

**Robertson's "Liquidity Trap" as an Answer to Keynes's "Banana Parable", or: did the *General Theory* really have to be written?**

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### Introduction

Contrary to a quite widespread view, presented in economic textbooks as well as in academic writings, Keynes did not invent or ever use the phrase "liquidity trap".<sup>1</sup> When he addresses the possibility of a floor to the rate of interest in *The General Theory of Employment, Interest and Money*, he speaks of "absolute" or "virtually absolute" liquidity-preference (Keynes 1936, 191 and 207).

It was his friend and colleague Dennis H. Robertson who used this term for the first time in the summer of 1939 in a lecture given at the London School of Economics (Robertson 1940, 34). But surprisingly he speaks of a "liquidity trap for thrift". In the conventional understanding of the "liquidity trap" (overwhelmingly equated with the zero lower bound of the nominal short-term rate of interest), it captures additional liquidity so that an increase in the quantity of money will have no effect on the rate of interest, rendering conventional monetary ineffective.

But Robertson's original understanding of the "liquidity trap" not additional money but additional savings are kept from exerting a sufficient effect on the rate of interest to stimulate investment activity. This *death-trap for acts of thrift* (Robertson 1937, 434) is neither an extreme case nor does it signal the impotence of monetary policy.

Although in recent years Robertson's creatorship of the term "liquidity trap" together with its association to savings has been noted in the literature<sup>2</sup>, to the knowledge of the present author, up to now no attempts has been made to reconstruct the context of Robertson's arguments and to relate to Keynes's economics.

As Robertson starts his derivation of the concept of such a trap from the "parable of the bananas" introduced in Keynes's *Treatise of Money*, this illustrative thought experiment will be described in the next section. The following section will highlight the role the "banana parable" played in Keynes's transition from the *Treatise on Money* to *The General Theory of Employment, Interest and Money*. On

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<sup>1</sup> See for instance Abel & Bernanke (2005, 419), Dornbusch et als. (2014, 762) Sumner (2002), Svensson (2003) and Blanchard & Johnson (2013).

<sup>2</sup> Boianovsky (2004), Fletcher (2000; 2008), Laidler (1999) and Temin & Vines (2014).

this foundation the function of the “liquidity trap” in Robertson’s critical assessment of Keynes’s new economic theory can be clarified. After a comparison with the conventional understanding of the “liquidity trap”, the penultimate section offers two interpretations of Robertson’s “liquidity trap” as a critical reaction to the *General Theory*. The last section concludes.

### **Keynes’s „parable of bananas“**

In his *Treatise on Money* and before the *Committee for Industry and Finance (Macmillan Committee)* Keynes presented a thought experiment to throw doubt on the prevailing understanding of the beneficial effects of savings. In his “parable of bananas” Keynes examines an extremely simple economy producing only one perishable commodity, the eponymous bananas. Initially savings and investment are assumed to be in equilibrium and employment of labour to be full. Into this “Eden there enters a thrift campaign urging the members of the public to abate their improvident practice of spending nearly all their current incomes on buying bananas for food” (Keynes 1981, 76). What will be the effects of increased savings if, for various reasons, investment demand remains constant?<sup>3</sup>

Consumer outlays for bananas will decrease and because bananas are perishable what has been produced must be sold at lower prices. Consumers are able to consume the same quantity of bananas as before the thrift campaign, but entrepreneurs will suffer *windfall losses*. In his attempt to derive an answer to this query, Keynes distinguishes two phases (Keynes 1930, 158ff; Keynes 1981, 76ff). In the first phase entrepreneurs keep the level of output and employment constant. In order to be able to do so in the face of diminished sales revenue, they have to cover their *windfall losses* by taking out bank credits or offering securities in just the amount of initial increase in savings. The additional offer of savings by consumers is counterbalanced exactly by the increase in the demand for credit by entrepreneurs and, therefore, the rate of interest will not change.

But sooner or later entrepreneurs will try to reduce the *windfall losses* by reducing the production of bananas. But as long as the thrift campaign induces an unchanged amount of savings cutting down on production and employment will not reduce the *windfall losses*. The incentive for further reductions in real income and employment does not disappear and eventually what Keynes before the *Macmillan Committee* calls the “full horror of the situation” (Keynes 1981, 77) cannot be avoided: “... there will be

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<sup>3</sup> See Keynes (1981, 76-7).

no position of equilibrium until either (a) all production ceases and the entire population starves to death; or (b) the thrift campaign is called off or peters out as a result of the growing poverty; or (c) investment is stimulated by some means or another so that its cost no longer lags behind the rate of saving" (Keynes 1930, 160).

The chairman of the *Macmillan Committee* could not resist to react to Keynes's illustration by pointing out: "That is a strange doctrine to a Scotsman" (Keynes 1981, 80).

As striking as Keynes's illustrative exposition may be, the glaring deficits in his chain of arguments cannot be overlooked. One merits mentioning because Robertson's critique of the "parable of bananas" focusses exact on this problem. As soon as entrepreneurs move to the second phase and start to reduce the production of bananas there is no longer the need to counterbalance the fall in revenue by taking out "distress" credits. Keynes does not address this aspect of the second phase of his "banana parable".

Even disregarding this and other weakness of his exposition, his striking conclusion that an increase in savings will lead to a complete breakdown of output and employment confronts him with a quite different "horror of the situation". The full employment long-period equilibrium position, upon which rested his analysis of the trade cycle in the *Treatise on Money* together with the policy recommendations derived from his analysis, turns out to be an unstable equilibrium.

### **The „parable of bananas“ and the *General Theory* - from unstable full employment to stable equilibrium unemployment**

By disclosing "the full horror of the situation" created by savings Keynes may have succeeded to *épater les bourgeois*, but his assault on Victorian values came at a steep price. His thought experiment implied nothing less than utter instability of the full employment long-period equilibrium position that was at the centre of the *Treatise* – leaving its intricate discussion of the trade cycle hanging in the air or even depriving it altogether of any analytical relevance.<sup>4</sup>

As the earliest post-*Treatise* documents published in volumes XIII and XXIX of the *Collected Writings of J. M. Keynes* (JMKCW) make clear, Keynes was well aware of this devastating consequence of his

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<sup>4</sup> See Marshall (1920, 665) and Pigou (1949, 74): "In the view of the fact that in the actual world small accidental disturbances are continually occurring, there is nothing to be gained by studying unstable equilibrium".

thought experiment. After the publication of his *Treatise on Money* he starts to tackle this instability problem beginning his search for a stability condition that would avoid the “full horror” of instability.

After some intermediate steps<sup>5</sup>, Keynes soon finds the desperately needed stability condition: if, during the downswing of economic activity, consumption demand decreases less than incomes, then windfall losses will decrease in step and eventually will disappear altogether, because “...any increase of output will bring in a retarding factor, since  $\Delta S$  will be positive and consequently  $I$  being assumed constant,  $\Delta Q$  will be negative; whilst equally any decrease of output will bring in a stimulating factor, since  $\Delta S$  will be negative and consequently  $\Delta Q$  positive” (JM KCW XIII, 387; according to the editors this passage was written in 1931-32).

In this manner entrepreneurs’ incentive to cut down on production and employment will disappear and a stable equilibrium eventually will be reached again. Of course, it is this stability condition, *i.e.* a marginal propensity  $0 < c < 1$ , that is at the heart of the consumption function and the multiplier concept.<sup>6</sup>

Keynes considers this logical condition as sufficiently plausible because “...(i)ndeed the mere law of survival must tend in this direction. For communities, if any, the inborn character of which was such that they obeyed remorselessly the dictates of thrift ... [would] have long ago starved to death and left no descendants!” (JM KCW XIII, 386).

Keynes at once realizes that his solution to the instability problem has far-reaching implications. The newly arrived at stable long-period equilibrium position will not be identical to the initial equilibrium, because “...(t)he essence of the ... process is that the real income of the community has to be forced down to a level at which the rate of saving is not so excessive relatively to investment at the current rate of interest as to produce a crescendo of business losses and the closing down of plant” (JM KCW XIII, 387).

This raises the possibility to consider unemployment as an equilibrium phenomenon, as there is no presumption “... that the long-period position of equilibrium corresponding to the new situation is the same as the original position, both being positions of optimum output of the factors of production. For the decline in output may be itself one of the factors which had, by reason of its retarding effect on

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<sup>5</sup> See Barends (1987; 1989) for a comprehensive reconstruction of Keynes’s formula for a stability condition.

<sup>6</sup> In his analysis leading to the discovery of this stability condition Keynes did not consider the potential effect the decrease in windfall losses might have on the rate of interest; but see (JM KCW XXIX, 56).

saving, produced the new equilibrium, so that the fact of the level of output being below the optimum may be in itself one of the conditions of the maintenance of equilibrium” (JM KCW XXIX, 56-7).

Because of this “... there is no reason to suppose that positions of long-period equilibrium have an inherent tendency or likelihood to be positions of optimum output. A long-period position of optimum output is a *special case* corresponding to a special kind of policy on the part of the monetary authority” (JM KCW XXIX, 55; emphasis in original). Furthermore “...there is no unique long-period position of equilibrium equally valid regardless of the character of the policy of the monetary authority. On the contrary there are a number of such positions corresponding to different policies” (*ibid.*). But in this case, existing economic theory relying on the existence of a persistent tendency towards full employment, “... is not really dealing with a generalised doctrine of the long period, but is concerned, rather, *with a special case*; i.e. with a long-period position corresponding ... to a *particular* assumed policy on the part of the monetary authority” (JM KCW XXIX, 55).

The possibility of equilibrium unemployment, or to be more precise, of an economy tending towards a long-period equilibrium position at less than full employment together with the related idea that money or monetary policy may not be neutral in the effects on real magnitudes like output and employment, implying that received economic theory would become just a special theory, pointed far beyond the perspective of the *Treatise on Money*. Having initially started to find a way to save its analysis, now Keynes felt the urgent need to leave his new book behind and, in order to thrash out the implications of his new revolutionising insights, to start with an altogether new one that eventually would become the *General Theory of Employment, Interest and Money*.

### **The evolution of the term “liquidity trap” in the writings of D. H. Robertson**

The term “liquidity trap” evolved in the years after the publication of the *General Theory of Employment, Interest and Money* in Robertson’s critical comments on Keynes’s new theory. In his first published reaction to this book, *Some Notes on Mr. Keynes’ General Theory of Employment*, Robertson speaks of liquidity, or liquidity preference, the demand for money to hold, as a “trap for savings” (Robertson 1936, 190). A year later he describes the liquidity function as a potential “death-trap (from the social point of view) for acts of thrift” (Robertson 1937, 434). In the text of a lecture given at the London School of Economics during the summer term of 1939, after Robertson had left Cambridge, he points to an increase in the demand for money as a potential “siding or trap” (Robertson 1940, 19) for additional

savings (see below) and at the end of the text he finally introduces the phrase “liquidity trap for thrift” (34) or simply “liquidity trap” (34, 35). And finally, in the third volume of his *Lectures on Economic Principles* only the well-known variant “liquidity trap” is used (Robertson 1959, 70, 71, 125, 126).<sup>7</sup>

### **Robertson’s „liquidity trap“ as a rejection of the „parable of bananas“**

On the basis of the four contributions just mentioned, Robertson’s arguments leading to his concept of a “liquidity trap” may be reconstructed. He starts from Keynes’ “banana parable” and addresses two questions (even if these questions are not made explicit):

Will an increase in savings cause a cumulative downturn of production and employment?

Is the rate of interest able to successfully coordinate savings and investment decisions?

As will be shown in this section, he answers both questions in the negative.

In critically discussing the “parable of bananas” Robertson follows its distinction into two phases.

The first phase during which entrepreneurs hold output and employment constant in spite of windfall losses holds no interest for Robertson. He hints to the “ghost of an old argument, dating from the days of the *Treatise on Money*” (Robertson 1940, 18n3) a “line of thought ... which directs our attention in a barren ... direction” (Robertson 1959, 69). According to this argument an act of thrift will not lead to a fall in the rate of interest because the additional savings are counterbalanced by an equal dissaving (windfall losses) on the side of the entrepreneurs. But this argument “... depends for its validity on the assumption that in the face of entrepreneur losses full employment will always be maintained; evidently therefore it is not very effective as an explanation of the causation of *unemployment*” (*ibid.*). In addition “this can only be a transitional situation and it is not instructive to stop short at it” (Robertson 1940, , 18n3).<sup>8</sup>

According to Robertson the second phase of the “banana parable” points in a more fruitful direction. He offers his own thought experiment to contrast the problem of instability and the conclusions drawn by

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<sup>7</sup> In his review of Robertson’s 1940 *Essays in Monetary Theory* Hicks used the longer phrase “liquidity trap for savings” (Hicks 1942, 56)(although Robertson himself only speaks of “liquidity trap for thrift”); in his review of Patinkin’s 1956 *Money, Interest and Prices*, he used just “liquidity trap”, again characterizing it, just like in his 1942 review, as referring to a floor to the rate of interest (Hicks 1957, 279).

<sup>8</sup> At this point, Robertson cannot resist to add a quip that will not have won him the sympathy of Joan Robinson: “Sometimes this is just asserted without argument, as by Mrs Robinson...” (Robertson 1959, 69); see as well Robertson (1940, 20).

Keynes. “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” (Robertson 1940, 18; see as well Robertson 1959, 68ff). But because of this fall in the rate of interest some holdings of securities will be offered for sale – by “either the professional dealers that compose the market or outside persons” (Robertson 1959, 69) – to instead increase money holdings. Therefore the fall in the rate of interest will be checked and not all of the additional savings will be channelled through the markets for securities (new and old) on to markets for labour and commodities. And it is at this point of his discussion that Robertson introduces the notion of the interest-sensitive demand for money (liquidity preference) as a “death-trap acts of thrift”: “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 destroyed for tailors. The net result of the whole proceeding is a fall in the rate of interest and an increase, perhaps, in capital outlay, but a net decrease in the total of money incomes and (probably) of employment” (Robertson 1940, 19).<sup>9,10</sup>

The “liquidity trap” is given its name by Robertson because the trap that snaps shut is made of liquidity, *i.e.* an increased demand money balances that keeps parts of additional savings from becoming demand for investment goods. This trap is operative at any level of the rate of interest as long as the interest-elasticity of money demand is positive. The case of infinite interest-elasticity is just an extreme case of this kind of “liquidity trap”, a situation in which additional savings will have no interest effect whatsoever (Robertson 1959, 71).<sup>11</sup> Robertson does not seem to accord much importance to this possibility.

The existence of this “liquidity trap”, which really seems to be nothing more than a metaphorical expression for “liquidity preference” (or one of its important implications), in the view of Robertson, does not imply ineffectiveness of a monetary policy trying to influence the economy via manipulation rates of interest. By contrast, it only emphasises the danger of monetary policy inactivity, of a potent monetary

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<sup>9</sup> See as well Robertson (1936, 188; 1959, 69).

<sup>10</sup> In his *Lectures* Robertson speaks of a part of savings being “waylaid in inactive balances” (Robertson 1959, 69).

<sup>11</sup> Fletcher (2008, 190) seems to confound the general and the extreme case when he characterises “Liquidity trap” as “... a term invented by Robertson to explain as a normal occurrence a situation for which Keynes could find no example hitherto”.

authority that does fulfil its task to supply the economy with a sufficient quantity of money if the public so desires (Robertson 1936, 189; 1937, 435; 1940, 19).<sup>12</sup>

As becomes clear, Robertson's original concept of a "liquidity trap" implies negative answers to the questions presented above: Due to the interest rate mechanism an increase in thriftiness will not set off a cumulative downward spiral of output and employment leading to a complete breakdown of economic activity and eventual general starvation. But in a monetary economy, in an economy in which there exists "liquidity preference", this interest rate mechanism cannot properly coordinate saving and investment due to the "liquidity trap" diverting some of additional savings into idle money balances. But, in general, this potential problem can be avoided by increasing the quantity of money accordingly.

Robertson does not mince his words when he appraises the relevance of the results his critical re-examination of Keynes's "banana parable" has led to: "We need no longer attempt to believe in a crazy world in which, at some exceedingly elusive point of 'full employment', the opposite of all that we have hitherto been saying suddenly becomes true. We have returned to a rational world..." (Robertson 1940, 19-20).

### **Comparison of conventional/recent and original "liquidity trap"**

The reconstruction of the analysis leading to Robertson's concept of a "liquidity trap" clearly shows that this original "liquidity trap" is quite a different animal from the conventional, or to be more precise, the recent, understanding equating the "liquidity trap" with the ZLB.

The recent understanding of the "liquidity trap" (leaving aside any difference in the rate of interest focussed upon by both versions) can be characterized as follows:

- the "liquidity trap" is concerned with the interest effects of an increase in the quantity of money (*i.e.* liquidity)
- additional liquidity is passively "trapped"<sup>13</sup>
- additional liquidity does not elicit a lower rate of interest
- the "liquidity trap" represents a floor to the rate of interest

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<sup>12</sup> "It is the business of the monetary authorities to indulge this craving for security to the best of their ability, and so to rob it of its sting, by providing the owners of wealth with plenty of nice safe money in exchange for their income-yielding assets" (Robertson 1940, 150).

<sup>13</sup> „the liquidity is 'trapped'" (Blanchard 2017, 80).

- the “liquidity trap” snaps shut at low levels of output and employment
- conventional monetary policy<sup>14</sup> becomes impotent in a “liquidity trap”.

In contrast to this understanding, Robertson’s original “liquidity trap” can be characterized as follows:

the “liquidity trap” is concerned with the interest effects of additional savings

additional savings are “actively trapped” by liquidity (*i.e.* speculative demand for money)

additional savings do elicit a lower rate of interest

- but in general, the “liquidity trap” implies an insufficient reduction in the rate of interest
- only in an extreme case does the “liquidity trap” cause a floor to the rate of interest

the “liquidity trap” snaps shut at any level of output and employment

conventional monetary policy is not impotent in a “liquidity trap”.

There are two additional perspectives that may help to highlight the significant differences between the conventional and the original “liquidity trap”. Drawing on the IS-LM diagram, the difference between both views can be highlighted by the different form of the LM curve implied. For the conventional “liquidity trap” the problem is due to the fact that the IS curve intersects the LM curve is the latter’s horizontal and not in the upward-sloping segment of the LM curve while for Robertson the problem arises because the LM curve is upward-sloping instead of being vertical.<sup>15</sup>

From still another perspective and drawing on the definition of the “liquidity trap” (aka ZLB) by (Svensson 2000, 28)<sup>16</sup>, the difference between both understandings of the “liquidity trap” may be brought to a head by saying that according to the conventional “liquidity trap” the economy is satiated with liquidity, while in Robertson’s view just the opposite is true in a “liquidity trap”.

### **Robertson’s „liquidity trap“ as a critique of Keynes’s revolutionary project**

Robertson’s “liquidity trap” originated from his critical re-examination of Keynes’s “banana parable” that prompted the latter to abandon his just recently published *Treatise on Money* to develop a new economic

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<sup>14</sup> I.e. a monetary policy trying to influence the “real” economy by manipulating the nominal short-term rate of interest.

<sup>15</sup> See as well Boianovsky (2004, 103).

<sup>16</sup> „In a liquidity trap, the economy is satiated with liquidity and the nominal interest rate is zero.“

theory rejecting existing theory as a practically irrelevant special case of a *General Theory of Employment, Interest and Money*.

There are at least two ways to interpret Robertson's "liquidity trap" argument. In the first case it can be considered as an attempt to rehabilitate saving. Additional savings will not raise the danger of instability and will not lead to the disaster of general starvation. In a money economy left to its own devices, implying a constant quantity of money, they will cause a certain reduction of economic activity, a possibility that easily can be kept from materializing by appropriate monetary policy, *i.e.* by not leaving the economy to its own devices.

In the second case Robertson's "liquidity trap" argument maybe can be understood as a far-reaching and fundamental critique of *The General Theory of Employment, Interest and Money*, even if expressed only in an extremely implicit manner. If Keynes would not have neglected the analysis of interest rate effects in his "banana parable" and if he would not have driven the assumption of an economy left to its own devices too far he would not have been confronted with the problem of instability and would not have arrived at the multiplier concept and he would not have been induced to abandon the analytical framework of his *Treatise on Money*.<sup>17</sup>

### **Concluding remarks**

In contrast to the present, conventional understanding of the "liquidity trap", the original concept of a "liquidity trap" as developed by Robertson, who also coined this phrase, focussed not on the interest rate effects of increases in the quantity of money, a floor of the short-term nominal rate of interest at the zero level and the ensuing impotence of conventional monetary policy. Instead it focussed on the interest effects of increases in savings in a monetary economy, the ensuing problem of insufficient coordination of savings and investment decisions and the possibility of avoiding ensuing negative side effects on output and employment by appropriate increases in the quantity of money.

Robertson developed the original "liquidity trap" in the context of a critical analysis of Keynes's "banana parable" that had paved the way to the *General Theory of Employment, Interest and Money*. According to Robertson key elements of this new and allegedly revolutionary economic analysis relied on

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<sup>17</sup> Robertson always was extremely critical of the multiplier concept.

exaggerated differences to conventional economic theory<sup>18</sup> and resulted from an incomplete analysis of the interest effects of additional savings together with rashly drawn conclusions from this analysis.

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<sup>18</sup> This aspect of Robertson's position is not dealt with in the present version of this text.

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