unemployment. Keynes (1937) did reply directly to this classical restatement and welcomed the new Pigouvian construction because "it enables the root of the differences between us to be clearly exposed." (JMK, XIV,p.264).

It seems therefore that Keynes was not quite so unfair to Pigou's economic theory as Corry (1970) suggests. Keynes believed that there was really not much consistent content in Pigou's theory of employment other than he discussed critically in the appendix to ch. 19. When Pigou (1937) did state his views on money wages and money interest, it must be noted that Keynes did not avoid a debate of this theory with Pigou. An evaluation of the extent of Keynes' supposed unfairness to Pigou should take at least some note of this discussion which seems to have been generally overlooked in the Keynes-Classics debate.

2.3. Pigou as representative of the classics

In concentrating on Pigou, Keynes may be immune against the charge of just attacking "convenient straw-men." But if there is anything like a school of which could be called 'Classics', was it fair to take Pigou as crown witness for their beliefs? Against such a question it must be said that Pigou's (1933) treatise on unemployment was 'the only detailed account of the classical theory of employment which exists". (GT,p.7). Pigou certainly can be taken as an outstanding exponent of the English School, being the successor of Alfred Marshall on the chair of economics in
Cambridge. Although his analysis might appear as antiquated in many respects after more than fifty years, it certainly would be extremely anachronistic now adays to refuse to consider his teachings in an investigation of the Keynes-Classics debate. In fact, his model in the Theory of Unemployment may be seen as an outgrowth of Marshall's professed attempt to model the workings of the economy as a whole - this at least was the perspective under which Keynes himself interpreted Pigou. 1) But not only if seen in retrospect does Pigou appear as an important representative of an important school of economics. His concept of zero-savings equilibrium became extremely important for the post Keynesian discussion. It was recently argued by Jan Kregel (1983) that Joan Robinson's (1937) extension of Keynes' analysis to such an economic situation, characterized by her as "long-period equilibrium", shaped the capital theoretic discussion of the following fifty years.

Pigou's (1937) attempt to defend his views on wages and interest against those of the Keynesian school, the reception of this model by Keynes and the debates which were conducted among his disciples in this connection thus mark an important end and turning point in the development of economic theory which merits a detailed investigation.

1) For a more detailed treatment of this complex of questions see Ambrosi (1984)
3. The time preference theory as common ground between Keynes and the Classics

1. Time preference analysis in Keynes' writings

The view is widely accepted that

"Keynes' General Theory of Employment is an application to output as a whole of the analysis developed by Marshall of the short-period equilibrium of a particular industry" (Joan Robinson (1979; p.3))

This meant that there was "an important point of agreement" with the classical theory (GT, p.17): Keynes accepted the marginal productivity theory of wages as expressed by the first classical postulate in the General Theory "subject only to the same qualifications as in the classical theory" (ibid.). But Keynes accepted classical analysis not only in the context of short-period production. He also repeatedly referred important aspects of his theory to the classical concept of "time preference". His difference with the classics in this regard was not that time preference was irrelevant, but that it was even more so than the Classics realized:

"The psychological time-preferences of an individual require two distinct sets of decisions to carry them out completely. The first is concerned with that aspect of time-preference which I have called the propensity to consume ..."

After stating that the second set of decisions concerns the composition of wealth as expressed by liquidity preference Keynes (GT, p.166) continued:

"We shall find that the mistake in the accepted theories of the rate of interest lies in their attempting to derive the rate of interest from the first of these constituents of psychological time-preference to the neglect of the second; and it is this neglect which we must endeavour to repair."

Thus, Keynes clearly wanted to repair the neglect of classical time-preference analysis, not its positive substance as developed up to his time. There is no indication whatsoever that Keynes had any quarrel with, e.g., Irving Fisher's (1930) Theory of Interest as an elaborate version of the first of the above mentioned set of problems.
In fact Keynes himself, in a draft for the General Theory, stated that he considered the conventional concept of time preference as "fairly clear":

"For a single individual the notion of time preference is fairly clear. Given all the relevant attendant circumstances which are fixed for me by the actions of others including my income, actual and prospective, and the prices, actual and prospective, of debts, assets and consumables, it is my state of time preference which determines what part of my income I spend on consumables and what part of it I reserve." (JMK, XIII, p. 400)

There seems therefore to be little reason for doubt that Keynes personally was quite prepared to relate his theory of the consumption function to classical concepts of time preference. 1) In fact we know from Ramsey (1928; p. 545, p. 547) that Keynes gave many suggestions for a mathematical theory of savings which was based on the idea of intertemporal allocation of consumption.

2. The Keynesian consumption function as application of time preference analysis

If we follow the suggestion of the last section to relate Keynes' consumption function to classical time preference analysis, the starting point should be the equimarginal rule according to which, in a two period model, the equality

\[
\frac{U_Q}{p} = \frac{U_Q^f}{p^f/(1+r)}
\]

must hold, i.e. the marginal utility (\(U_Q\)) from present consumption of good \(Q\), per marginal expenditure (i.e. price \(p\)) must be the same as the marginal utility from future consumption (\(U_Q^f\)) of good \(Q^f\) per present value of the corresponding marginal expenditure (\(p^f/(1+r)\)). Rearranging will then show that in such a two period model the pattern of consumption will be given by:

\[
\frac{Q \frac{U_Q}{U}}{Q^f \frac{U_Q^f}{U}} = \frac{\alpha}{\beta} = \frac{pQ}{p^f Q^f/(1+r)} = \frac{c^f}{c}(1+\theta)
\]

where \(\alpha\) = elasticity of utility from present consumption, \(\beta\) = elasticity of

1) The author is very grateful to Prof. Jarchow of the University of Göttingen for a stimulating discussion in private correspondence concerning this question.
utility from future consumption. With given present income $Y$ and future income $Y^f$ a consumption function might be derived from this construction.

In a more general case with a multitude of future periods but a uniform rate of interest $r$ the Keynesian consumption function in terms of wage units could then be derived along these lines as reading

\[
C_w = \frac{S}{4+S} \sum_{f=1}^{N} \frac{Y_w^f}{(1+r)^f} (1+a_w^f)^f + \frac{S}{1+S} Y^f_w
\]

where

$C_w$ = present consumption in terms of wage units

$S$ = ratio of the present elasticity of consumption to the sum of future such elasticities

$f$ = index of future time periods $f=1,2,\ldots,n$

$Y_w^f$ = income in terms of wage units in the $f$-th future time period

$a_w^f$ = rate of appreciation of money wages

Such a construction complies with the standard Keynesian consumption function $C_w=c_a + cY_w$ where $c_a$ is "autonomous" consumption and $c$ is the marginal propensity to consume. It generates almost all of the important results concerning consumption functions stressed by Keynes.

3. The classical concept of equilibrium and the time preference theory of interest

None of Keynes' contemporaries presented the time preference analysis in such a way as to derive anything comparable to Keynes' consumption function.

Irving Fisher (1930; p. 286) went just a small but important step in Keynes' later direction in stating that savings out of given income may be positively as well as negatively related to changes in the rate of interest. Keynes' assumption that the sign value of the interest elasticity of the marginal propensity to consume was difficult to assess was thus well within

1) See Ambrosi (1979). The textbook discussion of the Keynesian consumption function in Crouch (1972; pp. 53ff) is unfortunately misleading because it is based on the static income expectation - $Y=Y^f$ in terms of our symbols. See below p. 31, note 1 for an important classical implication of this assumption.

2) Keynes himself (GT, p. 182) gave G. Cassel (1903) as locus classicus or this insight.
the established Fisherian time preference analysis although the classical school made no significant use of Fisher's insight.

If both, Keynes and the Classics, had basically the same theory of time preference, then it seems difficult to explain why the classics themselves did not come up with the Keynesian theory of consumption. The most plausible explanation seems to be a difference in analytical perspective as expressed by the equilibrium concept implied by the different schools. If the classical concept of equilibrium is applied to the Keynesian consumption function, then even Keynes' analytical setup should be able to produce classical results if both systems are indeed built on the same foundations.

An important analytical step in classical analysis was to assume long-period equilibrium in the sense of

\[ Y_w = Y^1_w = \ldots = Y^n_w \]

with \( n \to \infty \) and \( a_n = 0 \) and to assume a stationary state with

\[ I_w = S_w = Y_w - C_w = 0 \]

where \( I_w = \text{investment in wage units and } S_w = \text{savings in the same units.} \]

The considerations of the last paragraph suggest then that applying these classical equilibrium conditions to time preference analysis, even if in the guise of the Keynesian consumption function, should lead to the irrelevance of the latter. This can easily indeed be shown to be the case by introducing the long-period condition (2) into the consumption function (1) and to postulate the stationary state (3). It will then be seen that in this case

\[ Y_w = C_w = \frac{G}{1 + g} \left( \frac{Y_w}{r} + \frac{g}{1 + g} Y_w \right) \]

must hold. Dividing by \( Y_w \) and rearranging will then lead to

\[ r = g \]

i.e. to the result that the rate of interest is equal to the rate of time preference in the sense of a ratio of present to (the sum of) future
elasticities of utility. The higher the "impatience" in the sense of the relative elasticity of utility of present consumption, the higher must be the rate of interest. Thus, if Keynes permitted the application of classical equilibrium concepts, his own theory of consumption would lead to the time preference theory of interest.

4. Keynes' modus vivendi with classical time preference analysis and the Pigouvian challenge

Keynes must have been well aware of cases of the formal validity of a time preference theory of interest because such a case was clearly stated in Ramsey's (1928) above mentioned article which, with its repeated reference to Keynes' assistance, must have been written in the course of an intensive exchange of ideas. This observation should be seen in relation with Keynes' later remark to Harrod (JMK, XIV, p. 85) that only after the publication of his Treatise on Money, i.e. in the early 1930s, did he develop his particular brand of consumption theory, continuing:

"Then, appreciately later, came the notion of interest as being the meaning of liquidity preference,..." (emphasis added, GMA)

This late appearance of the liquidity preference theory of interest in the system of the General Theory suggests the question whether Keynes then just cut his earlier time preference theoretic roots, because there certainly is a potential conflict. If interest reflects liquidity preference and not time preference, how could the two be reconciled?

Keynes' offer of a modus vivendi of his new liquidity preference theory with the established time preference theory was the postulate that the latter does not determine a particular equilibrium rate of interest but a locus of investment and savings equilibria in the interest-and-income plane (GT, p. 178f). This modus vivendi was not accepted by Pigou (1937) who, at that stage of the debate with Keynes at least, insisted on the old idea of time preference determining the rate of interest - irrespective of the amount of real income.
In defending his idea that time preference was unable to determine the rate of interest, Keynes could have reconsidered Ramsey's (1928) analysis which established two conditions for a time preference determined rate of interest, namely (i) a state of zero-savings equilibrium and (ii) the assumption "that everyone discounts future utility ... at the same rate" (op.cit.p.556). Ramsey continues to show that if any of these conditions is not met, the simple time preference theory of interest cannot be maintained. It is now interesting to note that Keynes (1937;p.264) in his note on Pigou (1937) gave considerable space to explicating assumption (ii):

"Professor Pigou implicitly assumes that ... the rate of interest which will ensure zero savings is, according to him, independent of the level of real income... - a man's time preference is a psychological propensity which is irrespective of whether he is rich or poor ...".

This restatement clearly appears as a criticism of Pigou's classical position although Keynes does not enlarge upon his opposition to such an assumption, supposedly taking its lack of realism as self-explanatory.

The assumption of differential rates of time-preference and hence of differential marginal propensities to consume could then seem to be an essential element of Keynesian analysis - quite apart from the classical equilibrium assumptions.

5. Differential savings rates and the classical time preference theory of interest

The young Keynesians, in particular Roy Harrod and Joan Robinson, displayed repeatedly a keen interest in conditions of 'long-period equilibrium' and extended Keynes' analysis into an analytical vicinity of classical equilibrium concepts. 1) It is unclear whether they were aware that this could

1) Compare Jan Kregel's (1985) recent reconsideration of the Cambridge macroeconomics of the 1930ies, in which he notes: 'Most economists, including Keynes' younger colleagues, pursued elaboration of long-period analysis and Kahn, Robinson, Kaldor, Harrod, among others, built on the aggregate version of Marshall's short-period to tackle the long-period problems of capital accumulation and distribution." (p.137)
possibly lead to entering the analytical realms of the validity of the
time-preference theory of interest. Keynes' above mentioned allusion to
differential marginal propensities to consume seemed to suggest that
there were plausible assumptions available which guaranteed that the
Keynesian idea of an income dependent consumption function could be trans-
posed into long-period analysis.

In the following we will briefly analyse some of the implications of
class differences in time preferences. We will refrain from an extended
review of the ideas which the young Keynesians had in this regard. It may
be noted in this context, however, that Joan Robinson, when looking back
at the development of her analytical outlook, stressed the importance of
'Kalecki saving' for her 'generalization' of the General Theory. 1) Accord-
ing to the doctrine of Kalecki saving the marginal propensity to consume
of workers is always unity so that Keynes' consumption theoretic consider-
ations could apply only to capitalists. Also Kaldor's (1955/6) construction
of a Keynesian theory of distribution rested on the assumption of differen-
ces in savings rates of workers and capitalists. Here again the assumption
of Kalecki saving played an important role because Kaldor (1955/6: p. 230)
demonstrated that in this case the Kaleckian theory of profits coincides
with Keynes' old parable about profits being like the biblical widow's
crusade, since they increase with entrepreneurial spending. Thus the assumption
of differential savings rates and in particular the doctrine of Kalecki
saving certainly did play an important role in the Keynesian school and
merits a closer inspection in its relation to the time preference theory
of interest.

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1) See Joan Robinson (1975; p. 32f). Jan Kregel (1983) has shown that her
interest in long-period analysis needed not to be kindeled by Harrod but
extended very far back in her discussions with Keynes. For her acceptance
of the "concept of zero saving" in this context see e.g. Joan Robinson
(1937; p. 101),
If we again assume a long-period equilibrium situation as described above in connection with equ.(2) and if we introduce the postulated differences in time preferences as pertaining to capitalists (index k) and to workers (index 1), then these classes have the long-period incomes of profits in terms of wage units \((\frac{T}{T_w})\) and wages in terms of wage units, the latter being simply employment \((N)\). With \(n \rightarrow 0\) and \(a_w = 0\) the respective class consumption functions read

\[
(5) \quad C_w^k = \frac{s'}{1+\frac{s'}{r}} \frac{T}{T_w} + \frac{s''}{1+\frac{s''}{r}} \frac{T}{T_w} = \frac{s'}{1+\frac{s'}{r}} \left( \frac{1+r}{r} \right) \frac{T}{T_w}
\]

and

\[
(6) \quad C_w^1 = \frac{s}{1+\frac{s}{r}} \frac{N}{r} + \frac{s'}{1+\frac{s'}{r}} \frac{N}{r} = \frac{s}{1+\frac{s}{r}} \left( \frac{1+r}{r} \right) N
\]

where \(s'\) = rate of time preference of capitalists

\(s\) = rate of time preference of workers.

We want to leave the zero-savings condition of classical analysis unquestioned obtaining

\[
(7) \quad Y_w = N + \frac{T}{T_w} = C_w = C_w^k + C_w^1
\]

Substituting (5) and (6) into these equations and rearranging gives then the classical time preference equilibrium in the long run as

\[
(8) \ a) \quad N \frac{r-g}{(1+\frac{r}{s'})} = \frac{s-g}{(1+\frac{s'}{r})} \frac{T}{T_w} \quad \text{with} \quad b) \quad \frac{dr}{dN} \bigg|_{T_w=\text{const.}} < 0 \quad \text{when} \quad r < s
\]

and

\[
(8) \ c) \quad \frac{d\frac{T}{T_w}}{ds'} \bigg|_{N=\text{const.}} > 0 \quad \text{when} \quad r > s'
\]

The first of these expressions demonstrates that with differential rates of time preference in the sense of \(s' \neq s' \neq r\), even the classical concept of long-period equilibrium cannot ensure the validity of a simple time preference theory of interest.

The second expression (8b) shows that holding profits constant will, in this case, lead to a falling relation between interest and employment, i.e., between interest and real income. Thus a locus very similar in appearance
to the well-known IS-curve seems to be generated.
Finally, expression (8c) shows that it can pay capitalists to raise their "impatience" determining their marginal propensity to consume since a case is depicted where profits rise with capitalists' consumption. We have thus arrived at a classical counterpart to Kaldor's (1955/6) full employment theory of widow's cruse profits.
The introduction suggested in the preceding section, of differential time preferences in an otherwise conventionally classical framework may thus indeed lead to a number of analytical relations reminiscent of the ones which were developed in the Keynesian school. There is, of course, the somewhat limiting condition that $g > r > g'$ must hold, meaning that workers are required to be comparatively strongly inclined to 'impatience'. But such an assumption, taken by itself, does not seem to be unreasonable.
What should caution the reader more not to infer far-reaching conclusions concerning Keynes' analytical intentions from these little exercises is the fact that they were conducted under the condition of long-period equilibrium in the sense that all the present economic variables can be treated as a reliable proxy for future ones, or that the present is identical with the future. Is it imaginable that there is then room for an additional liquidity preference theory of interest? Why should individuals be prepared to sacrifice interest income in order to gain liquidity in such a world? The intuitive answer to such questions is negative and the expectation suggests itself that, in the course of their intensive research in problems of long-period equilibrium, Keynes' followers should have clarified such matters. In fact, they have not done so, as Kregel (1985) recently pointed out.
There is another curiosity to be noted in this context, relating to the concept of Kalecki savings. Although the assumption of differences in time preference proved suggestive for critical comments on a simple-minded
time preference theory of interest, the Kalecki savings assumption is
totally unhelpful in this regard. This follows immediately from the class-
cial zero savings condition for the economy as a whole. If in a two
class economy one class, namely workers, by assumption is bound to
generate zero savings, then the capitalists as the only other class
cannot save a different amount. But the zero savings condition ensured
the validity of the time preference theory of interest.
We may refer these considerations to our previous algebraic exercises.
Turning to equ.(6) and assuming Kalecki savings means that \( C^l_w = N \) must
always hold. Replacing \( C^l_w \) accordingly and dividing by \( N \) will show, after
minor rearrangement, that Kalecki saving means \( r = \delta \) for workers. For
positive profits equ.(8) will then show that \( r = \delta' \) must also hold. Thus,
in long-period zero savings equilibrium as assumed by Pigou(1937), the
assumption of Kalecki saving is tantamount to assuming the time preference
theory of interest to hold with both classes having identical time
preferences.
It might be argued that Kalecki saving is based on the idea that there
just does not exist a consumption function for workers like equ.(6), that
\( C^l_w = N \) holds as some sort of corner solution which precludes the choice
theoretic considerations leading to such a formulation. This does not alter
the conclusion concerning Kalecki saving considerably, however. In any
case the \( C^l_w = N \) condition will generate via equ.(7) the condition

\[
(9) \quad N + \Pi^*_w = C^*_w = N + C^k_w, \quad \text{i.e.} \quad \Pi^*_w = C^k_w.
\]

Replacing \( C^k_w \) in equ.(5) accordingly will then lead to the result that \( r = \delta' \)
holds, i.e. that in any case it is time preference which determines the
rate of interest, although in the formulation of equ.(9) it is only the
'impatience' of capitalists which determines it.
The relevance of these considerations for an evaluation of the relation which Keynes saw between his theory and the time preference analysis cannot be assessed until we had a closer look at the actual debate which went on in these matters. It is most doubtful that this type of analysis was indeed intended by Keynes when agreeing to relate his theory of consumption to time preference analysis. On the other hand, if the classical zero savings condition of equilibrium is accepted, the conclusion stands that the time preference theory of interest is valid, even if the assumption of Kalecki saving is adopted. It is true that for less extreme variants of the assumption of differential marginal propensities to consume the simplistic notion of time preference determining the rate of interest may indeed be questioned. Nevertheless the classical time preference theory of interest appeared as a fairly robust piece of analysis on which Pigou (1937) was to base his counter-Keynesian model. We will now restate and this model will then return to the views which Keynes and the young Keynesians took about it.
4. The Pigouvian theory of money wages and interest

1. Variants of Pigouvian employment theory

In view of the above mentioned quest for fair representation of the classical it should be emphasized that the Pigouvian model to be considered here represents by no means the full spectrum of classical - or even Pigouvian - employment theory. It concerns a particular 'simplified model' which was devised by Pigou in order to fill a theoretical gap: In earlier writings Pigou postulated a reliable direct (positive) relationship between money wages and real wages\(^1\). Keynes, however, stated 'that the change in

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1) Cf. Pigou (1933; p. 105): "... a given percentage reduction in the money rate of wage implies a percentage reduction \(E_m/E_r\) times as large in the real wage" where the ratio in the quote is estimated by Pigou to be of a magnitude of 5/13.
real wages associated with a change in money-wages ... is almost always in the opposite direction." Even a sympathetic reader of Pigou's *Theory of Unemployment* like Blaug (1968; p. 661) had to admit that the reasoning behind Pigou's beliefs on money wages was difficult to recapitulate "and appears to depend on quasi-dynamic considerations introduced ad hoc in an otherwise static context." The rational which Keynes (GT, ch. 19) then supplied for wage reductions relied on the reduction in interest rates which a money wage cut could bring about. The ensuing increase in effective demand - if it did in fact occur - could then increase employment at reduced real wages. But there were many steps involved in such a mechanism and in Keynes' setup it was easily imagineable that money wage reductions would not lead to an increase in effective demand and therefore would not result in a reduced real wage. It was against such claims to the extent that "a cut in the money rate of wages need not ... entail a cut in the rate of real wages" that Pigou (1937; p. 406) directed his 'simplified model'. Since the "recent arguments" criticized by Pigou (1937) were interest rate oriented he, too, was now compelled to relate employment analytically to wages and interest. In adopting the time preference theory of interest in opposition to Keynes' liquidity preference theory of interest, Pigou's (1937) 'simplified model' brought an important clarification and confirmation concerning a number of passages of the General Theory which had been rather speculative concerning the classical theory of interest. It is mainly with regard to its interest theoretic implications that this rather short contribution of Pigou's is of particular relevance for the Keynes-Classics debate. The fact that Pigou (1938) later partially gave in to Kaldor's (1937) criticism does not diminish the analytical and documentary value of Pigou's earlier presentation of the classical counter-position to Keynesianism. In fact the peculiar way in which Pigou (1938) professed in his rejoinder to accept seemingly Keynesian propositions will reveal the reason why Keynes had continuing misgivings about the IS-LM scheme as general representation of his ideas.
2. The microfoundation of the 'simplified model'

Whereas Pigou (1933) started out by advocating to model the workings of an economy as a whole in a disaggregated way, Pigou (1937) later presented a somewhat different model consisting of just one line of production. It may be developed from the associated profits equation

\[(10) \quad \Pi = pQ - (1+r)wx \quad \text{with} \quad Q = \psi(x)\]

where \(\Pi\) = profits \quad w = wages
\(p = \text{goods price} \quad x = \text{employment}\)
\(Q = \text{quantity of goods} \quad r = \text{rate of interest}\)
\(\psi(x) = \text{production function}\)

The peculiarity of this model is that under perfect competition the value marginal product of labour is not equal to the wage but to a magnitude which - in analogy to Keynes' concept of a wage unit - may be named a "cost unit" \(c\)

\[(11) \quad c = p \psi(x) = (1+r)w\]

Employing this cost unit in national accounting shows then that national product in terms of this cost unit is

\[(12) \quad Y_c = \psi(x)/\psi'(x) = x\]

where Pigou's \(n\)-number of firms is here set equal to unity in order to simplify the presentation.

We may stop here briefly in order to relate equ.(12) to the Keynesian analysis where national income in terms of wage units \((Y_w=pQ/w)\) is related to employment \((N)\) via the aggregate supply function \(Y_w = F(N)\), Keynes' \(N\) being identical in meaning with Pigou's variable \(x\). Since labour's share \(\lambda = N/Y_w\) must lie in the range \(0 < \lambda < 1\) it is clear that Keynes' aggregate supply function can never be a 45° line because this would imply an implausible value of \(\lambda\) equal to unity. If we contrast the Keynesian construction with a corresponding one offering itself in this Pigouvian context,
eq. (12) will show that under perfect competition the latter must always
generate such a 45° line in the output and employment plane. It is
rather ironical that this implication of the Pigouvian 'simplified model'
has been lately presented as the authentic aggregate supply function of
Keynes' General Theory (Patinkin, 1976, p. 88).

In Pigou's simplified model labour's share is given by

\[ (13) \lambda = (1+r)^{-1} \]

as follows from equ. (10) under perfect competition and its implied
zero-\( \pi \) condition. It is of some relevance to remember this because this
magnitude is utilized by Pigou for a partial explanation of the income
velocity of money (V), since he assumes the functional relationship

\[ (14) V = V(r, \lambda^{-1}) \]

to hold, where signs denote the sign values of partial derivatives as
postulated by Pigou (1937, p. 410). Thus the rate of interest enters the
velocity of circulation equation in two opposing ways. Pigou does not
make a statement concerning the net effects of interest changes but a
simple additive formulation of (14) could reduce this function
to a constant, giving

\[ (15) V = V(r - (1+r)) = V(1) = \bar{V} \]

Pigou thus could easily retract his seeming concession to Keynes' theory
of interest elastic money demand contained in the first element of the
V-function - in fact Pigou (1938) later explicitly assumed the constant
value expressed in (15).

Total money supply in Pigou's simplified model is given by

\[ (16) M^S = M(r) , M' > 0 \]

Assuming money market equilibrium will therefore give

\[ (17) M(r) = px /\bar{V} = (1+r)w Y_c /\bar{V} \]

where the right-hand side in (17) shows the classical money demand to be
essentially an income transactions demand.
Finally we note that Pigou (1937; 409) assumes "that in any equilibrium situation \( r \) must be equal to the rate at which the representative member of the public discounts ... future money income."(italics omitted). A possible microfoundation for this assumption, amounting to

\[(18) \quad r = \varphi\]

was given above. It reflects the classical time preference theory of interest of classical zero savings equilibrium, normally characterized as long-period equilibrium because of its constancy assumption. It is an idiosyncracy of Pigou to call it a short-period equilibrium, since capital is constant in this situation and constant capital may be assumed as characteristic of short period analysis.

This terminological muddle not withstanding, an extremely simple model of an economy has thus been presented with equus.(17) and (18) which permits a graphical presentation of Pigou's views on wages and interest in relation to macroeconomic employment.

3. The Pigouvian 'simplified model' in graphical representation

In Fig.1 on the following page the model set out above is represented graphically. Quadrant I represents equ.(18). Quadrant II represents the money supply equ.(16) with an intercept of \( M^0 \) indicative of what we would nowadays call outside money. The positive slope of the money supply function can be taken to reflect the empirical observation noted by Irving Fisher (1930; p.444f) that the reserve ratio of commercial banks moves in opposition to short term interest rates. The fourth quadrant represents the money demand as given by eq .(17) for a given money wage. Money market equilibrium requires the \( 45^\circ \) line of quadrant III. The employment level \( \bar{x} \) is then determined, among others by the money wage \( \bar{w} \). If it were lowered to, say \( w' \), employment could be permanently raised to \( x' > \bar{x} \). A comparable effect could not be reliably created by lowering \( r \), according to Pigou(1937). Although this would lead to comparable results concerning money demand, thus shifting the \( M^d \)-curve in quadrant IV, there is an opposing effect in money supply which leads back towards the ori-
Figure 1
The Pigouvian 'simplified model'

ginal level of employment. "Thus the two processes are entirely different" according to Pigou (1937; p411). He continues that there are "a number of alternative devices for stimulating employment, among which a manipulation of banking policy is one". One such alternative could here be represented by a shift in $M^0$. But Pigou (ibid) is not interested in such a discussion:

"It is enough for my purpose to show that a money wage cut is not simply a piece of ritual that enables the real cause of employment expansion - a fall in the rate of interest - to take effect."

4. The Pigouvian model in the young Keynesians' debate

The peculiar importance of Pigou's 'simplified model' lies not just in the fact that it documents an important classical reaction to Keynesian analysis. It also triggered off an extended exchange of views among Keynes and a number of his disciples. This debate could throw some new light on the development of some central ideas of the Keynesian school.

Keynes, who published a critical reaction to Pigou himself (JMK; XIV, p.262ff), tried first to establish in a debate with his disciples what were the essential assumptions of Pigou's approach. Keynes (JMK; XIV, p.241) singled the
zero savings assumption out as being of central importance and the question posing itself then was whether this assumption by itself was sufficient to make Pigou's classical argumentation water tight. Strangely, hardly any of his students were prepared to follow such an investigation. Joan Robinson (JMK,XIV,p.239) found Pigou "so far gone ... that you have to rationalize him to some extent even to find a coherent error." Especially his \( r=g \) doctrine she thought to be "so cracked that I think you are probably right to ignore it." Actually, among Keynes' disciples Kaldor was the only one who tried to work out the internal logic of Pigou's argument. He came to the conclusion (See JMK,XIV,p.249):

"His \( \text{[i.e. Pigou's]} \) propositions relate to ... state[s] of equilibrium; and it is quite correct to say that in this state, the rate of interest will be the same if the rate of time-preference has not changed."

Once stated, this acknowledgement of formal correctness became a bone of contention among the young Keynesians, however, as may be gathered from R.F. Kahn's following communication to Keynes (JMK,XIV,p.260):

"It is clear that ... Kaldor, and Pigou still all fail to see the fundamental fallacy - which is the determination of the rate of interest by the rate of discount of the future (Piero Sraffa agrees about this). I am not sure whether your own reply brings out the grossness of this error sufficiently forcibly..."

In condemning the \( r=g \) doctrine of Pigou and its acceptance as being formally correct by Kaldor, Kahn does not seem to have been aware that such a theory was previously upheld in Keynes' circle of students by Ramsey(1928;p.556):

"... in a state of equilibrium there will be no saving and... the rate of interest... must be equal to the rate of discounting ."

It was shown above already in sect.3.3 that if the classical concepts of equilibrium were applied to the Keynesian consumption function, then even Keynes' theory would generate the time-preference theory of interest. It is therefore not astonishing that Keynes by no means supported the critical view 1)

1) In the published version of his note, Kaldor (1937;p.747 n.1) explicitly referred to Ramsey(1928) as 'locus classicus' for an acceptable version of the time preference theory of interest.
upheld by Kahn. He politely replied that he was "not so clear about this" and continued:

"On the assumption of the simplified model, where saving is assumed to be zero, the rate of interest has to be such that the inducement to save is exactly zero. Does not this mean, leaving out complications, that it will have to be just equal to the rate of discount of the future?" (JMK, Xi, p.261)

Keynes returned to this point in his published comment on Pigou's (1937) model with the remark that Pigou's denial of a change in interest rates depends — according to Pigou — on the rates of time preference being unchanged at zero saving. The logical next step in this debate seems now to be a critique of Pigou's particular equilibrium concept, it being a formally correct prerequisite for a time preference theory of interest but at the same time being devoid of any significance for an analysis of an existing economy.

It is maybe at this point that the Keynes-Classics debate lost its direction. In his short comment, Keynes (1937) limited himself simply to restate the Pigouvian analysis, presumably leaving it to the reader or his disciples to infer the inappropriateness of Pigou's postulated zero saving equilibrium. But this assumption had found entrance already to the inner circle of the Cambridge Keynesians so that it appears as the basis of Joan Robinson's (1937) 'long-period extension' of the General Theory. The young Keynesians were therefore not well prepared to elaborate what was considered as the logical next step in the Keynesian debate.

Actually, Keynes originally intended to finish his note on Pigou with a rather outspoken lash at its muddled equilibrium assumption by noting that it "relates to a frozen land remote in its characteristics from all experience" (JMK, Xi, p.238). But from his young advisors Keynes only provoked Kahn's plea "to concentrate on what is important by agreeing to omit the final paragraph" (JMK, Xi, p.260). Keynes grudgingly gave in (JMK, Xi, p.261):

"I am now deleting my last paragraph. ... But I still believe that it represents something at the bottom of his [i.e. Pigou's] head."
Without the remark about the frozen-land implication of the Pigouvian equilibrium condition his disciples could now reassure themselves that Keynes saw the main difference to Pigou's simplified model somewhere else. Since in the published version of his note Keynes (1937; p. 264) also drew attention to Pigou's equally unrealistic assumption of homogeneous time preferences of the rich and the poor, this seemed to be a clue for his real difference with the classics. We investigated tentatively the relevance of such an opinion above already in sect. 3.3 to 3.5. We concluded there that the Kalecki saving assumption upon which Joan Robinson was to base much of her extension of the General Theory certainly was no fruitful way to crack the Pigouvian time preference theory of interest.
5. The Kaldorian synthesis

1. Kaldor's restatement of the Pigouvian case for money wage policy

Kaldor's (1937) note on Pigou (1937) merits a closer inspection for several reasons. For one, it is the only published reaction to this Pigouvian defence of the classical view coming from the closer circle of Keynes' disciples. As such it is particularly interesting because it tries to give a consistent re-creation of the Pigouvian argument. It thereby relates elements of the classical analysis to a Keynesian view. Finally it refers the discussion to Hicks' (1937) interpretation of 'Keynes and the Classics' and thus it is of particular interest for a revision of the Hicksian interpretation.

Kaldor (1937) sets out by re-creating Pigou's 'simplified model' along the lines represented by Fig. 1 above, accepting at first the $r = \bar{y}$ doctrine in Pigou's context of argumentation. He then modifies this model in successive stages, first introducing a dependence of savings on employment. This modification leads to a downward sloping $r = \bar{y}$ line, even if the zero savings condition is permitted to continue to hold. With this modification
we are quickly back at Keynes' doctrine that employment can only increase if the rate of interest were lowered.

In arguing out his criticism of Pigou, Kaldor finally refers the reader to the IS-LM apparatus of Hicks (1937), demonstrating that the Hicksian LM-curve will shift to the right when the wage rate is lowered for a given quantity of money. But according to Pigou (1937) the quantity of money is not given. It is a function of the rate of interest. In an ingenious twisting of Pigou's argument Kaldor now points out that the money supply function might have a similar significance as the liquidity trap had for Hicks in pegging the rate of interest: If \( M^s(r) \) is large, then a decrease in the wage rate leading to a small decrease in the interest rate would lead to a significant contraction of (inside) money supply, thus limiting the scope for interest reduction and employment expansion considerably.

Kaldor thus arrives quite elegantly at the important Keynesian conclusion that contrary to Pigou's contention the fall in the money rate of interest must always be the root cause for employment expansion. Insofar as this fall is impossible, money wage reduction must be futile for employment creation.

2. Keynes and the Classics in the Kaldorian synthesis

Kaldor's (1937) note on Pigou (1937) with its express reference to the Hicksian Keynes-Classics interpretation gives itself an important synthesis of classical and Keynesian analysis. Since it was developed in the course of repeated exchanges with Keynes, the supposition seems to be not unreasonable that it does indeed incorporate an analysis which Keynes thought to be an acceptable representation of his approach.

It will be remembered that, apart from the alleged misrepresentation of the Classics, one of Keynes' criticisms of the Hicksian scheme was that he made "saving a function of money income" (JMK, XiV, p.80). Kaldor's improvement over Hicks lies now for one in that he expresses the values like income, investment, savings in real terms. Kaldor is thus able to state quite simply the
different impact effects which a change in money wages has for the IS and LM curves. Since the former curve now expresses equilibria of real savings and investment, a change in money wages will have no direct effect on the position of the IS curve. But the LM curve is different in identifying the nominal demand and supply of money. A change in the wage unit must then immediately affect the nominal amount of transactions which a specific quantity of money could maintain – unless there are simultaneous changes in the marginal productivity of labour or in the amount of "idle balances".

With this presentation Kaldor (1937) was the first author to state a "Keynes" effect of money wages in the context of a modified IS-LM analysis.\footnote{1} He explicitly stressed that the effect of a reduction in money wages "is exactly the same as that of an increase in the quantity of money or a reduction in liquidity preference" (Kaldor (1937; p. 752)).

Another important improvement of Kaldor's presentation of the Hicksian scheme lies in the use it makes of the Pigouvian money supply function in the discussion of the LM curve. The Kaldorian macroeconomic model thus deviated in two significant ways from Hicks (1937): (i) it took explicit account of Keynes' wage unit, (ii) it incorporated the Pigouvian money supply theory. In algebraic terms it may be stated that whereas the Hicksian money market equation is given by

\[
(19) \quad M^d = kY + L_2(r) = \bar{M}^s
\]

where \(k\)=income transactions factor for money demand, \(Y\)=nominal income, \(L_2(.)\)= speculative demand for money, the Kaldorian variant of the money market equation reads

\[
(20) \quad M^d = kwY + L_2(r) = M^s(r)
\]

where \(w\)= Keynes' wage unit.

Making the wage unit explicit permits now the inclusion of a wage

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1) It is quite ironic that Joan Robinson (1979; p. 7), when mentioning Keynes' money wage theory, refers the reader for elaborations of it to Hicks (1937) and to Pigou (1937) and never mentions Kaldor (1937). But it should be clear by now that Hicks had nothing to say about the matter of money wages and that Pigou's advocacy of money wage changes relied on a classical alternative to Keynes - and not on an elaboration of his analysis.
function

\[ w = w(N; \omega) \quad \omega = \text{shift parameter} \]

the existence of which having been postulated by Keynes repeatedly. 1) 

In equ.(21) employment \( N \) may be replaced by

\[ N = \phi Y_w \quad 0 < \phi < 1 \]

if a simple version of Keynes' employment function is adopted. 2)

With these additions and simplifications in mind, the differentials for the Kaldorian LM function of equ.(20) are given by

\[ \frac{k w(1 + E_w, N)}{dY_w} = \left( M^{S^1} - L^1 \right) dr \]

\[ > 0 \]

\[ > 0 \]

where \( E \) is the elasticity symbol.

Equ.(23) gives an upward sloping LM curve except in limiting cases which, in an extension of the Hicksian exposition, may be seen as having been accentuated in a specific way by different authors contributing to the Keynes-Classics debate. Listing also characteristic views on the relation between interest and real income along a given IS curve gives Table 1.

Table 1

<table>
<thead>
<tr>
<th></th>
<th>( E_w, N )</th>
<th>( M^{S^1} )</th>
<th>( L^1 )</th>
<th>( \frac{dr}{dY_w} )</th>
<th>IS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hicks</td>
<td>0</td>
<td>0</td>
<td>(0, -\infty)</td>
<td>&lt;0</td>
<td></td>
</tr>
<tr>
<td>Keynes</td>
<td>(0, +\infty)</td>
<td>0</td>
<td>&lt;0</td>
<td>&lt;0</td>
<td></td>
</tr>
<tr>
<td>Kaldor</td>
<td>0</td>
<td>(0, +\infty)</td>
<td>&lt;0</td>
<td>&lt;0</td>
<td></td>
</tr>
<tr>
<td>Pigou</td>
<td>0</td>
<td>&gt;0</td>
<td>\geq 0</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

1) Cf. in particular GT, p.10 where Keynes juxtaposes an increasing money wage to the classical doctrine of a falling real wage when employment increases. Keynes returned to this point later and stressed that one of the "generalisations of the General Theory" was "that money wages were as a rule a function of activity ..., tending to rise and to fall with the level of employment" (JMK, XXIX, p.284).

2) For a detailed discussion of this function see Ambrosi (1981)
The first line in table 1 expresses the conventional view based on Hicks' (1937; p. 138) interpretation that "the General Theory of Employment is the Economics of Depression" and as such it is based on $L_2^* = -\infty$. The Classics, Hicks assumed, set $L_2^* = 0$.

Keynes (GT, p. 295) himself based his characterization of unemployment and full employment on the behaviour of the wage unit, making the simplifying assumption of its rigidity "so long as there is any unemployment ..., whilst as soon as full employment is reached, it will thenceforward be the wage unit and prices which will increase in exact proportion...". The elasticity of the wage unit thus may be placed in the interval $(0, +\infty)$ in the second line of table 1.

The third line represents Kaldor's criticism of Pigou's advocacy of money wage policy on the grounds that $M^S$ may be very large. The last line finally stresses Pigou's peculiarity of assuming a horizontal IS-curve in basing his argumentation on the time preference theory of interest in the sense of interest being fixed by $r = \sigma$.

3. The reception of Kaldor's analysis by Keynes and Pigou

Having now placed Kaldor (1937) instead of Hicks (1937) in the center of the Keynes-Classics debate it may be of some interest to regard in more detail the reactions to him by Keynes and Pigou.

It emerges quite clearly from the correspondence between Keynes and Kaldor that they agreed that the $r = \sigma$ doctrine with the implied horizontal IS-curve was one of the central elements of the classical view. Hicks' 'classical' $L_2^* = 0$ condition was immaterial for them although his analysis was reproduced in detail by Kaldor. Instead, Kaldor ventured to suggest to Keynes:

"It really is the assumption that savings vary with real income which constitutes the main difference between the classical economics and the Keynesian."

To which Keynes replied:

"I agree with you that the assumption of saving varying with real income is one of the most essential differences between my system and the classical." (JMK, XiV, p. 242)
There was, however, a short critical exchange concerning the sign value of the derivative of savings with respect to the rate of interest. Keynes (JMK,XIV,p.243) believed Kaldor to have "misapprehended my scheme of things" in stating this derivative to be positive whereas he himself believed it to be negative. The ensuing exchange clarified the matter, however, Kaldor explaining that he referred to a partial derivative, i.e. to a savings function as a structural equation. Keynes' contrary statement referred to total savings as determined by the workings of an interdependent macroeconomic model. Both views can be reconciled, although Keynes obviously would have liked to conduct the discussion on the partial analytical level in terms of the propensity to consume since he believed, as we know from a different discussion carried on with Harrod, that "demand and supply schedules for savings ... are completely bogus".1)

It is particularly noteworthy that concerning the money wage theory as presented by Kaldor(1937) there was absolutely no difference of opinion with Keynes. In fact, Keynes was quite amused to find out later that Pigou was of the "conviction that the theory of the relation between money wages and employment, via the rate of interest, was invented by Kaldor", as he wrote to R.F.Kahn (JMK,XIV,p.267). He therefore let Pigou know (ibid):

"Kaldor is mainly a restatement of my General Theory with reference to you special assumptions. These special assumptions make it possible, of course, to reduce it to a simpler form without losing anything. On the other hand it is really the general case one has to consider, and that it seems to me would be very difficult to treat along these lines."

The last sentence suggests that Keynes was not entirely satisfied with Kaldor's presentation, even if it referred to an IS-LM scheme which was improved over Hicks'(1937) in essential respects. The exact reasons for this cautious disassociation are not apparent. What were Pigou's "special assumptions" exactly which Keynes confronted with "the general case one has to

1) JMK,Xiii,p.551. Keynes always felt quite strongly about the residual aspect of savings and much later returned to criticizing Harrod's 'bogus' of 'savings supply' in writing to Harrod again: "Ex ante saving is surely a chimera, which it is much better not to mention".JMK,XIV,p.323
consider"?

We believe that Keynes' reservation concerning Kaldor's representation of Keynesian theory resulted from its synthetic nature, developing elegantly a downward sloping IS curve by slight modifications of the Pigouvian model. According to Kaldor (1937), in order to develop a supposedly Keynesian interdependence between interest and employment in the 'simplified model', all one had to do was to add to Pigou's previous \( r = \frac{d\gamma}{dx} < 0 \) condition a function

\[
\gamma = \gamma(x) \quad \text{with} \quad \frac{d\gamma}{dx} < 0 .
\]

It was really this aspect of Kaldor's presentation which delighted Pigou - and not his discussion of a "Keynes effect" of money wage changes. Kaldor's suggestion of a function like equ.(24) enabled Pigou (1938) to muse at length about the "realistic" characteristics of time preference:

"I can see no reason for thinking that an increase in real income will raise any man's rate of time preference. ... It follows that, in a mixed community containing men of varying degrees of wealth, a rise in employment, and so in the general level of real income, is likely to be associated with some fall in the representative man's rate of time preference, and so in the rate of interest." (Pigou, 1938, p.135)

This concession to Kaldor and seemingly to Keynes bought for Pigou the ability to be unwielding with regard to the frozen-land assumption of classical equilibrium. Quite contrary to Keynes' original intention this peculiar equilibrium condition was not questioned any more so that Pigou could forget entirely about liquidity preference and could base the entire theory of employment on time-preference without meeting any further resistance from the Keynesian quarters:

"Our main conclusion that ... a cut in money wage rates will lead to a new equilibrium situation in which employment is larger, and the rate of interest lower, than before, depends, it will be understood, on the factual proposition that the representative man's rate of time-preference falls as aggregate real income increases. If it were independent of aggregate real income, a cut in money wage-rates would increase employment, while leaving the rate of interest unchanged."

(Pigou, 1938, p.138)

The last sentence, finally, reveals the true difference between Keynes and Pigou's classical theory of interest, because in Keynes' theory there will be a negative relationship between real income and interest even if the
rate of time preference were constant. The essence of the Keynes theory if seen against the background of the time-preference analysis is that there is uncertainty about the future in the sense that present real income is no proxy for future income, as a small algebraic exercise can now show. ¹)

This point can not be made in the context of the IS-LM scheme, however, even when Hicks' obvious mistakes were ironed out as was indeed the case in Kaldor's (1937) presentation.
6. The aftermath of the debate

Advising Keynes on editorial matters of the Economic Journal, R.F. Kahn was strongly opposed to Keynes' publishing Kaldor's comment on Pigou. The reason given was not of an analytical nature, however, it was rather the "favour" involved:

"I have not seen Kaldor's article but I am sure that publication will darken counsel. After all we could all of us write replies to Pigou if you wanted them and I do not see why Kaldor should be thus favoured". JMK,XIV,p.260

Clearly Keynes, as editor, could not have himself be led by such considerations but invited Kahn and the other Cambridge young Keynesians to take over in the debate with Pigou once his rejoinder had appeared:

"I am quite clear that I must print Kaldor's article, ... In fact, no one else has sent me any comment on Pigou. The most useful opportunity for the rest of you will be after the Professor's reply in March [see Pigou(1938)]. My present intention is not to say any more myself, but to leave to you any further stage in the controversy". JMK,XIV,p.262

This opportunity was not taken by Kahn or others, however.

There seems to have been a continuing reluctance of Keynes' Cambridge

1) Suppose a "half-frozen" land with all the classical equilibrium condition given in equ.(2) and (3) above fulfilled except that $Y_w \neq Y_w^f$ so that present income is no proxy for future income. The zero savings condition gives then $\delta Y_w^f = rY_w$. If the rate of time preference and expectations are constant, the right-hand side gives a falling interest-income curve. Pigou's different conclusion obviously requires $Y_w = Y_w^f$ always to hold in this context.
followers to publish a systematic critique of Pigou's time preference theoretic defence of classical analysis. We noted above that Joan Robinson had advised Keynes to ignore it (JMK, Xiv, p.240) and that Kahn beseached Keynes to refrain from printing in his comment those passages criticizing the classical frozen-land assumption underlying the validity of Pigou's time preference theory of interest.

There must have been some second thoughts about the validity of Pigou's analysis among his Cambridge opponents, however. Originally, Piero Sraffa seems to have agreed with Richard Kahn that the determination of the rate of interest by the rate of discount of the future was the "fundamental fallacy" in Pigou's scheme (See above p.22). But as we learn from Joan Robinson (1979; p.xxii) Sraffa must have changed his mind at least temporarily, permitting himself to flirt with Pigou's view:

"For Pigou, the interest that rentiers demand governs the rate of profit. This concept is unnatural (though Sraffa himself flirted with it)" (emphasis added, GMA.)

How long Sraffa's flirt lasted with the Pigouvian time preference theory of interest we are not told nor why he rejected it - if he did so.

Joan Robinson's further remarks in this context show sufficiently that she disliked the whole idea of Pigou's theory of interest but they do not show where we may find a systematic critique of it. Of course it is "unnatural" because it is based on the concept of long-period equilibrium. But there are important branches of economic discussion in which this concept is accepted in spite of it being "unnatural". The Cambridge controversy in the theory of capital is based on this concept - and it was Joan Robinson who was the "founder of the controversy" of this debate. It is true that eventually Joan Robinson (1973; p.6) referred to it as being a "tiresome controversy" which "has to do with abolishing time". When she goes on to mention:

"For a world that is always in equilibrium there is no difference between the future and the past, there is no history and there is no need for Keynes."
then her view sound like a late echo of Keynes' frozen land analogy of the Pigouvian economy, a characterization which was wrought from publication by Keynes' disciple R.F. Kahn as we have seen above. Maybe some of Keynes' other disciples were eventually convinced that this was indeed an important point to be stressed in the Keynes-Classics controversy. But little was done by them to substantiate this part of Keynes' criticism against classical equilibrium assumptions.

In closing we cannot but record that in the 'generalizations' and 'extensions' — of the General Theory by the young Keynesians no critique can be found of Pigou's(1937) important assumption of exogenously determined investment. In fact, Joan Robinson was prepared to go to Pigou's extreme to set investment equal to zero in a long-period extension of the General Theory. Even the post Keynesian Cambridge theories of aggregate income distribution did not redirect such an approach and provoked Jan Kregel(1985;p.137) recently to comment:

"It is characteristic of these latter theories that investment is exogenous, eliminating the need to discuss the monetary elements which Keynes had used in the General Theory to explain investment decisions..., the fact that they were considered exogenous made analysis of the monetary factors Keynes considered crucial to their determination unnecessary."

Thus, Cambridge Keynesianism could come to be considered by Kregel as "Hamlet without the Prince".

The textbook Bastard Keynesianism certainly is of dubious pedigree. But the pure-blooded Keynesianism still awaits appearance.
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