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The Keynesian Diminisher

Eduard Braun[1] 0000-0002-1752-4287
Clausthal University of Technology, Lower Saxony, Germany

Abstract: The Keynesian expenditure multiplier is commonly viewed as a mechanism that amplifies expansionary fiscal or monetary policy. Once the assumptions on which the multiplier rests are applied to the classical quantity equation, however, it becomes obvious that the Keynesian multiplier is by far more pessimistic in this regard than the quantity equation. In light of this comparison, it makes much more sense to speak of the Keynesian "diminisher" than of the "multiplier." The reason for the pessimistic bias of the multiplier can best be detected if the distinction is made between a one-time expansionary policy measure and a permanent one. It is only because of this pessimistic bias that the Keynesian "multiplier" can be used to justify permanent government spending programs.

Keywords: Keynesian multiplier, Income velocity of Money, Quantity equation, Idle resources.

El Disminuidor keynesiano

Resumen: El multiplicador keynesiano del gasto se considera comúnmente un mecanismo que amplifica la política fiscal o monetaria expansiva. Sin embargo, una vez que los supuestos en los que se basa el multiplicador se aplican a la clásica ecuación cuantitativa, resulta evidente que el multiplicador keynesiano es mucho más pesimista a este respecto que la ecuación cuantitativa. A la luz de esta comparación, tiene mucho más sentido hablar del "disminuidor" keynesiano que del "multiplicador". La razón del sesgo pesimista del multiplicador puede detectarse mejor si se hace la distinción entre una medida de política expansiva de una sola vez y una permanente. Es sólo por este sesgo pesimista que el "multiplicador" keynesiano puede ser usado para justificar programas de gasto gubernamental permanentes.

Palabras clave: Multiplicador keynesiano, Velocidad de ingreso del dinero, Ecuación cuantitativa, Recursos inactivos.

[1]Mini-bio: Privatdozent (Adjunct Professor) at Technische Universität Clausthal. E-mail: eduard.braun@tu-clausthal.de

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O Redutor Keynesiano

Resumo: O multiplicador de gastos keynesiano **é** comumente visto como um mecanismo que amplifica a política fiscal ou monetária expansionista. Uma vez que as suposições nas quais o multiplicador se baseia são aplicadas **à** equação quantitativa clássica, no entanto, torna-se óbvio que o multiplicador keynesiano é muito mais pessimista a esse respeito do que a equação quantitativa. À luz dessa comparação, faz muito mais sentido falar do "diminuidor" keynesiano do que do "multiplicador". A razão para o viés pessimista do multiplicador pode ser mais bem detectada se for feita a distinção entre uma medida de política expansionista pontual e uma permanente. É apenas por causa desse viés pessimista que o "multiplicador" keynesiano pode ser usado para justificar programas de gastos permanentes do governo.

Palavras-chave: Multiplicador keynesiano, Velocidade de rendimento do dinheiro, Equação quantitativa, Recursos ociosos.

INTRODUCTION

The concept of the expenditure multiplier was the outcome of the discussion about cumulative processes – the business cycle – kicked off by Knut Wicksell in 1898 (LUTZ, 1938). In this discussion, it was generally assumed that the business cycle could be avoided, or at least curbed, by keeping aggregate savings (S) and investment (I) equal. In the years before Keynes published his General Theory, there was a broad consensus that S and I are coordinated by the rate of interest. A cumulative process was thought to occur when the market rate of interest deviated from the natural rate which equilibrates savings with investment (MEADE, 1975). Keynes (1936) revolutionized the thinking regarding this problem by dismissing the interest rate as the factor which equates S and I and substituting the level of aggregate income. He famously argued that investments automatically generate the necessary savings by increasing aggregate income until the portion of income which is saved equals investment (LAMBSDORFF, 2011). While building from Kahn (1931), he termed the mechanism which converts the investments into higher income the "multiplier".

From a policy perspective, the multiplier process seems to be very attractive as a response to depression conditions, and policymakers have never stopped to discuss macroeconomics in Keynesian terms as they think multiplier effects are important (COLANDER, 1999). As long as there are idle resources – especially unemployed labor – prices will presumably not react to the expansion in investment spending and, consequently, the multiplier process will increase real income and employment. In fact, it will supposedly even multiply the effects of the original investments beyond their original expenditure increase. But the multiplier concept has also been criticized for dramatizing the positive effect of expansive monetary policy and public works (as far back as, e.g. ACKLEY, 1951).

The present paper demonstrates that most of both adherents and critics have overlooked an important aspect of the model. They take the multiplier as a mechanism that allows for an optimistic view on the effect of investment spending. We will compare the Keynesian multiplier concept with classical monetary theory and obtain a different conclusion. Once the assumptions on which the multiplier rests are applied to the classical quantity equation,

it becomes obvious that the multiplier is very pessimistic when it comes to the effects of investment spending on the economy. The point is that the multiplier describes a process whereby the effect of investment spending dwindles and leaks out of the system. Classical monetary theory, even in its simplest form – that is, characterized by the quantity equation – does not involve such leakages that make permanent injections of government spending necessary. As a paradoxical consequence, the "multiplier"-concept can be used by politicians to justify permanent and ever larger government spending programs. In comparison with the classical view, it would make more sense to call the Keynesian multiplier a diminisher.

In the aftermath of the General Theory, the relationship between the multiplier and the income velocity of money as found in the quantity equation was discussed at some length by Abay-Neubauer (1961, 1965), Angel (1941), Ellis (1962), Kraus (1954), Lutz (1938), Lutz (1955), Mahr (1956, 1964), Mayer (1964), and Tsiang (1956). None of these authors came to a generally accepted conclusion, and therefore the mainstream of the economics profession sticks to Samuelson's (1942) verdict according to which there is not much value in associating the multiplier with the velocity concept. Only in recent years Moore (1988, 1994, 2008), in his criticism of the Keynesian multiplier, has redrawn attention to the connection between these two concepts. However, he does not argue that the multiplier analysis is more pessimistic than that of the quantity equation but rather that, under certain conditions, the Keynesian multiplier is identically equal to the income velocity of money. It will be shown that in their debate on this issue neither Moore (1994) nor Cottrell (1994) nor Dalziel (1996) has realized the following important difference between the velocity concept and the multiplier: In order to explain an increase in real income, the latter requires permanently recurring investment expenditures, whereas the former, under identical assumptions, makes use of only a one--time investment.

The present paper concentrates on the short-term effects of investment expenditures and assumes, in accordance with the common practice in textbooks, that there are idle resources and that prices are sticky. Under these conditions, section 2 discusses the effect of a one-time government investment on real income. The consequences of this investment, as implied by the Keynesian multiplier, are contrasted with those predicted by the simple quantity equation. The discussion brings to light that the increase in income induced by the multiplier process is only temporary, whereas the quantity analysis predicts a permanent increase. Section 3 contains a parallel discussion for a permanent increase in government investment. The distinction between one shot government expenditures and continuing expenditures has also been made by Palley (1998). Again, the classical theory turns out to be much more optimistic than the multiplier. The reasons for these rather surprising results are given in section 4. It is argued that it is the assumption, implied in the Keynesian consumption function and generally used in the multiplier analysis, that hoarding is a function of the flow of income payments and not of the stock of money, which makes the multiplier a rather pessimistic concept. It amounts to the assumption of an ever decreasing velocity of money. Chapter 5 concludes by suggesting that the idea behind the Keynesian multiplier can easily be conveyed by means of the quantity equation. To that end, what needs to be done is to make specific assumptions about the behavior of the income velocity of money.

As this paper is concerned with the basic logic of the multiplier and the income velocity, it confines itself to the common textbook versions and assumes a closed economy. This seems all the more justified as, of late, Krugman (2011a, 2011b) recommends a return back to the simple IS/LM and multiplier models.

A ONE-TIME INCREASE IN AGGREGATE INVESTMENT

The Keynesian multiplier is known to every student of economics. The original increase of investment spending, induced by monetary or fiscal policy, is paid out as income to the owners of the factors of production. According to their marginal propensity to consume, these owners spend part of this newly generated income on consumption. These expenditures, in turn, create additional revenue for entrepreneurs who consequently expand business and thus pay out additional income. This process continues repeatedly and in each "round" new income is generated until the savings out of the newly created income equal the original investment.

Although other interpretations of the multiplier are possible (HARTWIG, 2008), the following analysis concentrates on the one which was shortly expounded in the last paragraph and which regards the multiplier as a dynamic *process* that generates additional income in historical time. Furthermore, the discussion follows the view, originating from Keynes (1936) himself, according to which the decisive aspect of an increase in government investment is that it raises aggregate *expenditure*. Therefore, what is said about government investment spending in the following pages holds for any other type of additional spending as well, private or public.

The spending must be *added* to the circular flow, however. As Meade (1975) notes, this essentially means that the additional investment spending is financed by an *exogenous injection of purchasing power*, i.e., money, into the system (ASIMAKOPULOS, 1986; MOORE, 1988; PARGUEZ, 2008; TREVITHICK, 1994). Accordingly, we will assume that the increase in investment is covered by an addition to the money supply. It should be noted that this assumption may sound odd, especially to endogenous money theorists. However, in a discussion of the standard Keynesian multiplier concept it has to be assumed that the money supply increases exogenously. If we assumed a world with endogenous money, the multiplier would always be 1, as Rochon (1999) demonstrated.

It is important to add that, within the multiplier model, an increase of investment ΔI, despite its necessity of being financed by an addition to the money supply, is regarded as neutral towards the money market and the interest rate. The point is that ΔI is regarded as an addition to what is called the *autonomous expenditures* which newly enter the circular flow exogenously each period (BRAUN; ERLEI, 2014; MEADE, 1975; SMITH, 1936). These autonomous injections do not have any repercussions on the equilibrium between money demand and money supply in this model and it is not addressed how these exogenous expenditures are financed (MOORE, 2008). By assuming the neutrality of the addition to the

money supply that is necessary to finance ΔI, the present paper stays within the framework provided by the multiplier analysis.

In order to understand the difference between the multiplier and the quantity theories when it comes to the effect of a one-time increase in government investment, we must have the following point in mind: In discussions of the Keynesian multiplier, usually only the effect of a *permanent* increase of government investment is considered. You might find the following, or a similar illustrative scheme describing how an initial and *permanent* increase of investment expenditure spreads throughout the system and increases consumption C and real income Y not only once, but several times at a diminishing rate throughout the multiplier process (DALZIEL, 1996; MEADE, 1993).

$$\begin{array}{l} I \uparrow\rightarrow Y \uparrow\rightarrow C \uparrow\rightarrow Y \uparrow\rightarrow C \uparrow\rightarrow Y \uparrow \cdots \\ \qquad\quad \searrow S \uparrow \qquad\quad \searrow S \uparrow \end{array}$$

The rationale behind this is the Keynesian consumption function $C = cY$ which states that one part of any increase in income is spent on consumption C, with c being the marginal propensity to consume, $0 < c < 1$.

The case of a *single* injection – the case that is relevant in this section – is not usually discussed although it is instructive to have a look at what results. If government investment happened to fall back to its original level after a one-time expenditure, the process described above would repeat itself, yet *in the opposite direction* (ANGELL, 1941).

$$\begin{array}{l} I \downarrow\rightarrow Y \downarrow\rightarrow C \downarrow\rightarrow Y \downarrow\rightarrow C \downarrow\rightarrow Y \downarrow \cdots \\ \qquad\quad \searrow S \downarrow \qquad\quad \searrow S \downarrow \end{array}$$

If we assume that the marginal propensity to consume is constant, both series offset each other in the long run so that there only remains a *transient* effect on income from a one-time government investment, which stems from the fact that the increase in investment precedes the decrease by one period (LUTZ, 1938; LUTZ, 1955; MAYER, 1964).

Now consider the effects of the same one-time increase in government investment, financed by an addition to the quantity of money, by reference to the classical *quantity equation* in its income version.

$$MV = PY \qquad (1)$$

As said above, we generally assume throughout that prices (P) are sticky. If we furthermore assume that the income velocity of money V is constant, as the classical quantity theory does and as is also a good empirical approximation (MOORE, 1988, 2008; CULHAM;

KING, 2013), then a one-time increase in the money supply M must lead to a proportional increase in real income , that is, $\frac{\Delta M}{M} = \frac{\Delta Y}{Y}$. Given the assumptions about V and P, this increase in output will be *permanent* (LUTZ, 1955; MAYER, 1964).

The analysis based on the quantity equation brings more optimistic results than the Keynesian one because the additional money ΔM permanently adds to the circular flow. The recipients of ΔM spend their newly received money on goods and services, according to the velocity of money, and the respective sellers of these goods in turn do likewise. If ΔM is spent on average, say, five times per year on goods of any kind ($\Delta Y = 5 \cdot \Delta M$), and if prices are sticky, increases real income in the amount of , and *permanently* so. More generally we can write:

$$\Delta Y = V \cdot \Delta M \qquad (2)$$

The point is that when the additional government investment stops after one period, the amount of money M will *remain* at its new level and continue to circulate so that there is no reason within the logic of the quantity equation why Y should fall back to its old level (ANGELL, 1941). is a *stock variable* and ΔM increases this stock *permanently*. Within the multiplier story, on the other hand, what induces the increase of Y is not ΔM, but ΔI. I, however, is a *flow variable* which returns to its old level once the additional government investment stops (PALLEY, 1998).

Section 4 will analyze this fundamental difference between the effect of stock and flow variables on the circular flow in more detail. Suffice it to conclude at this point that if analyzed by means of the quantity equation, a temporary increase in government investment appears much more expansionary than indicated by the Keynesian multiplier analysis. The latter maintains a transitory increase in real income, the former a permanent one.

A PERMANENT INCREASE IN AGGREGATE INVESTMENTS

If government investment happens to rise *permanently*, that is, if an additional amount of investment enters the economy period after period, the well-known multiplier formulas apply (PALLEY, 1998). In this case, the resulting (permanent) increase in income will be

$$\Delta Y = \frac{1}{1-c}\Delta I. \qquad (3)$$

This formula shows that, according to the Keynesian investment multiplier, the increase in income which results from an *infinite* series of investment injections is *finite* (HARTWIG, 2008; LUTZ, 1955). In other words, the multiplier process is convergent. There is a state of rest in the model where the periodic investment injections are compensated by the periodic savings that leak out of the system. Note that this state of rest might well lie below the full employment level (MEADE, 1975). In the multiplier model, an infinitely ongoing periodic injection of investment could still fail to remove unemployment.

It is only in relation to this case of a *permanent* increase of government investment that Moore (1988, 1994, 2008) draws a parallel between the multiplier and the income velocity of money. He argues that under certain conditions (which need not be discussed as they are not relevant to our argument) "the Keynesian multiplier is *identically equal* to the income velocity of money" (MOORE, 1994, p. 126, emphasis added). He arrives at this conclusion since the left hand sides of equations (2) and (3) are identical. From this allegedly results $\frac{1}{1-c}\Delta I = V \cdot \Delta M$. When we now set $\Delta I = \Delta M$ we get

$$V = \frac{1}{1-c} \qquad (4)$$

So Moore (1994) concludes that the multiplier as depicted in equation (3) can be shown to correspond to the income velocity of money.

Since Moore (1988, 1994, 2008) does not distinguish between a one-time and a permanent increase of investment expenditures, he does not realize that he compares apples with oranges. Moore's mistake, adopted by Gechert (2012), is that he unduly compares equations (2) and (3). As we have shown, equation (2) relates to the case where there is only a *one-time* increase in government investment, and therefore of the money supply. Equation (3), on the other hand, builds upon a *permanent* increase of investment and accordingly presupposes *constant* injections of $\Delta I (= \Delta M)$. To depict these constant injections in equation (2) it would have been necessary to allow not only for a one-time increase of the money supply ΔM, as Moore (1994) does, but for continual increases. If Moore had taken this into account, he would have realized that the Keynesian multiplier is much more pessimistic than the quantity equation when it comes to analyzing the results of a permanent increase in government expenditure. What the Keynesian multiplier only achieves on the basis of *continuous* injections of investment spending the quantity equation already achieves by means of a *one-time* expenditure.

In terms of the quantity equation, a permanent increase in aggregate investment has extraordinarily expansive effects. It means that there will be a *periodic* autonomous addition of ΔI to the circular flow (DALZIEL, 1996). Since *each* of these additions must in this model be financed by injections of money, $\Delta M = \Delta I$, we get a *permanently rising supply of money* and consequently, as long as V and P are constant, the quantity equation delivers a continuously rising income Y as shown in equation (2) (TSIANG, 1956). As opposed to the multiplier story, this process is *not* convergent! There is no state of rest in this model short of an infinite increase of real income (GECHERT, 2012). Of course, this only holds as long as prices are sticky. As soon as full employment is attained, prices will rise and the regular increase in M will yield the result described by the quantity theory, namely, inflation (ALFORD, 1960).

According to the quantity equation, and unlike Moore maintains, the expansionary effect of a permanent increase in government investment spending is much more important than even the Keynesian multiplier, criticized as it is for its optimistic bias, purports. With sticky prices, real income never arrives at an equilibrium level before full employment is achieved!

It must be added that Moore is not alone in his defective comparison of the multiplier and the income velocity of money. Neither Cottrell (1994) nor Dalziel (1996), though critical of Moore, objects to this part of the procedure, thus tacitly agreeing that, with *ΔM* from equation (2) and *ΔI* from equation (3), Moore (1994) is equating two related magnitudes.

MONEY HOARDS IN THE CIRCULAR FLOW

Where does this pessimistic bias of the Keynesian multiplier come from and why has it gone largely unnoticed? The pessimistic bias is easy to explain by a closer look at the Keynesian model. According to the Keynesian consumption function, income which is not spent on consumption, i.e., *(1 – c)Y*, directly leaks out of the system as savings which are, in this model, nothing more than idle hoards (HARTWIG, 2008; MEADE, 1975). Thus, hoards are a function of income. It must be stressed that the Keynesian multiplier model does not permit these hoards to be turned into any other form of spending, not even investments. It assumes that investments are independent of income.

Income, it is important to note, is a *flow* variable. Total income payments increase with the passage of time. The income of one year is roughly twelve times higher than the income of one month. If hoards are made out of income payments, hoards too will increase over time. Roughly, the hoards leaked out of the system within one year are twelve times higher than those leaked out within one month. In other words, the circular flow model underlying the multiplier analysis contains an automatic leakage where hoards increase alongside income flows (LUTZ, 1955). The point is that Keynes assumed that households either spend their income on consumption or hoard it. If Keynes had included an investment function where investments are dependent on income, as they surely are, these hoards would be significantly smaller or would even disappear altogether. Nevertheless, he only permitted the two possibilities of consumption and hoarding. It is no wonder, then, that Keynes considered the consumption function to be crucial to his multiplier concept (LEIJONHUFVUD, 1988). The more people consume, the less hoardings there are, and the higher the alleged "multiplier" becomes (ROTHBARD, 2009).

As was already remarked in section 2, the multiplier model, where, in the easiest case, $Y = \frac{1}{1-c}(C_a + I_{pr} + I_G)$, generally implies that *in each period* a certain amount of *autonomous* consumption C_a, private investment I_{pr}, and government investment I_G must be newly injected into the circular flow. In the logic of the model, this is necessary because otherwise the circular flow would soon wither because of the permanent subtractions from the income flow due to the leakages into money hoards. It is exactly this withering away of the circular flow that is expressed by the so-called multiplier $\frac{1}{1-c}$. Although there are injections of C_a, I_{pr}, and I_G *each period*, *Y* does not go on to rise forever but reaches a *finite* equilibrium. The same holds for any continuous addition to the autonomous expenditures via government investment or similar instruments. It may or may not be true, as Chick (1997, p. 165) puts into Keynes's mouth in an imaginary second edition of the General Theory, that Keynes inserted the leakages into the model exactly for this purpose, i.e., in order to show that there is a finite stop to expansion and that continuous stimulation does not "lead to infinite expansion, and hence inevitably to

inflation". Any way the result was that the multiplier describes a process where the circular flow dwindles away and where, therefore, *periodic injections of expenditures are necessary in order to keep the system stable*. (BRAUN; ERLEI, 2014). In other words, the multiplier tells us a very pessimistic story about the stability of the economy and the effects of additional government spending. Only if the government interferes *constantly* by maintaining large spending programs or keeping interest rates low, can the system remain stable. *The necessity of permanent government intervention is built into the model right from the beginning.*

The analysis by reference to the quantity equation gives much more expansionary results because it does not contain such a continuous leakage. In the quantity equation, the demand for hoards is reflected in the income velocity of money: the higher the demand for hoards, the lower the velocity that results (HAYWOOD, 1959). With *V* constant, which is the common assumption, the amount of hoards directly depends on the quantity of money. Now, the quantity or stock of money is a *stock* variable. Leaving the influence of the interest rate aside, this means that, according to the quantity equation, hoards remain constant as long as the supply of money does not change. There are no systematic and ongoing leakages into hoards over time.

To model such leakages in the quantity analysis, one would have to assume an ever decreasing income velocity of money (KRAUS, 1954). With a diminishing *V*, there would indeed be an automatic leakage out of the circular flow which would necessitate continuous injections of purchasing power in order to be compensated and to keep *Y* constant.

However, the exact way *V* would have to diminish in order to simulate the Keynesian multiplier is difficult to estimate. There is a *categorical* difference between the multiplier and the quantity analysis due to the way the two approaches deal with money hoards in the circular flow (TSIANG, 1956). In the multiplier model, hoards depend on the cumulating *flow* of income, whereas in the quantity analysis they depend on the *stock* of money (GECHERT, 2012). As we have seen, this is the reason why Moore (1994, 2008) failed in his attempt to associate the multiplier with the velocity concept, and it is for similar reasons that Angell (1941), Ellis (1962), Lutz (1955), and others were unsuccessful in propagating their "marriages" between the multiplier and the velocity analysis. Some of them adequately recognize the problem at hand, of course, but it appears that at least in the present case the translation of the stock into the flow variable can only be done in an unsatisfactory way.

Still, what has become apparent is that the Keynesian multiplier derives from the assumption that income is either spent on consumption or hoarded. This is tantamount to assuming an ever-decreasing income velocity of money. Aside from being an arbitrary assumption (ELLIS, 1962), velocity behaving in this way would only make sense in conditions of deep depression (SMITH, 1936) where *expectations about the future darken continually and no parts of income are spent on investment.* To depict such a situation, however, is *not* the intention of the Keynesian consumption function. Keynes (1936, p. 96) based this function on a "fundamental psychological law" and explicitly stated that this law does not react in the short run, i.e., to "so-called cyclical fluctuations of employment". His consumption function is supposed to hold generally, not only in a down-turn. Thus, in short, *the Keynesian multiplier*

is actually a "diminisher" because it rests on the Keynesian consumption function that implicitly (and arbitrarily) depicts depression conditions where income not spent on consumption remains unspent and flows into hoards.

Now, why has this surprising nature of the multiplier gone largely unnoticed? The crucial points are obfuscated by the widespread practice of dealing only with the case where aggregate investment spending increases *permanently*. Indeed, *periodic* investment expenditures *are* somehow multiplied by the multiplier process, bringing about an increase in aggregate income that is bigger than the increase in aggregate investment. But what is behind this formulation is simply that income rises more strongly than *individual* investment expenditures *in so far as these expenditures recur each period*. In presenting the effects of both one-time and permanent additions to government investment, sections 2 and 3 have thrown light on this aspect of the multiplier.

A CONCLUDING SUGGESTION

The purpose of this short paper was to show that the Keynesian multiplier, though one of the most common macroeconomic concepts, is generally misinterpreted. Once the assumptions upon which it rests are applied to the quantity equation, it becomes obvious that the name "multiplier" is a euphemism. Contrary to what its name and its treatment in textbooks suggest, it describes a process where the effects of expansionary policy measures are diminished. It was shown that this pessimistic bias stems from the Keynesian assumption that income is either spent on consumption or remains unspent, in other words, the assumption that we are in depression conditions where the velocity of money decreases continuously.

As a result of the present analysis, it is possible to convey the core of the multiplier process without the inconvenient introduction of the Keynesian cross and the whole IS/LM structure. All that is necessary is the classical quantity equation (VEIT, 1966). In addition, of course, the Keynesian assumption of sticky prices must be accepted. A depression could then be modeled, in the Keynesian spirit, as a rising demand for hoards by simply assuming a decreasing velocity of money. With P and M constant, this implies falling real income. This fall could be compensated by government investment, whereby $\Delta I = \Delta M$. The condition for a rise in income would be $\frac{\Delta M}{M} > -\frac{\Delta V}{V}$, the condition for a stable income $\frac{\Delta M}{M} = -\frac{\Delta V}{V}$. One advantage of this exposition is that, with $\frac{\Delta V}{V}$, one has a tool which can *explicitly* – and easily – be adapted to the different phases of the boom-bust-cycle and the prevailing expectations in the market. As the case may be, government investments would have completely different effects. A constant V, for example, would make lasting government investments redundant as their only result would be inflation. In addition, more complicated relationships, such as the repercussion of government action on expectations and, consequently, on the income velocity of money, could easily be integrated into the model. Another advantage of this exposition is that it reveals clearly the tacit preconditions of the Keynesian argument for large government spending programs. Next to sticky prices, the argument assumes an ever decreasing velocity of money. As this is a rare event, the applicability of the multiplier concept would be immensely reduced as a result of its own logic.

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