

On the Efficacy of Saving

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Abstract

It is demonstrated that Keynes' definition of income and treatment of expectations make a logically consistent, causal analysis of dynamic behavior possible in Keynes' general theory and that Keynes' analysis definitively refutes the arguments of those who cling to the misguided classical belief that an increase in propensity to save will lower the rate of interest and thereby increase the rate of capital accumulation and economic well-being in the future.

Keywords: methodology, causality, monetary theory, theory of interest, Keynes.

JEL Codes: B41, E12, E13, E40

1. Introduction

Over the thirty-five years leading up to the Crash of 2008 the United States managed to a) encourage individual and municipal retirement accounts and funds, b) convert Social Security from a pay-as-you-go to a partial-prepayment system, c) neglect the minimum wage while suppressing labor unions, d) cut corporate taxes and taxes on the wealthy while increasing taxes on the not so wealthy, e) weaken usury laws while enacting draconian bankruptcy laws, f) refuse to enforce antitrust laws, g) reduce investment in physical infrastructure and human capital, and h) dismantle our domestic and international financial regulatory systems. These are policies that enhance the aggregate propensity to save by increasing the concentration of income and facilitating trade deficits—*policies that only make sense in macroeconomic models that ignore the relationship between consumption and effective demand and assume that saving enhances economic growth and employment*. These are also the policies that led to the Savings and Loan debacle of the 1980s, the Dotcom and Telecom bubbles in the 1990s, and the Housing bubble and Mortgage crisis in the 2000s that culminated in the Crash of 2008 and the economic stagnation that followed. (Blackford 2018; 2020a; 2021)

In examining the arguments put forth by those who reject Keynes and cling to the misguided belief that an increase in the propensity to save will lower the rate of interest and thereby increase the rate of capital accumulation and economic well-being in the future—a belief that underlies the policies that led to the Crash of 2008 and to where we find ourselves today—we begin by examining Dennis H. Robertson's confused criticism of Keynes with regard to what Robertson dubbed "the long-period problem of saving" which, as we shall see, is a misnomer. This argument stands at the very core of the belief in the efficacy of saving and has been explicitly defended by such eminent economists as George Horwich, Sho-Chieh Tsiang, and Meir Kohn and has been more or less accepted by innumerable others such as Alvin Hansen, Ben Bernanke, Harry Johnson, Milton Friedman, Lawrence Klein, and Axel Leijonhufvud, Gregory Mankiw, Paul Samuelson and William Nordhaus to name but a few.

2. Robertson's Confused Criticism of Keynes

In his November 1936 review of *The General Theory* Robertson took Keynes to task for his analysis of what Robertson called "the long-period problem of saving." Since Robertson's criticism is the foundation on which those who cling to the classical believe rest their case (Horwich, Tsiang, Kohn) it is quoted here at length:

According to Mrs. Robinson,² Mr. Keynes' theory "has been developed mainly in terms of short period analysis;" but...it may be convenient to conclude by examining briefly the bearing of his "liquidity preference" formula on the long-period problem of saving. This problem can be put in various forms, of which I choose what is, I hope, alike the simplest and the best adapted to bring out Mr. Keynes' points. Will an increased rate of saving which is not itself hoarding (e.g. which takes the form of an increased demand for securities), but which involves an actual diminution in the rate of expenditure on consumable goods, lead to a progressive shrinkage in total money income?

In one of his extremer passages (pp. 211-213) Mr. Keynes appears to invoke his formula in support of the view that such an event has *no* tendency to bring down the rate of interest nor therefore to stimulate the formation of capital equipment. For why, he asks, the quantity of money being unchanged, should a fresh³ act of saving diminish the sum which it is required to keep in liquid form at the existing rate of interest? The answer surely emerges from the composite nature of "liquidity preference." If the event in question deprives the producers of consumption goods of income, it reduces by the same act their ability to hold money for "transaction" and "precautionary" purposes. It is only if they resist the switch in public demand by continuing to indulge in expenditure, to offer employment, and hence to hold (or cause to be held) money balances on the old scale, that "liquidity preference" as defined will remain unchanged. Mr. Keynes' argument in this passage seems to be a repetition in disguise of his old argument that increased saving which is not itself hoarding is necessarily balanced by the sale of securities on the part of entrepreneurs who are making losses but are determined not to restrict the amount or change the character of their output.... So long as such a situation exists and is expected to continue, the rate of interest will, it is true, not fall nor the formation of capital equipment be stimulated.... If such a situation does *not* exist, there is nothing in the doctrine of liquidity preference to invalidate the common-sense view that the increased demand for securities will tend to raise their price.

There remains, however, a further point.... [I]f there exists for the community as a whole a negatively inclined curve of "liquidity preference proper" ... some part of the additional savings devoted by individuals to the purchase of securities will come to rest in the banking accounts of those who, at the higher price of securities, desire to hold an increased quantity of money.⁶ Thus the fall in the rate of interest and the stimulus to the formation of capital will be less than if [the liquidity-preference curve] were a vertical straight line, and the stream of money income will tend to contract....

It would, I think, be agreed by “orthodox” writers⁷ that this is a situation calling for a progressive increase in the supply of money. (1936, pp. 187-8)

In this passage, Robertson clearly stated his belief that the only obstacle to maintaining income in the face of an “increased rate of saving” is “the additional savings ... come to rest in ... banking accounts” that results from the fall in the rate of interest (“higher price of securities”). In Robertson’s view of this problem, this is “a situation calling for a progressive increase in the supply of money,” hence, a problem that can be easily solved by increasing the supply of money. At the same time, Robertson’s explanation of “Mr. Keynes’ points” is at odds with what Keynes actually said with regard to these points.

To begin with, Robertson misstated the question asked by Keynes in “one of his extremer passages (pp. 211-213).” Keynes did not ask “why... the quantity of money being unchanged, should a fresh³ act of saving diminish the sum which it is *required* [*emphasis added*] to keep in liquid form at the existing rate of interest” as Robertson asserted. What Keynes actually asked was “why, the quantity of money being unchanged, a fresh act of saving should diminish the sum which it is *desired* [*emphasis added*] to keep in liquid form at the existing rate of interest” (Keynes 1936, p. 213). These are entirely different questions.

Keynes’ question as to what “is desired to keep in liquid form at the existing rate of interest” has to do with the *demand* for liquidity, that is, the quantity of liquidity *demand*ed (i.e., desired or willingly held) at the existing rate of interest. Robertson’s misstatement as to what “is *required* to be kept in liquid form” and his answer to his own question that if “the event in question deprives the producers of consumption goods of income, it reduces by the same act their ability to hold money for ‘transaction’ and ‘precautionary’ purposes” indicates that Robertson is talking about how a change in income will reduce the transactions and precautionary demands for money and, thereby, free those balances to increase the quantity of liquidity *supplied* as the system adjust to a new point of equilibrium. Robertson’s irrelevant analysis of the effects of an increase in *supply* in response to Keynes’ question with regard to the effects of an increase in *demand* clearly indicates the extent to which Robertson failed to address the point of Keynes’ analysis of this problem.

Keynes’ question appears at the end of section I in Chapter 16 of *The General Theory*, and throughout that section Keynes discusses the effects of the “absurd, though almost universal, idea that an act of individual saving is just as good for effective demand as an act of individual consumption ... so that current investment is promoted by individual saving to the same extent as present consumption is diminished.” According to Robertson, Keynes’ argument in this section “seems to be a repetition ... of his old argument” from his *Treatise on Money*. Since this old argument also stands at the very center of the controversy between Robertson and Keynes it is also quoted here at length:

Before leaving this section it may be well to illustrate further the conclusion stated above, that a fall in the price of consumption-goods due to an excess of saving over investment does not in itself—if it is unaccompanied by any change in the bearishness or bullishness of the public or in the volume of savings-deposits, or if there are compensating changes in these two factors—require any opposite change in the price of new investment-goods. For I believe that this conclusion may be accepted by some readers with difficulty.

It follows from the fact that, on the above assumptions, the total value of the investment-goods (new and old) coming on to the market for purchase out of current savings is always exactly equal to the amount of such savings and is irrespective of the current output of investment-goods. For if the value of the new investment goods is less than the volume of current savings, entrepreneurs as a whole must be making losses exactly equal to the difference. These losses, which represent a failure to receive cash up to expectations from sales of current output, must be financed, and the non-receipt of the expected cash receipts must be somehow made good. The entrepreneurs can only make them good either by reducing their own bank deposits or selling some of their other capital assets. The bank-deposits thus released and the securities thus sold are available for, and are exactly equal to, the excess of current savings over the value of new investment.

In the more general case where the public sentiment towards securities or the volume of savings-deposits is changing, then if the extent to which the entrepreneurs have recourse to the expedient of releasing bank-deposits plus the increase in savings-deposits allowed by the banking system just balances the increase in the desire of the public to employ their resources in bank-deposits, there is no reason for any change in the price of securities. If the former is in excess of the latter, the price of securities will tend to rise and if the latter is in excess of the former, the price of securities will tend to fall. (1930, pp. 130-1)

Both Robertson and Hayek criticized this argument in 1931, arguing that output must change in this situation. In his 1931 reply to this criticism Keynes restated the argument, and this time he emphasized the words “*in itself*” in the first sentence of the above passage, and toward the end of the discussion he added the following footnote:

¹I did not deal in detail in my book, and I am not dealing here, with the train of events which ensues when, as a consequence of making losses, entrepreneurs reduce their output. This is a long story ... which I intend to treat in detail in due course. Its only bearing on the present argument is that a change in output affects the demand for active deposits, and may therefore (according to how the banking system behaves) affect the supply of hoards. (1931, p. 418)

In addition, in the preface to *The General Theory*, Keynes explained the nature of the theoretical arguments put forth in his *Treatise on Money* as an “instantaneous picture taken on the assumption of a given output.” (pp. vi-vii)

From a) Keynes’ old argument itself, b) Keynes’ emphasis on the words “*in itself*” in his response to Robertson’s and Hayek’s criticisms, c) Keynes’ footnote stating that his argument does not, in fact, deal with the situation in which output changes, and d) Keynes’ explanation in the preface to *The General Theory* that his argument in *A Treatise on Money* assumes “a given output,” it should be clear that in spite of the fact that Robertson presented his objections to Keynes’ old argument within the context of “the long-period problem of saving,” Keynes’ old argument does not deal with the long-period effects of an increased rate of saving on income or the rate of interest. Specifically, it has to do with a *ceteris paribus* situation in which *output is assumed to be constant*. This is, of course, *precisely the kind of ceteris paribus situation that*

is the essence of Marshall's ceteris paribus, partial equilibrium methodology. (Blackford 2019a)

What Robertson described in the above passage is *not* Keynes' long-period problem of savings—that is, the problem of maintaining full employment in the long run in the face of a declining prospective yield at the margin due to the increasing stock of capital that results from saving/investment (Blackford 2019b; 2021). What Robertson described in the above passage is what may be referred to as *the short-period problem of saving*, that is, the problem of maintaining or achieving full employment *in the short run* in the face of an increase in the propensity to save. Robertson's conflation of these two problems and attributing this conflation to Keynes is obviously a straw-man since at no time did Keynes argue that an increased rate of saving can have no effect on income or the rate of interest *over the course of some indefinite period of time* as Robertson's arguments insinuated in the passage quoted above. Nor did Keynes argue that this is the reason why an increased rate of saving cannot stimulate the formation of capital. Keynes' (1938) argued that an increase in the propensity to save will, indeed, lead to a fall in employment, output, income, and the rate of interest *over time* in the situation posited by Robertson, but, as we shall see, Keynes' explanation as to *how* and *why* this will occur is, in fact, "radically opposed" (Keynes 1937, p. 241) to Robertson's explanation as to *how* and *why* this will occur.

It is demonstrated below that Robertson's supposition that Keynes based his analysis of the short-period problem of saving on the assumption that an increase in the propensity to save will not lead to a fall in income and the rate of interest was a red herring in that it conflated two separate issues raised by Keynes: 1) whether or not an increase in the propensity to save can, *in itself*, cause a fall in the rate of interest and 2) whether or not an increase in the propensity to save will stimulate the formation of capital, that is, increase the flow of investment. The source of Robertson's confusion in this regard, along with that of those who cling to the misguided belief in the efficacy of saving, can be seen by examining the differences between Robertson's and Keynes' definitions of income and treatment of expectations in their respective analyses of this problem.

3. Income and Expectations

Robertson used the terms "income" and "income received" interchangeably, and by these terms he meant quite literally money received from the sale of output. Thus, Robertson defined income as *the value of output sold*. (Robertson 1933; 1940; 1959; Horwich; Tsiang; Kohn; Hawtrey; Modigliani)

Keynes took great care in constructing his definition of income as being equal to sales less user cost, where user cost "is the measure of what has been sacrificed (one way or another) to produce [sales]." The fact that this "sacrifice" is, by definition, inversely related to changes in inventories and "maintenance and improvement" means that Keynes defined income as being equal to *the value of output produced*. (Keynes 1936, pp. 52-5, 63; Hayes) The significance of this difference between Robertson's and Keynes' definitions of income can be seen by examining Keynes' explanation of the way in which employment and output produced are determined in his general theory.

Keynes argued that whenever production takes time, at each and every point in time at which a decision must be made concerning employment and output that decision must be made with

reference to existing capital equipment on the basis of currently held *expectations* with regard to the costs to be paid and the proceeds to be received in the *future* while the output is being produced and when it is to be sold.¹ The actual costs and proceeds that result from employment and output decisions cannot have a direct effect on these decisions, only an indirect effect, and, even then, only to the extent they have an effect on stocks of capital assets and *subsequent* expectations, that is, on the capital stocks that exist and expectations formed *after* the expected costs and proceeds are (or are not) actually realized.² This argument has a clear implication with regard to income.

Since Keynes constructed his definition of income in such a way that income is equal to the value of output *produced*, whenever production takes time, income, so defined, is earned (accrues) *before* the output produced in generating income is sold. This makes income a psychological phenomenon, determined in the minds of decision-making units, and *this value cannot be separated from the expectations of these units*. The implication is that whenever production takes time, at each and every point in time at which a decision must be made

¹ Keynes:

All production is for the purpose of ultimately satisfying a consumer. Time usually elapses ... between the incurring of costs by the producer ... and the purchase of the output by the ultimate consumer. Meanwhile the entrepreneur...has to form the best expectations¹ he can as to what the consumers will be prepared to pay when he is ready to supply them ... after the elapse of what may be a lengthy period; and he has no choice but to be guided by these expectations, if he is to produce at all by processes which occupy time.

These expectations, upon which business decisions depend, fall into two groups.... The first type is concerned with the price which a manufacturer can expect to get for his "finished" output at the time when he commits himself to starting the process which will produce it.... The second type is concerned with what the entrepreneur can hope to earn in the shape of future returns if he purchases (or, perhaps, manufactures) "finished" output as an addition to his capital equipment. We may call the former *short-term expectation* and the latter *long-term expectation*.

Thus the behaviour of each individual firm in deciding its daily¹ output will be determined by its *short-term expectations*—expectations as to the cost of output on various possible scales and expectations as to the sale-proceeds of this output.... It is upon these various expectations that the amount of employment which the firms offer will depend. The *actually realised* results of the production and sale of output will only be relevant to employment in so far as they cause a modification of subsequent expectations. Nor, on the other hand, are the original expectations relevant, which led the firm to acquire the capital equipment and the stock of intermediate products and half-finished materials with which it finds itself at the time when it has to decide the next day's output. Thus, on each and every occasion of such a decision, the decision will be made, with reference indeed to this equipment and stock, but in the light of the current expectations of prospective costs and sale-proceeds. (1936, pp.46-7)

² Keynes:

It is evident from the above that the level of employment at any time depends, in a sense, not merely on the existing state of expectation but on the states of expectation which have existed over a certain past period. Nevertheless past expectations, which have not yet worked themselves out, are embodied in the to-day's capital equipment with reference to which the entrepreneur has to make to-day's decisions, and only influence his decisions in so far as they are so embodied. It follows, therefore, that, in spite of the above, to-day's employment can be correctly described as being governed by to-day's expectations taken in conjunction with to-day's capital equipment.(1936, p. 50).

concerning income, that decision must be made on the basis of currently held *expectations* just as the corresponding decisions concerning the employment and output that generates that income must be made on the basis of currently held expectations. (Keynes 1936, chaps. 5-6)

The relationship between employment, output, income, and the entrepreneurs' *expectations* is also stated explicitly by Keynes in his definition of effective demand where he defined effective demand in terms of the *proceeds* producers *expect* to receive as they maximize their expectation of profits through the employment of resources.³ It is the *expectation* of profits that is assumed to be the *direct* determinant of employment, output, and, hence, *income* in Keynes' general theory.

The psychological dependence of decisions concerning employment, output, and income on expectations is of the utmost importance in Keynes' general theory for it is this dependence that provides the distinction between the way in which expected and realized results affect decision-making behavior: Expectations affect *current* decisions directly whether they are realized in the future or not while realized results only affect decisions made *after* the results are (or are not) actually realized. This distinction lies at the very core of Keynes' general theory for it determines *the temporal order in which events must occur* which makes it possible to separate cause and effect. The ability to separate cause and effect is the *sine qua non* of causality, (Hume) and it is the psychological dependence of decisions concerning employment, output, and income on expectations that makes *a causal analysis of dynamic behavior possible in Keynes' general theory*. (Keynes 1936, ch. 5; Blackford 2019a; 2019b; 2020a)

When income is defined as Keynes defined it the causally significant variable becomes the value of output produced *as perceived by decision-making units in light of their current expectations*. This value is equal to Robertson's definition of income as the value of output sold changes randomly over time only if expectations are unit-elastic and the value of output produced adjusts *instantaneously* to changes in sales. (Modigliani) But whether expectations and the value of output produced are determined in this way or not the value of output produced *as perceived by decision-making units* depends on their current expectations in Keynes' general theory, and, *given the level of employment and output, income cannot change except through a change in expectations*.

When income is defined as Robertson defined it such that it is equal to the value of output sold, income becomes an *ex-post* magnitude the value of which is determined *after* output is sold. Thus, *Robertson's definition of income does not allow for the distinction that is central to causality in Keynes' general theory*—namely, the distinction between the way in which expected and realized results affect decision-making behavior with regard to employment, output, and income—since income is a realized result in Robertson's methodology and is not dependent

³ Keynes:

Furthermore, the effective demand is simply the aggregate income (or proceeds) which the entrepreneurs expect to receive, inclusive of the incomes which they will hand on to the other factors of production, from the amount of current employment which they decide to give. The aggregate demand function relates various hypothetical quantities of employment to the proceeds which their outputs are expected to yield; and the effective demand is the point on the aggregate demand function which becomes effective because, taken in conjunction with the conditions of supply, it corresponds to the level of employment which maximises the entrepreneur's expectation of profit. (1936, p. 55)

on expectations.⁴ As we shall see, it is the absence of this distinction that limits Robertson's methodology to that of comparative statics.⁵

That herein lies the fundamental difference between Robertson's and Keynes' understanding of the short-period problem of saving can be seen by contrasting Robertson's and Keynes' analysis of the way in which the effects of an increase in saving, that is, *an increase in the propensity to save*, work their way through the economic system *through time*, given Robertson's and Keynes' respective definitions of income and treatment of expectations.

4. Robertson on the Short-Period Problem of Saving

Robertson's understanding of the way in which the effects of an increase in saving work their way through the system through time which has been eulogized by Horwich, Tsiang, Kohn, and others along with Robertson's understanding of Keynes' analysis of this process can be found in Robertson's 1936 review of *The General Theory* quoted above, also in his attempt to explain the relationship between his and Keynes' theories of interest in Robertson's 1940 *Essays* (pp. 18-9), and again in his 1959 *Lectures* (pp. 67-70). The following passage is from his 1940 *Essays*:

Let me state in my own language what I believe the Keynesian is trying to convey. Suppose that I decide to spend £100 of my income on securities, instead of as hitherto on fine clothes. My action destroys £100 of the income of my tailor and his employees and depletes their money balances by £100. It also raises the price of securities, i.e. lowers the rate of interest.³ This fall in the rate of interest tempts some people to sell securities and to hold increased money balances instead. Thus the fall in the rate of interest is checked, and not all of my £100 succeeds therefore in finding its way through the markets for old securities and new issues, on to the markets for labor and commodities. Thus owing to the existence of this siding or trap, my act of thrift does not succeed, as "classical" theory asserts that it will, in creating incomes and money balances for builders and engineers equal to those which it has

⁴ In December 1933 Hawtrey (pp. 702-4) attempted to explain the importance of the psychological dependence of income on expectations in establishing causality to Robertson. Robertson responded that he found his own formulation to be "easier than Mr. Hawtrey's conception of consumers' outlay, which is defined as expenditure 'out of income' though the income which it is 'out of' may apparently not yet have been received." (1933, p. 711) Robertson was simply unable to grasp the essential nature and validity of the point Hawtrey was attempting to make, namely, that, in the real world, expenditures are determined by *expectations*, not simply by realized income as defined by sales.

⁵ It is worth noting that expectations play a central role in separating cause and effect throughout Marshall's *Principles*, a fact that Hicks (1946, p. 117) identifies with Marshall's dynamic methodology. It should also be noted that this distinction marks a fundamental difference between Keynes' *Treatise on Money* and *The General Theory*. In Chapter 7 of *The General Theory* Keynes observed that in his "*Treatise on Money* the concept of changes in the excess of investment over saving, as there defined, was a way of handling changes in profit, though I did not in that book distinguish clearly between expected and realised results." (p. 77) In the accompanying footnote he noted that his "method [in the *Treatise*] was to regard the current realised profit as determining the current expectation of profit." Thus, while Keynes did not distinguish between expected and realized results in the *Treatise*, he decidedly made this distinction in *The General Theory* where he explicitly renounced the implicit assumption of unit-elastic expectations of the *Treatise*.

destroyed for tailors. The net result of the whole proceeding is a fall in the rate of interest and an increase, perhaps, in capital outlay¹ but a net decrease in the total of money incomes and (probably) of employment.

The argument is formally perfectly valid; and the practical inference that, if existing money is going to ground in this way, it is *prima facie* the duty of the banking system to create more money.... Here I will only say that it seems to me a most misleading way of expressing the causal train of events to say, as is sometimes done, that the act of thrift lowers the rate of interest through lowering total incomes. I should say that it lowers the rate of interest quite directly through swelling the money stream of demand for securities; that this fall in the rate of interest increases the proportion of resources over which people wish to keep command in monetary form; and that this increase in turn is a cause of there being a net decline in total money income, i.e., of money incomes not expanding in one sector to the extent that they are contracting in the other.¹ (1940, pp. 18-9)

In this passage Robertson clearly argued that an increase in the propensity to save accompanied by an increase in the purchase of securities (“spend ... on securities, instead of ... on fine clothes”) will have a direct effect on the rate of interest by “swelling the money stream of demand for securities” and that the induced hoarding (“resources ... people wish to keep ... in monetary form”) brought about by the subsequent fall in the rate of interest is “a cause of there being a net decline in total money income.” It should be noted that this explanation is dynamic and is explicitly stated in causal terms. At the same time, Robertson’s explanation of what Keynes was trying to convey clearly indicates the extent to which Robertson failed to address what Keynes actually said.

Keynes did not argue that an increase in saving “destroys ... income” or that such an event “also raises the price of securities.” In the passage quoted above from the *Treatise* (1930, pp. 130-1) Keynes argued that in the absence of a change in income in this *ceteris paribus* situation the “swelling money stream of demand for securities” that results from the increase in saving must be met by an equal swelling stream of supply of securities caused by the concomitant fall in sales that forces producers of consumption goods to borrow *money* or sell assets in order to obtain the *money* needed to maintain their transactions and precautionary balances as these balances are expended over time. If the increase in saving persists it will, of course, set in motion a *causal chain of events* that must eventually lead to a change in expectations, income, and the rate of interest *over time* (Blackford 2020a, pp. 1-95; 2019a; 2019b), but as should be clear from the way in which Keynes defined income the increase in saving cannot have an effect on income until *after* a change in expectations is brought about.⁶

⁶ Since firms have a choice between borrowing money or selling non-debt assets to obtain the needed funds in the face of an increase in thriftiness, and households have a choice between lending money and buying non-debt assets in order to dispose of their excess balances, to the extent the choices of households and firms are not compatible at the existing rate of interest and price of non-debt assets the rate of interest and the price of non-debt assets can be expected to change to make them compatible. It is important to note, however, that these are portfolio-balance effects that result from changes in the supplies and demands for money and assets, not effects that result from changes in saving or investment as such. See Keynes (1930, pp. 130-1; 1936, pp. 173-4, 166) and Blackford (2019b; 2020a). In saying that “the increase in saving cannot have an effect on income until *after* a change in expectations is brought

5. Where Robertson and Keynes Disagreed

Throughout his controversy with Keynes and beyond, Robertson insisted that his and Keynes' methods of approach were "two different ways of saying the same thing." (1940, p. 9) Robertson maintained this position in spite of the fact that his and Keynes' methods of approach were so "radically opposed" that there was virtually nothing on which the two men could agree. Comparing Robertson's explanation of the way in which an increase in saving affects income and the rate of interest with Keynes' explanation clearly indicates the extent to which Keynes and Robertson did not say the same thing: Why is it "a most misleading way of expressing the causal chain of events to say ... the act of thriftiness lowers the rate of interest through lowering total incomes" if Keynes is right, and *the only way in which the rate of interest can fall in this situation is, in fact, after there is a change in expectations that leads to a subsequent fall in employment, output, and, hence, income?* What does it mean to say that an increase in saving "lowers the rate of interest quite directly through swelling the money stream of demand for securities" if Keynes is right, and, *given expectations, income, and the supply and demand for money this swelling stream of demand must be met by an equal swelling stream of supply?* (Bibow; Blackford 2020a, pp. 1-94; 2019a; Hayes) When we look at what Robertson and Keynes actually said it becomes obvious that they did not say the same thing, and their differences are far from trivial within the analytical framework of Keynes' general theory. Robertson argued that the increase in the supply of loanable funds accompanying an increase in thriftiness can be considered the *direct cause* of the resulting fall in the rate of interest. Keynes argued that only a change in expectations can *cause* a fall in income in this *ceteris paribus* situation, and when income falls it will *cause* a fall in the transactions demand for money which, in turn, will increase the supply of speculative balances, and it is the increase in speculative balances that is the *direct cause* of the resulting fall in the rate of interest and increase in hoarding that occurs *after* income has fallen. (Bibow; Hayes; Blackford 2019a; 2020a, pp. 37-77) These two views of causality are simply irreconcilable within Keynes' general theory, and to reject Keynes' view of causality is to reject Keynes' general theory itself. There is no middle ground on this issue, and not only is it obvious that Robertson and Keynes did not say the same thing concerning this issue, it is also obvious that *if Keynes is right, Robertson is wrong*.

What is not obvious is why anyone would suppose that Keynes is not right. After all, decision-making units do, in fact, live in a world of uncertainty in which production takes time and in which sales fluctuate randomly from day to day, week to week, and month to month. Decision-making units cannot *know* that a fall in sales on any given day or during any given week or month is permanent and will not be compensated for by an increase on the following day or during the following week or month. They are in fact forced to form expectations with various degrees of confidence as to what the future will bring, and their decisions with regard to employment, output, and income must be based on these expectations. Where did Keynes go wrong in assuming that *until expectations change and employment, output, and income fall* decision-making units must sell assets or turn to the credit market to obtain the *money* required to finance their income payments and other contractual obligations to the extent these payments cannot be finance otherwise?

about" in this *ceteris paribus* situation we are excluding portfolio-balance effects which can go either way. These effects are examined in detail in Blackford (2019a, p. 18n).

Keynes is right, and the point at which Robertson went wrong can be seen by examining footnote 3 at the end of the fourth sentence of Robertson's explanation quoted above:

³ Debate on this matter has sometimes been hampered by the ghost of an old argument, dating from the days of the *Treatise on Money*. According to this argument the loss-making tailor, in order to avoid restricting either his personal consumption or the scale of his business, will sell securities to the same amount as I buy them. Obviously, so long as such a situation continues, the rate of interest will not fall nor the formation of capital equipment be stimulated, but neither, so far as the mere maintenance of total income (other than the tailor's) and employment goes, is it necessary that they should. Evidently, however, this can only be a transitional situation and it is not instructive to stop short at it. (1940, p. 18n)

In this footnote Robertson admitted that Keynes' "old argument" provides a correct analysis of the "transitional situation" under discussion. He then continued his *dynamic* explanation of the way in which the rate of interest is determined in the text and *completely ignored this transitional situation*. But this "transitional situation" has to do with the way in which the system moves *through time*. The only way this transitional situation can be ignored is if it is assumed that expectations are unit-elastic and along with the value of output produced adjust *instantaneously* to changes in sales. (Blackford 2019a; 2019c; 2020a, pp. 37-77; Modigliani) If this is not the case *there is no way to explain why firms would be willing to sell at a loss today or reduce their current scale of operations if their expectations are unchanged to the effect that they can accumulate inventories and otherwise maintain their current scale of operations today and expect to sell at a profit tomorrow*.

6. Robertson's Static Methodology

There is no way to make sense out of Robertson's 'dynamic' explanation of the way an increase in saving affects the economic system *through time* other than by way of the assumption of unit-elastic expectations with an *instantaneous* adjustment of the value of output produced, for *in the absence of this assumption the value of output produced as perceived by decision-making units cannot be equal to the value of output sold as sales change randomly over time*.⁷ As a result, this assumption limits Robertson's method of analysis to that of comparative statics in that Robertson's methodology implicitly assumes that expectations adjust *instantaneously* in such a way as to achieve a state of static equilibrium *each period* with regard to the determination of both income and the rate of interest. He then *describes* how he believes these

⁷ Those who have criticized Keynes' theory of interest (e.g., Tsiang, Horwich, Kohn, and Leijonhufvud) are also hobbled by Robertson's implicit unit-elastic, instantaneous adjustment assumption. At no point do those who have criticized Keynes explain why they believe producers are willing to sell at a loss today if their *expectations* are unchanged to the effect that they can accumulate inventories and otherwise maintain their scale of operations today and *expect* to sell at a profit tomorrow. Nor have they explained how producers are able to avoid turning to the credit or non-debt asset markets in order to obtain the *money* needed to finance their operations in this situation. Cf., Keynes (1930, pp. 130-1) and Blackford (2019a; 2019c; 2020a).

states of static equilibrium change from one period to the next.⁸ Since Robertson explicitly denied the relevance of Keynes' "transitional situation" to his analysis of the way in which his intraperiod equilibriums are achieved, his dynamic explanation of the way in which an increase in thriftiness affects income and the rate of interest *within each period* is purely *ad hoc* and is irrelevant to the fundamental issue of causality raised by Keynes.⁹

That Robertson's dynamic explanation ignores the fundamental issue of *causality* raised by Keynes is clear in Robertson's footnote quoted above. In this footnote Robertson admitted that if "the loss-making tailor ... will sell securities to the same amount as I buy them ... the rate of interest will not fall." What Robertson admitted here is the obvious fact that income and the demand for money must fall in this situation *before* the rate of interest can fall. Robertson admitted this simple fact on at least four separate occasions (1936, p. 178; 1937, p. 435n; 1940, p. 18; 1959, p. 68-9) without any indication that he understood what this simple fact means with regard to his assertion that his act of saving "lowers the rate of interest quite directly." What this simple fact means is that *it is impossible for an increase in thriftiness to affect the rate of interest directly*; there must be a change in expectations that leads to a fall in income that is accompanied by a fall in the demand for money that increase the supply of speculative balances *before* the rate of interest can fall in response to an increase in the propensity to save. (Blackford 2019a)

Once Robertson's analysis is seen to be that of comparative statics it is clear that Robertson's arguments are irrelevant to the issues of *direct causality* raised by Keynes in *The General Theory*.¹⁰ It is important to understand, however, that Keynes' fundamental objection to Robertson's analysis of the short-period problem of savings goes beyond Robertson's confused static analysis of the direct effects of an increase in saving.

⁸ Cf., Tsiang, Kohn, Horwich, Modigliani, and Blackford (2019a; 2019c; 2020a; 2021).

⁹ This same criticism applies to Hicks' (1937) IS/LM approach to this problem. Hicks, as with Robertson, assumed that the rate of interest and the values of other variables are determined simultaneously within a "week" by a system of equations rather than by the state of supply and demand in the individual markets for debt instruments at any given point in time during the week. It is also worth noting that Hicks explicitly acknowledged the existence of this problem:

Even when we have mastered the 'working' of the temporary equilibrium system, we are even yet not in a position to give an account of the process of price-change, nor to examine the ulterior consequences of changes in data. These are the ultimate things we want to know about, though we may have to face the disappointing conclusion that there is not much which can be said about them in general. Still, nothing can be done about these further problems until after we have investigated the working of the economy during a particular week. (1946, p. 246)

The essence of Keynes' general theory is that it provides a *logically consistent* theoretical framework in which it is possible to investigate "the working of the economy during a particular week." See Blackford (2019a; 2019b).

¹⁰ I find it rather surprising that the issue of direct causality raised by Keynes in *The General Theory* is virtually ignored in the controversy surrounding the publication of this work especially in view of the fact that words that refer to causality (cause, causes, causal, caused, causally, causing, causative, causation, causality) appear over 150 times in *The General Theory*.

7. Keynes on Saving and Capital Formation

Keynes argued throughout *The General Theory* that his fundamental objection to the classical theory of interest is the way in which this theory is used to justify the belief that an increase in the propensity to save will lower the rate of interest and, thereby, increase the rate of capital accumulation and economic well-being in the future. It was this belief that Robertson was attempting to justify in his 1936 review of *The General Theory* quoted above. Keynes was adamantly opposed to the reasoning on which this belief is based.

As we have seen, Keynes argued that whenever the process of production takes time, at each and every point in time at which a decision must be made concerning employment, output, and income that decision must be made on the basis of currently held *expectations* with regard to the future. This means that there must be a change in the *expectations* of the producers in the consumption goods industries with regard to the *profitability* of continuing to produce at current levels of employment, output, and income *before* employment, output, and income in the consumption-goods industries can change in response to an increase in the propensity to save. What happens to investment *after* this change in expectations and the resulting fall in income depends not only on the subsequent behavior of the rate of interest; *it also depends on how the diminished expectations of profits in the consumption-goods industries affect the subsequent expectations of investors with regard to the prospective yields of further investment in the consumption-goods industries.* Since there is every reason to believe the concomitant fall in the demands for consumption goods will have a *negative* effect on the expectations that determine prospective yields on investments in the consumption-goods industries, *there is no a priori reason to believe an increase in the propensity to save will increase the rate of capital accumulation.* As a result, Keynes saw no reason to believe an increase in the propensity to save will lead to an increase in output and economic well-being in the future.

Keynes explained his understanding of the nature of this problem in Chapter 8 of *The General Theory*:

New capital-investment can only take place in excess of current capital-disinvestment if *future* expenditure on consumption is expected to increase....
A diminished propensity to consume to-day can only be accommodated to the public advantage if an increased propensity to consume is expected to exist some day....

The obstacle to a clear understanding is ... an inadequate appreciation of the fact that capital is not a self-subsistent entity existing apart from consumption. On the contrary, every weakening in the propensity to consume regarded as a permanent habit must weaken the demand for capital as well as the demand for consumption. (p. 105-06)

Keynes further expanded on this theme in Chapter 16:

An act of individual saving means—so to speak—a decision not to have dinner to-day. But it does not necessitate a decision to have dinner or to buy a pair of boots a week hence or a year hence or to consume any specified thing at any specified date. Thus it depresses the business of preparing to-day's dinner without stimulating the business of making ready for some future act of consumption.... Moreover, the expectation of future consumption is so largely

based on current experience of present consumption that a reduction in the latter is likely to depress the former, with the result that the act of saving will not merely depress the price of consumption-goods and leave the marginal efficiency of existing capital unaffected, but may actually tend to depress the latter also. In this event it may reduce present investment-demand as well as present consumption-demand.

If saving consisted not merely in abstaining from present consumption but in placing simultaneously a specific order for future consumption, the effect might indeed be different.... however, an individual decision to save does not, in actual fact, involve the placing of any specific forward order for consumption, but merely the cancellation of a present order. Thus, since the expectation of consumption is the only *raison d'être* of employment, there should be nothing paradoxical in the conclusion that a diminished propensity to consume has *cet. par.* a depressing effect on employment. (1936, p. 210-11)

Put as simply as possible, Keynes believed that since the ultimate reason for investing in capital goods in the present is to facilitate the production and sale of consumption goods in the future, a fall in the demand for consumption goods in the present that is "regarded as a permanent habit" must reduce the expectations with regard to the demand for consumption goods in the future. This, in turn, can be expected to have a depressing effect on the demand for capital goods in the present, hence, "*cet. par.* a depressing effect on employment," output, and income.

Thus, if you believe, as Keynes believed, that producers must be guided by their *expectations* with regard to the *profitability* of producing at current levels of employment, output, and income there is no *a priori* reason to believe that employment, output, and income will begin to fall in the consumption-goods industries in response to a *ceteris paribus* increase in saving and subsequently lead to a fall in the rate of interest until *after* there is a change in expectations with regard to the profitability of continuing to produce in the consumption-goods industries at the current levels of employment, output and income.

If you also believe, as Keynes also believed, that this change in expectations will most likely have an adverse effect on expectations with regard to the *profitability* of further investing in the consumption-goods industries there is no *a priori* reason to believe the stimulus to investment that is assumed to arise from the subsequent fall in the rate of interest will not be accompanied by *diminished expectations with regard to the prospective yields that can be expected from increased investment in these industries.*

What happens to the rate of investment in this situation depends on the interaction between these two forces. Since there is no *a priori* reason to believe the positive effect on investment from the resulting fall in the rate of interest will more than offset the negative effect of the change in expectations on prospective yields there is no reason to believe investment will increase as *this dynamic sequence of events plays itself out through time.* This is especially so if the concomitant fall in the propensity to consume turns out to be permanent as *expectations adjust to this reality over time.*¹¹

¹¹ Milton Friedman clearly failed to grasp the nature of Keynes' argument in the passages quoted above as indicated by Friedman's response to the critics of his "Theoretical Framework for Monetary Analysis." In his response Friedman argued that "a tax increase which is not matched by higher government spending will [not] necessarily have a strong braking effect on the economy," the reason being that:

What we are talking about here is one of those “complicated partial differentials ‘at the back’ of several pages of algebra which assume that they all vanish” Keynes warned about in *The General Theory* (pp. 297-8), and there can be no doubt where Keynes stood on this issue:

Thus after giving full weight to the importance of the influence of short-period changes in the state of long-term expectation as distinct from changes in the rate of interest, we are still entitled to return to the latter as exercising, at any rate, in normal circumstances, *a great, though not a decisive*, [emphasis added] influence on the rate of investment. (Keynes 1936, p. 164)

That the rate of interest exercises a great, *though not decisive*, influence on the rate of investment is a central theme of *The General Theory*.¹² Robertson’s *ad hoc* analysis of the short-period problem of saving by which he supposed the effects of an increase in saving systematically work their way through the system to increase the rate of capital accumulation and economic well-being in the future ignores the essential and mercurial role of expectations in determining the behavior of decision-making units emphasized by Keynes’ throughout *The General Theory*. (Blackford 2019a; 2020a)

higher taxes would leave taxpayers less to spend. But this is only part of the story. If government spending were unchanged, more of it would now be financed by the higher taxes, and the government would have to borrow less. *The individuals, banks, corporations or other lenders from whom the government would have borrowed now have more left to spend or to lend—and this extra amount is precisely equal to the reduction in the amount available to them and others as taxpayers.* If they spend it themselves, this directly offsets any reduction in spending by taxpayers.... If they lend it to business enterprises or private individuals—as they can by accepting a lower interest rate for the loans—the resulting increase on residential building and so on indirectly offsets any reduction in spending by taxpayers. (1972, pp. 914-5)

This argument ignores the fact that until expectations change and output falls *there will be no reason for lenders to accept a lower interest rate* (or lower prices of assets) since a) taxpayers will not only have less to spend *they will also have less to lend*, and b) producers must be willing to borrow (or sell assets) in an amount that is exactly equal to the amount *“individuals, banks [etc.] ... have ... left to spend or to lend”* to the extent these funds are not spent. Friedman’s argument also ignores the possibility of a *negative effect on investment* as a result of a fall in prospective yields on investments in the consumption goods industries. See Blackford (2019a; 2019b; 2020a).

¹² Keynes:

Even apart from the instability due to speculation, there is the instability due to the characteristic of human nature that a large proportion of our positive activities depend on spontaneous optimism rather than on a mathematical expectation.... Most, probably, of our decisions to do something positive, the full consequences of which will be drawn out over many days to come, can only be taken as a result of animal spirits—of a spontaneous urge to action rather than inaction, and not as the outcome of a weighted average of quantitative benefits multiplied by quantitative probabilities. Enterprise only pretends to itself to be mainly actuated by the statements in its own prospectus, however candid and sincere.... Thus if the animal spirits are dimmed and the spontaneous optimism falters, leaving us to depend on nothing but a mathematical expectation, enterprise will fade and die;—though fears of loss may have a basis no more reasonable than hopes of profit had before. (1936, pp. 161-62)

8. Conclusion

In the passage quoted above from Robertson's 1940 *Essays* he asserted that the net result of his decision to save rather than spend money on new clothes will be "an increase, *perhaps* [*emphasis added*], in capital outlay.¹" And in the accompanying footnote he states: "Even this is not certain, since the demand of the tailor, weaver, etc., for machines will decline." This is, of course, precisely the issue raised by Keynes, and by 1940 it appeared that this had finally registered to some extent with Robertson. In retelling this tale in his 1959 *Lectures* (pp. 67-70), however, it had apparently unregistered as Robertson reverted to his original 1936 position in which the potential effects of an increase in the propensity to save on expectations, prospective yields, and the demand for investment goods were again ignored by Robertson. These effects were also ignored by Robertson's defenders and, as a result, by their followers who cling to the belief in the efficacy of saving. These effects were also ignored by policy makers in the debates leading up to the Crash of 2008 and the economic stagnation that followed. (Blackford 2018; 2021)

The extent of the confusion in this regard is indicated by Ben Bernanke, former head of the most powerful central bank in the world, when he proclaimed a "global savings glut" to be the reason for falling interest rates and that "textbook analysis suggests that, with desired saving outstripping desired investment, the real rate of interest should fall to equilibrate the market for global saving." As a solution to this problem Bernanke suggested that "increasing U.S. national saving from its current low level would support productivity and wealth creation and help our society make better provision for the future."

Keynes (1936) explained why, given the supply and demand for money, only a fall in income can equilibrate desired saving and investment; the rate of interest, real or otherwise, cannot achieve this end. At the very least, the supply of money must increase in this situation, and while "a progressive increase in the supply of money" may or may not be able to sustain employment, output, and income in the short run there is no reason to believe it can do so in the long run as was also explained by Keynes in 1936 and as was witnessed following the Crash of 2008. (Blackford 2021)

From Keynes' perspective, Bernanke's suggested solution to the problems created by the policies leading up to the Crash of 2008 and the economic stagnation that followed—namely, to continue to increase the propensity to save—is prologue to disaster. It amounts to more of the same with the expectation of a different result. (Blackford 2018; 2019a; 2019b; 2020a; 2021)

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