

## Mauro Boianovsky and Charles Goodhart Dennis Holme Robertson (1890–1963)

### Book section

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## **Dennis Holme Robertson (1890-1963)**

Mauro Boianovsky and Charles Goodhart

### **Abstract**

Dennis Robertson played an important role in the history of Cambridge economics, through his contributions to monetary and business cycle theory, and to utility and welfare. As a macroeconomist, Robertson investigated the dynamic relationship between monetary flows and economic fluctuations. His main contributions to monetary macroeconomics were written between 1915 and 1934. During that period (especially in the 1920s) he and Maynard Keynes interacted extensively. However, after the publication of Keynes's *General Theory* in 1936, Robertson became critical of what he perceived as shortcomings of Keynesian liquidity preference and equilibrium unemployment theories. From a microeconomic perspective, Robertson made a sustained effort to keep alive the Cambridge Marshallian cardinalist approach to utility, especially after the ordinalist revolution in welfare economics in the 1940s. Robertson claimed that economic theory and policy necessarily involve interpersonal comparisons of utility and welfare.

### **Keywords**

Robertson; business cycles; monetary economics; Keynes; welfare economics; cardinalism.

## Contributors

Mauro Boianovsky

Mauro Boianovsky is full professor of economics at Universidade de Brasilia. He holds a Ph.D. in economics from Cambridge University. His main research interests are in the field of the history of economic thought, particularly the history of macroeconomics, monetary theory and growth economics. He has published articles on those topics in a number of international journals. Two of his articles have received the ‘Best Article Award’ given by the History of Economics Society. His book *Transforming Modern Macroeconomics: Exploring Disequilibrium Microfoundations, 1956-2003*, with Roger Backhouse, has received the ‘Best Book Award’ given by the European Society for the History of Economic Thought. He has been elected to serve as president-elect (2015-16) and president (2016-17) of the History of Economics Society.

Charles Goodhart

Charles Goodhart, CBE, FBA, is Emeritus Professor of Banking and Finance with the Financial Markets Group at the London School of Economics (LSE), having previously, 1987-2005, been its Deputy Director. Until his retirement in 2002, he had been the Norman Sosnow Professor of Banking and Finance at LSE since 1985. Before then, he had worked at the Bank of England for seventeen years as a monetary adviser, becoming a Chief Adviser in 1980. In 1997 he was appointed one of the outside independent members of the Bank of England’s new Monetary Policy Committee until May 2000. Earlier he had taught at Cambridge and LSE. Besides numerous articles, he

has written a graduate monetary textbook, several books on monetary analysis and history, and on banking regulation.

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## **11 (subject to change)**

### **Dennis Holme Robertson (1890-1963)**

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#### **1 Introduction<sup>1</sup>**

Much of what is now taken for granted as mainstream macroeconomics derives more from Dennis Robertson than from John Maynard Keynes. For example, that there is an equilibrium (nowadays described as NAIRU) in the labour market, and that any attempt to push demand above that level will just end in spiralling inflation; that the (quasi-) equilibrium<sup>2</sup> real interest rate is determined by real forces of thrift and productivity; that monetary policy is potent, so long as government deficits are not overwhelming, and should be primarily aimed at maintaining price stability; that government intervention to

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<sup>1</sup> This chapter is partly based on some of our previous works on DHR (see Goodhart (1992); Goodhart and Presley (1994); Boianovsky and Presley (2009); Boianovsky (2014)).

<sup>2</sup> Robertson would have noted that this ‘equilibrium’ value is always shifting, so it is a ‘quasi-equilibrium.’

fix wage growth (incomes policies) or investment (indicative planning) will usually make things worse; and that the urge to invent, to develop, to improve will prevent stagnation. We call this technical progress, but Robertson used a more literary message, from Walt Whitman, “Urge and urge and urge, Always the procreant urge of the world,” a verse with which Robertson both opened and closed his first book, *A Study of Industrial Fluctuation* (1915) [1948].

Robertson never claimed to have constructed an overall system of thought about macroeconomics (such as Keynesianism, monetarism, neoClassicalism, etc.). He was distrustful of all ‘isms,’ and believed that not only was there much value to be found in the theories of our forebears, but also that relationships between economic variables were changeable, depending on context. The world was dynamic, not static; there was no single final truth, nor equilibrium, but a messy progress through an unknowable future.

Robertson was temperamentally conservative, and became more so as he aged.<sup>3</sup> Like his friend, mentor, colleague, and from the 1930s onwards sometime adversary, Keynes, Robertson had been politically a staunch Liberal in his early years. It was, however, Robertson’s misfortune to be linked so closely with the even more brilliant and more radical Keynes, whose attempt to uproot, and sometimes Robertson felt to misrepresent,

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<sup>3</sup> For two good short biographies, see those in *Robertson on Economic Policy* (1992), mainly by Dennison, and in *Essays on Robertsonian Economics* by Presley (1992). For a longer, somewhat metaphysical, biography, see Fletcher’s *Understanding Dennis Robertson* (2000). For a comprehensive treatment of Robertson’s macroeconomics see Presley (1979).

the theories and teaching of his predecessors, including those at Cambridge, e.g. Marshall and Pigou, so upset Robertson. It was even more his misfortune that the temper of the time, particularly after the Great Depression, became more socialist and left-wing. Robertson became rather isolated at Cambridge, and some of his work, notably the Cohen Council Report, of the “three wise men” (Cohen Council 1958) was met by considerable left-wing abuse.

His was not an easy life. He had no family to fall back upon; he was homosexual when this was still legally and socially unacceptable, and, as far as is known, largely repressed it, with no regular partnership (see Fletcher (op cit.) and Skidelsky (2003: 391-2). He was, however, bolstered by the community life of Trinity College, and by his cats, which were much in evidence when one of the present authors visited him at Trinity in 1958. Despite these various tribulations, he maintained a gentle optimistic balance, an occasionally sharp but self-deprecating wit, a determination to maintain the macroeconomic verities, whatever the current politico-economic fashions, and a lapidary writing style. He died too early (1963) to see the rebalancing of the mainstream of macroeconomics towards his own position, though he would have deplored the increasing mathematical technicality of modern macro, and would have had enormous pleasure in poking fun at the more extreme forms of ‘rational expectations’ and ‘efficient market’ theories.

His father, the Rev. James Robertson, was a brilliant man, Fellow of Jesus College, Cambridge, 1859, poet, mountaineer and classicist, who ascended rapidly through the ranks of public school teaching (Cheltenham, Rugby, Harrow) to become Headmaster of Haileybury in 1884 at the age of 48. He did well (see Thomas 1987), until disaster

struck. A boy called Henry Hutt was charged with stealing, and sacked. His parents did not believe the charge and sued the school. A notorious court case followed, at which Robertson apparently did not acquit himself well (Rattigan's play 'The Winslow Boy' is supposedly based on all this), and the boy and his parents, won – whether rightly or wrongly is unknowable, though Thomas (*ibid.*) provides some evidence that it was wrongly. Haileybury's reputation suffered, and Robertson felt forced to resign. He went to live at Whittlesford at Cambridge, with his career in tatters and most of his income gone. Into that background Dennis was born in 1890, the sixth, and last, child of James and his wife, Constance, a keen musician. Under those circumstances it was not surprising that Robertson was tutored by his father at home (no money but lots of time). But what a pressure cooker it must have been! At least it did its job. He took second place in the Eton Scholarship election, going there in 1902. Keynes, Hawtrey and Robertson all came from the same stable, King's Scholars at Eton followed by Cambridge, the fount of modern macro.

Be that as it may, Robertson early on showed his intellectual prowess, becoming Captain of the School (1907/08) and taking the Newcastle Prize (the highest classical prize) as well as many other prizes, on his way to a major scholarship at Trinity. He turned to economics half-way through his undergraduate years – having obtained a First in Part I of the Classical Tripos – a switch whose cause is unfortunately not documented. With Keynes as his supervisor, he took Part II of the Economics Tripos in 1912, again getting a First. Keynes had become Director of Studies in Economics at Trinity in 1910 (Harrod 1951: 150).<sup>4</sup>

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<sup>4</sup> The father of one of the authors, A.L. Goodhart, went to Trinity in 1912 with the intention of studying Economics. He was told by his tutor that "Trinity had no

Despite the pressures of working for a First in Economics in two years, Robertson nevertheless found time to become President of the Union, President of the Cambridge University Liberal Club, and President of the Amateur Dramatic Club, as well as winning the Chancellor's Medal for English Verse, for the third time running, *all in 1911*. He continued to write verse throughout his life.

Cambridge economics and Marshallian economics were then synonymous. Although Marshall had retired, his *Principles of Economics* remained the recommended textbook. Pigou and Keynes, both former pupils of Marshall, continued to uphold the Marshallian tradition during Robertson's undergraduate studies.

After graduation Robertson remained a research student in Cambridge. In 1914, his research thesis won him a Trinity Fellowship (having previously won the Cobden Prize); the thesis was to become *A Study of Industrial Fluctuation*. The war interrupted academic work; he joined the army and was posted to Egypt and Palestine where he became battalion Transport Officer in charge of "a circus of mules, camels and donkeys" (Dennison and Presley 1992: 20); he was awarded the Military Cross in May 1917, not returning to Trinity until 1919.

This heralded the beginning of his most productive period as a monetary economist. His most widely read book, *Money*, was published in 1922, as a Cambridge Economic

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economist. But they were sending their economics undergraduates to an economist at Kings [J.M. Keynes], but that they [in Trinity] did not regard him as 'sound'." A.L.G. decided then to turn to a study of Law. (Traditional family story.)



Handbook. Although a textbook for undergraduates, it quickly established Robertson's reputation as a monetary expert, remaining widely used until the 1950s, with a new edition as late as 1948. Friedman described it as "a masterpiece of exposition as well as of content" (Friedman quoted in Presley 1979: 2). But *Money* was only the first of several books then attempting to analyse the role of monetary factors in the trade cycle. His *Study of Industrial Fluctuation* (1915) [1948] had presented a *real* theory of such fluctuations. Robertson's later writings sought to examine the behaviour of money, the rate of interest, and saving and investment in the cycle, and thereby the most appropriate counter-cyclical policies.

The collaboration between Keynes and Robertson in the 1920s resulted in several major works, though none published under joint authorship. These included not only *Money*, but also Robertson's *Banking Policy and the Price Level* and Keynes's *A Tract on Monetary Reform* and *A Treatise on Money*. The 1930s witnessed less of a combined effort. Each went their separate ways, Robertson developing the theory of fluctuation he had expounded in 1915, whilst Keynes worked on *The General Theory of Employment, Interest and Money*. After 1936 they became involved in debates over aspects of Keynes's theories.

With a few exceptions (in 1926-27 and 1933-34), Robertson remained in Cambridge until 1938, when he was elected to a Chair in Banking at LSE, thereby temporarily escaping from the ferment of the Keynesian revolution in Cambridge. During the war he worked as economic adviser to Sir Frederick Phillips, Third Secretary in the Treasury, with responsibility for overseas finance. This took Robertson to Washington, D.C. in 1943 in preparation for the Bretton Woods Conference. Here again he worked with

Keynes in the British delegation. Meanwhile, on Pigou's retirement, and with a partial reconciliation with Keynes following Bretton Woods, Robertson was able to return to Cambridge as Professor of Political Economy, a position he occupied until retiring in 1957. Much energy was devoted in this period to his lectures (which were published in three volumes, as *Lectures on Economic Principles*), and to general policy issues.

He gave evidence to the Macmillan Committee on Finance and Industry in May 1930, and to the Canadian Royal Commission on Banking and Finance in 1962. He was a leading member of the Royal Commission on Equal Pay (1944-46), and the only economist amongst the aforementioned 'three wise men' of the Cohen Council on Prices, Productivity and Incomes (1958), whose first report was mainly written by Robertson. Honorary degrees were given to him by several British universities, as well as by Louvain, Columbia, Amsterdam and Harvard. He became a Fellow of the British Academy in 1932, a Fellow of Eton in 1948, and was Knighted in 1953.

Robertson wrote nine books covering almost every aspect of economics, and had ninety-one articles published between September 1912 and September 1962, with thirty appearing in the *Economic Journal*. Many of these articles were collected to form six further books over the period 1931-66.

Robertson was a classicist, with a majestic command of both language and logic, but he was no mathematician. He was however ready to support his theories with empirical exercises, as in his thesis and first book. Whether he would find the current state of economics, with its worship of technique, congenial is dubious. He responded to the encroaching requirements of such techniques with wit. The best known example is his

‘Non-Econometrician’s Lament,’ from the appendix of *Economic Commentaries*:

“As soon as I could safely toddle  
My parents handed me a model.  
My brisk and energetic pater  
Provided the accelerator,  
My mother, with her kindly gumption  
The function guiding my consumption  
And every week I had from her  
A lovely new parameter,  
With lots of little leads and lags  
In pretty parabolic bags.  
  
With optimistic expectation  
I started on my explorations,  
And swore to move without a swerve  
Along my sinusoidal curve.  
Alas! I knew how it would end;  
I’ve mixed the cycle and the trend,  
And fear that, growing daily skinnier,  
I have at length become non-linear.  
I wonder glumly round the house  
As though I were exogenous,  
And hardly capable of feeling  
The difference ‘tween floor and ceiling.

I scarcely now, a pallid ghost,  
Can tell ex ante from ex post;  
My thoughts are sadly inelastic,  
My acts incurably stochastic.”

## **2 Trade cycles and equilibrium**

In our view Dennis Robertson’s main claim to fame as an economist lies, first, in his analysis of fluctuations in real factors, innovation, technical progress, the return on capital, investment, etc., as the fundamental driver of the trade cycle, and, secondly, in his emphasis on the accelerator principle, whereby an increase in overall demand, from whatever source, can generate an increased demand for investment; though with characteristic modesty Robertson attributes his discovery of this to Aftalion (Robertson 1954b: 183). As Robertson liked to say “Dogs [consumption] wag tails [investment], as well as tails wag dogs”; n.b. business investment over the cycle is vastly more volatile than consumption. In, *A Study of Industrial Fluctuation*, monetary considerations do not enter until page 211 (out of a total of 254 pages), and then in a purely supporting role; the idea that trade cycles are primarily monetary in character is roundly dismissed. Robertson later argued in a paper on ‘The Monetary Doctrines of Messrs. Foster and Catchings,’ from *Economic Essays and Addresses*, that even a Robinson Crusoe, or a pure barter economy, would/could exhibit cycle-like misallocations of real resources (Robertson (1929) [1931]: 141).

He developed his business cycle theory over a long period, from the *Study of Industrial Fluctuation* to the third volume of his *Lectures*, published two years after his retirement

from Cambridge. Robertson's best known contribution is probably *Banking Policy and the Price Level* (Robertson (1926) [1949]), where he attempted to extend the real analysis of the *Study* to establish the notion of forced savings as a key concept in the business cycle. Nevertheless, he usually referred to his 1934 *Economic Journal* article on 'Industrial Fluctuation and the Natural Rate of Interest' as the core of his interpretation of economic fluctuations. This piece introduced a diagrammatic representation of the market for loanable funds and established the twin notions of a natural rate of interest and a natural (or normal) rate of unemployment, which equilibrate the market for goods and for labour respectively. That article grew out of another piece published earlier in the *Economic Journal*, where Robertson (1933) introduced the effects of unexpected price level changes on the level and distribution of output and on the savings curve in his loanable funds diagram. Whereas Friedman (1974: 40) regarded the determination of the natural rate of interest and the study of the saving-investment sector as "unfinished business," this was precisely the business of Robertson in the 1930s.

Robertson's dynamic method was based on period analysis, a 'step-by-step approach.' He assumed a period of time, called a 'day,' which is finite but nevertheless so short that income received on a given day can only be spent or saved in the next period – the 'Robertsonian lag.' Furthermore, he assumed that output is given in the current period, so price level changes clear the market for goods during the 'day.' (Problems with this approach, that later arose with Keynes and his followers, are discussed later in section 3.) Unforeseen price changes affect real wages in the short period, since money wages (assumed contractually to be given during the 'day') are decided on the basis of the previous price level. Besides the effects of price fluctuations on the demand for labour,

Robertson advanced the notion – later developed by Phelps (1969) and Lucas (1972) – that producers may temporarily mistake changes in the price level for changes in relative prices and adjust their supply of effort accordingly. In long-period macroeconomic equilibrium, defined by the equality between saving and investment at the natural rate of interest, price level expectations of workers and firms are correct and wages and profits are at their ‘normal’ level (see Robertson 1934: 651). The normal, equilibrium, rate of unemployment is positive because of changing economic conditions interacting with search in decentralized labour markets and heterogeneity of workers and jobs.

Keynes ((1936) [1973]: 180-3, 242-3, 327) rejected Robertson’s concept of a normal rate of unemployment, leading to Robertson’s criticism that Keynes had overlooked workers’ reaction to market real wages distinct from their long-run expected values. Disequilibrium in the labour market is accompanied by disequilibrium in the market for loanable funds, with ensuing pressures on the market rate of interest. Robertson dismissed the Keynesian concept of liquidity preference and what Robertson named the ‘liquidity trap for saving,’ (unless the only interest rate that could equate saving and investment at normal unemployment was negative). Robertson explained the short-run oscillation of the level of employment around its normal value by the effects on output of unanticipated price changes. Rising prices affect the long-run rate of economic growth positively through forced saving, whereas changes in the price *level* have only short-run effects on employment and output. So, in the Robertsonian framework, money is neutral, but not ‘superneutral.’

Robertson ([1915] 1948) criticized the ‘monetary’ school of the trade cycle for

overlooking the “*inelasticity*, in times of slump, of the demand for certain important things which are being relatively over-produced” especially capital goods. Hence, “any attempt to expand output on the part of these trades would, even under barter, furnish an inducement to other trades to *restrict* output.” So “general overproduction” (in this sense) will cause the “business classes” to reduce their effort to a larger extent than the “working-classes,” who “tramp the streets striving to rid themselves of the blessings of leisure” (Robertson (1923) [1931]: 133; italics in original). Robertson approved of the description of unemployment during the depression as ‘involuntary,’ since over-production of capital goods causes an inelastic effort-demand for *all* commodities (including instrumental goods), which is greater for businessmen than for workers, since the latter do not demand capital goods: “For those reasons it is plain that the scale of production which commends itself to the business class may be smaller than that which commends itself to the working classes” (Robertson (1915) [1948]: 209-10; see also Robertson (1926) [1949]: 21-2).

In Figure 1 below, equilibrium is illustrated by the intersection between the curves of demand for investment  $DD'$  (“representing the declining marginal productivity of new lendings in industrial use”) and of supply of saving  $SS'$  (“representing the rate of new available savings per atom of time”), at the natural rate of interest  $PM$  (Robertson 1934: 651). Following Marshall ((1890) [1920]: 533) and Ramsey (1928), Robertson usually assumed that the aggregate curve of savings is upward-sloping and positive if the rate of interest exceeds the pure rate of time discount. Should there now occur a shift upwards of  $DD'$  to  $D_1D_1'$ , via an exogenous increase in the marginal productivity of investment through, e.g., technical progress, and the banking system keeps the market rate of interest at its initial level, the rate of lending will exceed the flow of new savings to the

extent  $MM_1$ , through newly created bank money.

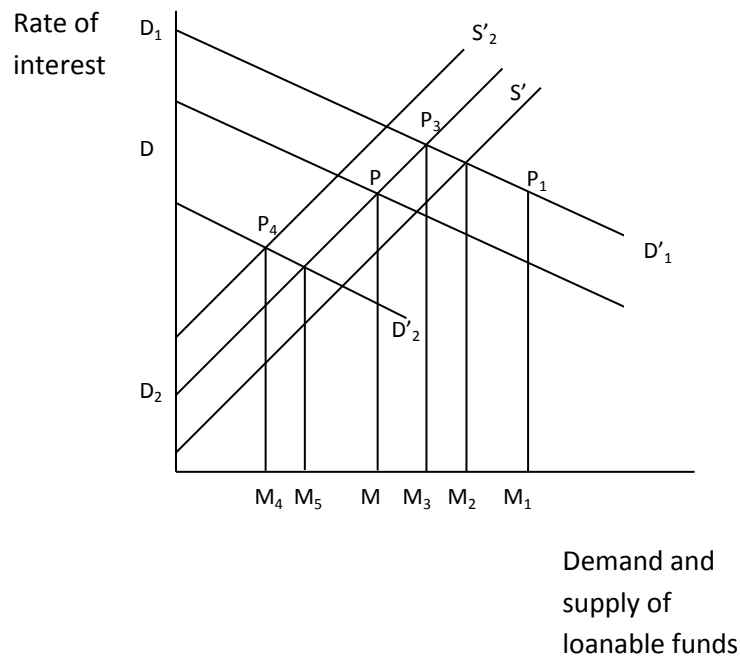


Figure 1. The natural rate of interest

Source: Robertson (1934: 652)

Given the ‘Robertsonian lag,’ real disposable income is then reduced by rising prices, and consumption falls below its expected value, which Robertson called “automatic lacking” (Robertson (1926) [1949]: 48). Furthermore, additional saving may be ‘induced’ through the rise in prices, since individuals will seek to restore the real value of their money balances by reducing consumption (ibid., 49). So, with monetary disequilibrium, developments in the goods market decide the rate of change of the price level whereby lacking (in its voluntary, automatic and induced forms) equals investment.

In his 1933 article on ‘Saving and Hoarding,’ Robertson introduced yet another form of forced saving, brought about by a reduction of real wages to the extent that prices in the



current period exceed the level expected when money wages were initially set. This followed from his distinction between “two classes, ‘the public’, whose rates of money income are prevented by contract or custom from varying during such short periods of time...and ‘entrepreneurs’, of whom this is not true” (Robertson 1933: 401). While automatic and induced saving only take place during the process of rising prices, forced saving which results from the “distortion of contracts occasioned by a rise in prices which has already occurred” continues even after inflation stops; that is, the curve of voluntary saving shifts to the right because of a change in income distribution in favour of the “entrepreneurs” (ibid., 411). The displacement of the savings curve  $SS'$  to  $S_1S_1'$  is also explained by the effects of the decline in real wages on labour demand, which will “progressively increase total incomes and redistribute them in favour of entrepreneurs” (Robertson 1934: 652).

Robertson (ibid.) coined the phrase ‘*quasi-natural* rate’ to describe the rate of interest  $P_2M_2$  which would equilibrate investment and saving under the new conditions. Assuming that the actual rate of interest rises towards its quasi-natural level, the economy will settle at the level of savings (and investment)  $OM_2$ , with stable prices and a rate of unemployment lower than its long-run average value. However, as pointed out by Robertson (ibid., 653), this ‘*quasi-equilibrium*’ is temporary, since excess demand for labour at real wages which are lower than expected by workers will bring about an increase in money wages in the next period, raising real wages back to their long-period equilibrium level and shifting the savings curve back to its initial position. Meanwhile, capital accumulation made possible by the forced saving process will reduce the marginal productivity of the stock of capital goods (Robertson, ibid., describes this as “saturation with *existing* instruments” (italics in original) and displace downwards the

marginal productivity of “*new lendings*” (italics in original) to  $D_2D_2'$ . The ensuing falling prices then causes automatic and induced ‘dislacking’ (an unanticipated increase in consumption by the public at lower prices, followed by a reduction in real money balances to their planned level (cf. Robertson (1926) [1949]: 48-50), as well as an increase in real wages involving “the shrinkage of income and its redistribution in favour of non-savers” (Robertson 1934: 653). Hence, the savings curve shifts downwards to  $S_2S_2'$ , intersecting  $D_2D_2'$  at the new quasi-natural rate of interest  $P_4M_4$ . If the bank rate of interest is also reduced to  $P_4M_4$  the new position of quasi-equilibrium in a depression will feature a flow of savings  $OM_4$  (equal to the demand for investment) and a rate of unemployment higher than its average value over the business cycle. Such a quasi-equilibrium lasts longer than the quasi-equilibrium position in a boom since, because the “short period is not of the same length at both ends” (the length of life of durable capital goods is usually longer than the time taken to build them), the curve  $D_2D_2'$  is more stable than  $D_1D_1'$  (Robertson 1934: 654; (1957-59) [1963]: 140). Moreover, owing to the partial downward rigidity of real wages,  $S_2S_2'$  will not easily return to  $SS'$ .

Robertson (1934: 655) stressed that,

if, in a society which has already become a prey to fluctuation, full employment of the factors of production, in their existing distribution between consumption and construction trades, is taken as the objective of policy, there seems a virtual certainty that normality will be overstepped, and the ball of cyclical fluctuations set rolling again.

Robertson probably had in mind a reduction of the bank rate of interest to such a level as to reduce real wages to an extent that  $D_2D_2'$  would intersect a savings curve at the level of investment  $OM$  and a rate of unemployment lower than 'normal.'

Some of the controversy between Keynes and Robertson following the publication of *The General Theory* should be read against the background of Robertson's 1934 article. According to Keynes ((1936) [1973]: 327), "Mr D. H. Robertson assumes, in effect, that full employment is an impracticable ideal and that the best that we can hope for is a level of employment much more stable than at present and averaging, perhaps, a little higher," a position he described as "defeatist." Keynes's rejection of Robertson's view of monetary policy was preceded (ibid., 180-2) by a strong criticism of the analysis of the determination of the rate of interest in the 1934 diagram (above), which Keynes adapted from Robertson (incidentally the only diagram used in *The General Theory*). In Keynes's view, Robertson's diagram could not be used to determine the rate of interest, since the savings function is not independent from the investment curve as a shift in investment causes a change in income and, therefore, a displacement of the savings curve. There are, therefore, not enough equations to decide the rate of interest, which should be solved by bringing in liquidity preference to determine the rate of interest from outside the savings-investment mechanism.

The question is whether a change in real income caused by a shift of the investment function, and the Keynesian multiplier, can displace the savings curve to such an extent that the quasi-natural rate of interest is pushed all the way back to the original level of the natural rate of interest. This has been discussed by Axel Leijonhufvud (1981: 165-9; see also Kohn 1981: 859-60), who argued that, in the case of a downward shift in

investment, the market rate of interest would remain at its initial level  $PM$  (above the new natural rate  $P_5M_5$ ) without any excess supply in the market for loanable funds (because of the corresponding shift of the savings curve through the multiplier) and, therefore, with no pressure towards the appropriate adjustment of the market rate of interest. In such a state of ‘unemployment equilibrium’ the price that is ‘wrong’ is the rate of interest, not the money wage.

Although Leijonhufvud successfully captured some elements of the Robertsonian approach, his general conclusion of unemployment equilibrium is not that of Robertson, *except* if money wages are fixed. Robertson’s usual assumption was that money wages are “relatively sticky” (Robertson (1957-59) [1963]: 440; see also Robertson (1928: 11) and Robertson (1933: paragraph 4)), that is, not flexible enough to clear the market within a single unit period. Under these conditions of “wage flexibility with a lag”, if the bank rate of interest is above its natural level, the economy will suffer from continuous and steady deflation accompanied by constant (not rising) unemployment. Keynes’s claim that a reduction in investment would cause unemployment to “grow and grow until, as a result of the consequent reduction in real income and therefore in saving, a stable position is again reached at a very low level both of money income and of employment” is acceptable only under the assumption of fixed money wages (Robertson (1957-59) [1963]: 442-3). As explained by Robertson (*ibid.*, 443), the money wage will be falling at the same rate as the price level, with a constant real wage rate (above its long-run market clearing value) and a constant (but below long-period equilibrium) level of employment. So there will be continuous excess supply in the loanable funds market and downward pressure on the rate of interest caused by falling prices and wages, contrary to Leijonhufvud’s interpretation (see also Kohn *ibid.*, 873-4).

Robertson's insight that a rate of unemployment below (above) its normal equilibrium level is accompanied by a continuous increase (fall) in money wages and prices is behind his criticism that Keynes did not contemplate the notion that a high level of employment in the transition to minimal unemployment could be associated with a positive rate of change of prices and money wages – that is, the notion of a Phillips curve. As put by Robertson ((1936) [1940]: 109; 1963a: 436; cf. Keynes (1936) [1973]: 303-4 on “true inflation,” in Keynes's view “not until unemployment is conquered can inflation in any damaging sense be said to begin.” However, it was only in his *Lectures* (Robertson (1957-59) [1963]: 437-38) that Robertson explicitly reacted against Keynes's (ibid., 327) criticism as quoted above:

On p. 327 of the *General Theory* you will find that I am subjected by Keynes to mild reproof for having in the 1930s set my sights too low. That may or may not have been; certainly I thought – apart from all my criticism of detail – that the general tenor of that famous book, with its dramatisation of the contrast between general and mass unemployment on the one hand and ‘full employment’ – a phrase I have always mistrusted – on the other, over-simplified the problem of objectives as it then presented itself” (see also Robertson 1948: 204-5).

Robertson did not change his views about the concept of a ‘natural’ or ‘normal’ rate of interest after the publication of *The General Theory*. However, Keynes's criticism led him to discuss aspects that were not explored in his 1934 article, e.g. the effect of expected changes in the price level on the rate of interest. Robertson (1936: 178-9) pointed out that, with rising prices caused by excess investment, “any given proportion

of wealth or income idle in the form of money is being diminished by the expected depreciation of money, and dishoarding takes place.” Furthermore, an expected rise in prices tends to increase the rate of interest through its effects on the demand and supply of loanable funds – the so-called ‘Fisher effect,’ which Keynes ((1936) [1973]: 142) dismissed. The important point, made by Robertson in a letter of March 1935 to Keynes, is that the rate of interest will not rise in equilibrium to the full extent of the expected rise in prices. As explained by Robertson (see Keynes 1973: 522; italics in original) the rise in the rate of interest

will be damped down by the tendency of the owners of stores of money (a) as *interest* rises, to take money out of store and lend it thus increasing the supply of loanable funds, (b) as *prices* rise, to take money out of store and invest it themselves in labour or commodities, instead of adding to the demand for loanable funds for those purposes.

Both factors (a) and (b) contribute to diminish the Cambridge  $K$  and to reduce the long-run value of the ‘real’ rate of interest.

The Fisherian real rate of interest falls under anticipated inflation because of the reduction in real money balances. Investment and saving are both higher than in an equilibrium without steady, anticipated inflation – money is not ‘superneutral.’ Such an analysis fits very well with Robertson’s notion of ‘induced lacking’ as an equilibrating mechanism able to turn initially involuntary (‘automatic’) saving into a voluntary decision in the course of the business cycle (cf. Laidler 1999: 96). As pointed out by Robertson in his letter, Keynes’s discussion of the Fisher effect was marred by his habit

of expressing liquidity preference in nominal terms instead of in real terms. Hence, contrary to Keynes, there is nothing contradictory about people holding a larger *nominal* amount of money at a higher (nominal) rate of interest, since they are in fact holding a diminished quantity of *real* balances.

### 3 *Money*

Since Robertson tended to give much less weight than certain contemporaries to monetary considerations in the determination of cyclical fluctuations, it may be thought surprising that he took on the authorship, after returning from the First World War, of the 1922 Cambridge Economic Handbook on *Money*. Keynes might have initially intended to do it himself, but, being too busy to do so, may have put pressure on his erstwhile student, junior and friend to write it in his stead.

Though the book soon became justly famous, this was in some large part because of the lucidity of its presentation and its wit and humour; space allows but one example: “The mere assurance of convertibility, it is thought, would have the same kind of soothing effect as the sound of church bells in the distance, and be equally unprovocative of action” (Robertson 1948: 60). It was also the first occasion when Robertson used Alice quotations at the head of each chapter, henceforth one of his trademarks. (As macroeconomics has gained in mathematical rigour, so it has lost in style.). But, leaving style to one side, it is in some other respects, and with hindsight, slightly odd as a textbook on money. Although the value of money, the inverse of the price level, is emphatically stated to be the outcome of the interaction between the demand and supply of money – a quantity theory approach – there is relatively little formal discussion of the

factors determining the demand, or of the supply of, money.

The demand for money is taken to be conventionally related to incomes. Although “the demand for money, like that of the demand for bread, turns out to be the result of a process of individual weighing up of competing advantages *at the margin*” (ibid., 36; italics in original), the only example that Robertson gives of a serious shift in velocity, the Marshallian *k*, arises as a result of extreme inflationary (or deflationary) expectations, as in the German hyperinflation (ibid., 117-9). For the remainder Robertson tends to assume that velocity is generally stable, despite acknowledging that money is whatever may be currently acceptable in exchange (ibid., 3-4). If the latter is true, might not financial innovations, and/or general reactions to monetary mismanagement, make both the definition of money and its velocity unstable? Again, there is remarkably little reference to the role of interest rates in equating the demand and supply of money. Nor is the supply of money treated with great care. The role of the central bank in controlling the supply of money does not appear until quite late in the book, in chapter VIII on ‘The Question of the Cycle.’

Instead, Robertson focusses on three other questions. The first, which was a recurring theme for him, was whether it would be preferable to aim for a stable price level, a price level that declined slowly in line with productivity, or a gently rising price level, to provide encouragement for entrepreneurs. Whichever might be chosen, he was keen to add that its achievement should *not* be in the guise of a rigid rule, but a rough norm, or average, allowing some faster inflation in investment-led booms, balanced by some declines in prices either in depressions or when productivity gains were particularly strong. He was also prescient in his criticisms of the ‘real bills’ doctrine, which he



termed the ‘Principle of Productive Credit,’ (see Robertson (1928) [1940]).

The second main issue, as would be expected in a book first written in the early 1920s, concerns the exchange rate regime to be adopted. The discussion of this, in chapter VII, is beautifully balanced. Moreover, in line with his quantity theory approach within a closed economy, Robertson develops the view that, in the longer run, the exchange rate between two economies is determined chiefly by relative national monetary growth operating through their respective price levels (see Humphrey 1992).

However, the core and focus of the book is in chapter V on ‘Money and Saving.’ The key quest of Cambridge macroeconomics in general, and of Robertson and Keynes in particular, in the interwar-period was to analyse how the *ex ante* desire to invest and to save, which were driven by different forces and were often far from identical, could be adjusted so that at every point of time *ex post* investment and saving had to be exactly equal in a closed economy. While (real) interest rates, dependent on productivity and thrift, were a part of the story, Robertson does not put much weight on that equilibrating force, either in *A Study of Industrial Fluctuation, Money, or Banking Policy and the Price Level*.

Instead, the *deus ex machina* is forced saving via changes in the price level. Entrepreneurs generally have little wealth of their own, and so turn to banks for loans to provide ‘circulating capital.’ This gets spent on labour, raw materials, etc., and the money stock rises (loans create deposits). With the output available fixed from production the day before ( $D_{t-1}$ ), the Robertsonian lag, and money velocity assumed constant ( $k$  is fixed), prices have to rise. But the rise in prices reduces real incomes,

again with nominal incomes having been earned in the previous day, and thereby forces income recipients to spend less than they had intended, as already described in Section 2. That, however, is far from being the end of the story. The rising prices, especially, but not necessarily, if wage rates remain sticky, encourage all entrepreneurs to raise output in this same period. But what was central was that the adjustment process was via price and monetary changes, involving ‘forced saving,’ or the various forms of ‘lacking’ already discussed.

This central plank of Robertson’s theory was extended and embellished in *Banking Policy and the Price Level*, especially the key chapters V and VI. What is remarkable, given what was to come later, was the recorded close involvement of Keynes in that analysis and his apparent commendation of it. In several ways, however, *Banking Policy and the Price Level* was something of a disaster. Robertson had a habit, shared with Lewis Carroll, of making up words; thus, in *Money* he preferred to call bank deposits ‘chequeries.’ Moreover, rather than pursue simplicity, he felt obliged to detail all possibilities. The result, of which *Banking Policy and the Price Level* is the main example, could be an almost impenetrable jungle of words.

Yet, the basic message of the price adjustment/forced saving approach is perfectly simple and intuitive. Moreover, Robertson was writing *Money* shortly after the 1919/20 post-war cycle, largely driven by changes in prices of commodity inventories, and had the inflations in Central Europe to observe, so viewing the adjustment process through a flex-price lens was entirely understandable.

What happened between 1926 and 1936 was that Keynes moved on from a perfectly

flex-price to a (temporarily at least) fixed-price model, so that adjustment took place primarily via output changes rather than through the price mechanism (see, for example, Skidelsky 2003: 481-2). Why he failed to take Robertson with him, or perhaps failed to try to do so, is not clear. Thus, rather than having initial injections of (investment) expenditures leading businessmen to rewrite price tags continuously, the expenditures (output being given) would result in (unplanned) reductions in inventories of finished goods. Robertson had been aware of the possibility of de-stocking, but had asserted that stocks of finished goods were relatively small. In practice, he then, post-1936, retreated quite a long way from his forced savings theory. Thus in his 'A Survey of Modern Monetary Controversy' (Robertson (1938) [1940]: 106), which was aimed to take some of the heat out of the disputes, he wrote, "The increase in expenditure tends to make prices rise, but the use of accumulated stocks, and the expansion of output, tend to prevent them from rising." Note that in the above brief account, the Robertsonian lag, whereby everything available today for sale is produced in an earlier period, and period-by-period dynamics are maintained, the Keynesian analysis still holds. Nevertheless, Keynesians tended also to assume that output could be varied within the immediate short period to meet changing demand and, even in some extreme cases, that the full multiplier process could be completed within the immediate short period. Robertson had some fun at their expense, and reasonably enough preferred his own methodology, but it did not disguise the fact that in this key field of analysis, Robertson had lost the battle, and he knew it.

Robertson never again tried to develop a holistic account of macroeconomic adjustment, once 'forced savings' had been largely shot down. Instead, he tended to snipe at the errors and excesses of the Keynesian revolution. There were several of these targets for

Robertson. In particular, the fact that most goods and services exhibit sticky prices in the short run does not mean that businessmen will not adjust prices in the medium and longer term when trends in input prices, competitive output prices, and demand for their own product became more clearly apparent. But Keynesians initially extended the stickiness of prices to continue indefinitely over time, until full employment was reached, a reverse-L-shaped supply curve. Moreover, there was a tendency from the late 1930s to the 1950s to lower the assumed level<sup>5</sup> of such full employment from perhaps five per cent of the workforce unemployed in the 1930s to one per cent, or even lower, in the 1940s and 1950s. Inflation occurring above this level of unemployment was then largely attributed to cost-push pressures, and the socially 'correct' remedy was incomes policies.

All this was anathema to Robertson. The heterogeneity of the real economy, bottlenecks, transitional costs, etc., meant that there would be no kink at full employment. In a debate at the 1959 Conference of the International Economic Association on Inflation, Robertson referred to Phillips's (1958) conclusion that a rate of unemployment of 2.5 per cent should be able to preserve price level stability as "very favourable to the optimists" (Hague 1962: 456). In Robertson's opinion, the original element in Phillips's article was not the negative correlation between the rate of growth in money wages and the rate of unemployment, but rather its contention that the relationship between these two variables was stable. Robertson noted that "one could not put much reliance on the results because it assumed there was a fixed psychological function relating the attitude of trade unions to the level of employment over a whole

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<sup>5</sup> Skidelsky (2003: 711-2) has Beveridge giving a value of eight per cent to this and Keynes regarding five per cent as "normal."

century” (ibid.). Interestingly enough, as Blyth (1975: 306) notes, Robertson (while at the LSE) played a role in influencing Phillips to add the determination of prices and wages to the traditional Keynesian model of the early 1950s. Even more important, Robertson saw no proper empirical, or theoretical, basis for the progressive reductions in estimates of full employment, and believed that cost-push pressures only occurred because of the excessive level of demand, and that incomes policies could not work in such conditions. He had the courage to argue (in the Cohen Council 1958) that the equilibrium (NAIRU) level of unemployment was somewhat over two per cent, not only higher than the then estimates of most Keynesians, but also higher than previous outcomes. For such counter-revolutionary views, he was excoriated by the *bien-pensant* socialists of the day, including many in the Cambridge economics faculty. Currently, however, when central banks worry about whether the NAIRU might be anywhere between say, four and six per cent, and any suggestion to adopt an incomes policy would be laughed out of court, it is patently obvious that Robertson won this larger battle. Mainstream macro is now Robertsonian, rather than Keynesian.

Robertson believed in the relative stability of the velocity of money, and was a sceptic about the stability of the consumption function. In what was known as the ‘battle of the airwaves’ between Friedman and Meiselman (FM) and Ando and Modigliani (AM), he would have been one of the few British economists to take the side of FM. Indeed, he adopted at one time, or another, almost all the analytical parts that lay behind Friedman’s monetarist counter-attack on the Keynesian position. Yet he never quite put it all together in that way, perhaps because he saw himself as Blondin, the tightrope walker, keeping a balance between different schools of thought, all of which had merit (Robertson (1938) [1940]).

A possible contributory factor might have been a slight hesitance, or uncertainty, about the determinants of the supply of money. Robertson is crystal clear that loans create deposits, and in some cases he leaves it at that, e.g. in his address on ‘Is There a Future for Banking?’ (Robertson 1952: chapter 14). But then the question arises as to what limits the expansion of bank loans? In a slump, it often is the demand for such loans; analogies arise about taking horses to water. However, in a boom Robertson sees the limiting factor as the availability of cash reserves, and he adopts, though mostly in words, the money multiplier analysis, which was becoming standard. At the same time, Robertson is aware of a problem: The banks can always get more cash by (forcing the discount market into) borrowing from the Bank of England, admittedly at a penalty rate, but one that is not much higher than the policy rate. Interest rates will then rise, but not by much unless the Bank is prepared to raise the whole structure of (short) rates significantly.<sup>6</sup> This problem became even worse after the Second World War when British banks were stuffed full of saleable short-term government debt, with the government being a largely interest-insensitive borrower.

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<sup>6</sup> From *Money* (1948: 162-3): “But on these difficult matters the reader may well be excused from seeking further enlightenment in this little book, and the author from trying to impart it. It is enough to realise that by the use of their double weapon, Central Banks can up to a point check the expansion of the money-supply [sic]; and that while we cannot be sure that their power to do so is in all circumstances complete, there is good reason to believe that if it were used earlier and more resolutely than it has sometimes been in the past, many of the evil excrescences of a trade boom could be lopped away.”

Robertson was one of the few to recognise some of the flaws in monetary management by means of ratio controls. Thus,

If a proportion fixed by custom is arbitrary and misleading, a proportion fixed by law seems at first sight to be positively mischievous. An iron ration which you must not touch even in the throes of starvation is something of a mockery. Against such criticism it may be urged (though not too loudly) that in finance as in war rules are made to be broken on occasion, and that their object is not to ensure that certain things shall never be done, but that they shall not be done without good reason (Robertson 1948: 57).

And, "...it resembles the procedure of a certain municipality which tried to guard against a shortage of cabs by ordaining that there should always be at least one cab on the ranks" (ibid., 62). One of the authors of this paper has re-used this analogy on numerous occasions, without having been fully aware of its provenance with Robertson.

Interest rate fluctuations play a relatively minor role in *A Study of Industrial Fluctuation, Money, and Banking Policy and the Price Level*, indeed remarkably so in the latter two books. Whereas productivity and thrift play a fundamental role in determining the quasi-equilibrium longer-term real interest rate, in practice, short-term factors, such as gold flows, changes in bankers' confidence, shifting expectations of future inflation, etc., could easily drive actual market rates away from the equilibrium level.

It is, therefore, somewhat ironic that Robertson's best-known clash with Keynes was

over interest rate determination, the loanable funds versus liquidity preference debate. As in the case of price stickiness, it was triggered by Keynes in his attempt to differentiate his product from what had gone beforehand, even though he himself was arguably going too far. First, Keynes argued that saving was, almost entirely, a function of income, and hardly, if at all, of interest rates, and that investment was (empirically) rather insensitive to interest rates. As a result, interest rates could not be determined by forces causing *ex post* I to equal *ex post* S at full equilibrium (or in other words the Hicksian IS curve was very inelastic).

Second, Robertson, supported initially by Keynes, had argued that the demand and supply of money were equilibrated by changes in the general level of prices, the quantity theory of money. But now Keynes had shifted towards claiming price (or money-wage unit) stickiness so long as employment was below full employment. If so, then what would equate the demand and supply of money? Keynes's answer, of course, became the liquidity preference theory. The extreme version of the liquidity preference theory could not, and did not, last, partly under fire from Robertson. Keynes was obliged to accept a 'finance' motive for holding money, and Hicks, with his IS/LM analysis, brought about a partial reconciliation.

Robertson was not fully reconciled with the IS/LM analysis, even though it did bring back productivity and thrift into the analysis of the determination of interest rates, from which Keynes had once hoped to banish it. Even so, it made the adjustment of the economic system to disturbances to supply-side monetary shocks occur primarily via interest rates, whereas Robertson would argue that the money/bond margin was but one margin out of many; so supply-side monetary shocks could impinge the economy



directly and not just via interest rates (see, for example, his paper on ‘What Has Happened to the Rate of Interest?’ (Robertson (1949) [1952])).

A second, more policy driven, concern of Robertson’s was that the Keynesian analytical apparatus was used, primarily after the Second World War, to justify using fiscal policy to maintain full employment, while holding interest rates down as low as possible (Dalton) in order to encourage investment, to lower the debt burden (on government) and, perhaps, to push the rentier into euthanasia. In part because of Robertson’s belief in the quantity theory, he believed that this line of policy would become inflationary, distortionary and ineffective. His later, post-Second World War writings are full of pleas both for a higher general level of interest rates and for a much more aggressive counter-cyclical variation in them (see Dennison 1992).

To conclude this section and sum up, Robertson’s central analytical concept of forced saving following flex-price inflation was discredited when Keynes switched from a flex-price to a fix-price adjustment mechanism. But wait long enough into the medium term and almost all prices regain a flex-price character. In this latter context, the balanced wisdom of Robertson/Blondin has eventually, albeit post-mortem, triumphed over the initial excesses of the Keynesians. Modern macro is primarily Robertsonian (rather than Keynesian), except that the IS/LM (now three equation) model still has money supply shocks channelled primarily via the interest rate, whereas Robertson would have preferred to revert to a more general quantity theory mechanism.

#### **4 Robertson and the Cambridge approach to utility and welfare**

In the post-Second World War era Robertson attempted to defend the Cambridge utilitarian tradition against the ‘new welfare economics’, developed earlier following Robbins’s influential criticism of the legitimacy of interpersonal comparisons of utility. Robertson claimed that welfare economics *should* be based on cardinal utility, while rejecting the ordinalist revolution in consumer and welfare theories.

A main feature of Cambridge welfare economics uses the acceptance of interpersonal comparisons of welfare, though not necessarily associated with cardinal utility measurement. Robertson ((1951) [1952]: 17, 38) saw himself as part of the “Cambridge set up,” coming from Marshall, the “Cardinal Club” and the “Pigouvian world of measurable utility.” As both Robertson and Pigou (1953: chapter 5) were aware, Marshall’s cardinalism was nuanced since he insisted that the utility of sensations cannot be measured directly, but only indirectly by their observable effects. This notion of utility as a “mental metric” of desire was common to Marshall, Pigou and Robertson, as noted by Sen (2000: 67). Its core assumption, according to Robertson (*ibid.*, 15; 1957: 72-3), was the psychological rule of diminishing marginal utility, based on “introspection and observation” and interpreted as a corollary of the idea that utility is quantitative and measurable. Along with the requirement that utility is additively separable, diminishing marginal utility implies strict convexity of Edgeworth’s indifference curves. The Marshallian consumer is supposed to have a cardinal capacity of knowing the rate at which marginal utility declines, a knowledge that enables her to maximise her economic welfare or utility by distributing expenditure so that the marginal utility of a good is proportional to its price. This does not mean that marginal utility can be directly measured, but that the price a consumer pays for each good is an indirect measure of its marginal utility.

Robertson began with an examination of Pareto's claim that lumps of utility can be set out in *order* of magnitude, but that one cannot ask *how much* greater one lump of utility is than another (Robertson (1951) [1952]: section 2). However, Pareto and his followers did not consistently adhere to the postulate of ordinal utility, since the notion of marginal utility was still present in their assumption about the signs of the second derivatives of the utility function. Apart from the convexity assumption, Robertson also criticized the methodological principle of Occam's razor. Although the theory of demand could be presented in an objective and behaviouristic fashion (as in chapter 4 of volume 1 of the *Lectures*), Robertson did not accept the view that consumer theory should merely *describe* choices rather than explain them.

Robertson's attempt to protect Cambridge from the criticisms of new welfare economics was based on his view that the replacement of the law of diminishing marginal utility of income – which made possible interpersonal comparisons of utility – by compensation criteria and the social welfare function did not represent progress. His defence of cardinal utility was not restricted to welfare economics, but included also demand theory, since ordinal utility would not provide a better account of consumers' behaviour, especially the crucial assumption that indifference curves are convex towards the origin, associated with his emphasis on material welfare as the proper domain of economics. Robertson had some influence over Cambridge students at the time, including Amartya Sen, who arrived at Trinity College in 1953. As recalled by Sen, his teachers at Trinity, Dobb, Sraffa and Robertson, were his main influence:

And then Robertson was very important. He presented good, critical reasons for

being sceptical of behaviourism, including the notion of revealed preference that had by then taken hold of economics. The idea that we can understand human beings in terms only of their behaviour, and then only their non-verbal behaviour, never through conversation...was very alien to the Marshallian part of the Cambridge tradition, a tradition I came to admire a lot. The natural heir to that tradition in my student days was Dennis Robertson (Sen quoted in Klamer 1989: 138).

## 5 Conclusion

Robertson had a long and fruitful career as a Cambridge economist, since his student days in the 1910s up to his retirement in the 1950s. Marshall's overall influence is visible throughout Robertson's work in monetary economics (the Cambridge approach to the quantity theory of money, the loanable funds view of the determination of the interest rate, etc.) and in his contributions to microeconomics as well (the theory of the firm, utility and demand). Indeed, Robertson's *Lectures* may be seen as the last Marshallian textbook. But in his contributions to monetary dynamics Robertson went well beyond the orthodox Marshallian research program, even if, in contrast with Keynes, he always regarded himself as walking along the footsteps of the old master. This is related to Robertson's character, who saw the evolution of economic theory as a continuous process instead of a succession of 'revolutions' and abrupt changes. Robertson's character caused him some problems at Cambridge in the 1950s, when he had a hard time getting along with Keynesian economists Joan Robinson and Richard Kahn (see Harry Johnson's 1978 recollections of his period at Cambridge). With the exception of his 1926 difficult book, Robertson excelled as a "charming writer," who

“would sneak up on the unwary reader and gain his acquiescence by a siren song”  
(Samuelson 1963: 518).

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