

BRUNNER VERSUS FRIEDMAN: DIVERGING ASPIRATIONS FOR THE MONETARIST PROJECT

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Brunner versus Friedman: Diverging Aspirations for the Monetarist Project

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Abstract

The aim of this paper is to compare the visions held by two eminent monetarist economists, M. Friedman and K. Brunner, on the development prospects of monetarism within the macroeconomics discipline. Brunner, jointly with A. Meltzer, strived at constructing a model competing with the IS-LM model. By contrast, when invited to elaborate on the broader theoretical framework of monetarism, Friedman had no qualms to use the IS-LM model. In the first part of this paper, we summarize Friedman's "Theoretical Framework" paper, Brunner and Meltzer's reaction to it, and Friedman's response. In the second part, we study the commonalities and differences between Friedman's and Brunner's approaches. In the third part, we summarize and assess the Brunner–Meltzer model. More general observations are offered in the conclusion.

Keywords: M. Friedman, K. Brunner, monetarism, IS-LM model
JEL codes: B22, B31, E40, E60

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INTRODUCTION

Our aim in this paper is to compare the vision of monetarism of K. Brunner with that of M. Friedman, the most prominent figure of the monetarist school.² Over a time span of half a century, Brunner and Meltzer wrote a huge number of articles, books, and monographs. They founded the *Journal of Monetary Economics* and the *Journal of Money, Credit & Banking*. They organized the Carnegie-Rochester annual conferences. A venue for civilized confrontation between Keynesian and monetarist economists, these conferences provided young innovative economists, such as R. Lucas, T. Sargent, F. Kydland, and E. Prescott, with the launching pad for the ideas that would transform macroeconomics. Brunner and Meltzer also were at the origin of the so-called Shadow Open-Market Policy Committee. Last but not least, they pursued a theoretical ambition predicated on a vision of monetarism different from that of Friedman. Our paper aims at substantiating this last aspect.

Its starting point is a book edited by R. J. Gordon, entitled *Milton Friedman's Monetary Framework. A Debate with his Critics* (Gordon 1974; henceforth *GV*) and sometimes called the "Gordon Volume." The book is composed of three parts. The first is a lengthy essay authored by Friedman and entitled "A Theoretical Framework for Monetary Analysis." The second consists of comments by Brunner and Meltzer, J. Tobin, P. Davidson, and D. Patinkin. The third is Friedman's response. Tobin, Davidson, and Patinkin were renowned Keynesian economists who had been engaging in polemics with Friedman for a long time. By contrast, Brunner and Meltzer were monetarists like Friedman. Hence, the readers' expectation was that they would largely endorse the views expressed in Friedman's essay. However, the contrary is true. Their comments turned out to be almost as harsh as those of the other participants in the debate. How can this be explained?

Our answer evolves at two levels. First, we surmise that Brunner and Meltzer were frustrated by Friedman's view that a common theoretical framework underpinning the opposite Keynesian and monetarist empirical propositions could be devised. Indeed, they had set for themselves the task of constructing a specifically monetarist theoretical framework meant to stand as an alternative to the IS-LM model. That the common framework proposed by Friedman was the IS-LM model was bound to hurt them.

But there is also a broader explanation. Here, we have the story of two first-rate economists, Brunner and Friedman, who started their career in the post-World War II period. They had much in common: (a) they were pro-Marshall and anti-Walras; (b) they believed in the stability of the market economy, which made them anti-Keynesian from the policymaking viewpoint; and (c) they were acutely aware of the risk involved by lax monetary policies and were adept of a strict monetary rule. In short, they both belonged to the monetarist school. However, they strongly differed with regard to their aspiration for monetarism. Brunner believed that the times were ripe for devising a specifically monetarist general model that

² Brunner's name is inseparable from that of Allan Meltzer, but because this paper was written for a conference on Brunner, we will often refer to his name alone, at the risk of thereby doing injustice to Meltzer. Other assessments of Brunner's work are D. Laidler (1991) and E. Nelson (2018b).

could rival the IS-LM model. Friedman was less ambitious. To him, replacing one grand theory with another mattered little. He made seminal theoretical contributions—his permanent income hypothesis, his expectations-augmented Phillips curve model and the idea of a natural level of employment, and his paper on the optimal quantity of money—but overall, in Friedman’s eyes, theory was less important than applied work. Expressed positively, his overarching aim was to rehabilitate the quantity theory of money. Expressed negatively, it was to debunk the Keynesian theory and its policy prescriptions. He wanted this battle to be waged at the empirical level, going as far as writing that “the fundamental difference between [the Keynesians and monetarists] is concerned with a question of fact, not of theory” (Friedman 1956, 6).

Our paper presents a history of economics contributions. This means that we regard ourselves as outside observers who want to remain out of the fray—to borrow A. Smith’s expression, we are trying to be impartial spectators. Furthermore, we regard the history of economics as a “via negativa.” Despite our great admiration for the authors we study (otherwise, we would not study them to begin with), our distinct approach is to examine their work with a critical eye.

In the first part of this paper, we summarize Friedman’s “Theoretical Framework” paper, Brunner and Meltzer’s reaction to it, and Friedman’s response. In the second part, we study the commonalities and differences between Friedman and Brunner. In the third part, we summarize and assess the Brunner–Meltzer model. More general observations are offered in the conclusion.

THE “GORDON VOLUME” CONTROVERSY

Friedman’s contribution

Friedman’s “Gordon Volume” essay brings together two earlier articles published in the *Journal of Political Economy*, entitled “A Theoretical Framework for Monetary Analysis” (Friedman 1970b) and “A Monetary Theory of Nominal Income” (Friedman 1971), with a few changes. The last paper in the volume is Friedman’s response to his critiques published in a 1972 issue of the *Journal of Political Economy* (Friedman 1972). Friedman’s essay starts with a reconstruction of the quantity theory of money in its different acceptations and of J. M. Keynes’s contribution in the *General Theory* (to which he returns in the last part of the paper in his response to his critics). Despite some biases, this reconstruction is a first-rate history of economics work. It comes across as highly laudatory of Keynes’ work. Nevertheless, at the end of the day, Friedman’s judgment was scathing:

I believe that Keynes’s theory is the right kind of theory in its simplicity, its concentration on a few key magnitudes, its potential fruitfulness. I have been led to reject it, not on these grounds, but because I believe that it has been contradicted by evidence: its predictions have not been confirmed by experience. This failure suggests that it has not isolated what are “really” the key factors in short-run economic change. (Friedman 1972, 908; GV, 134)

Friedman’s motivation for writing his essay is aptly summarized in his conclusion. The essay serves the purpose of documenting “his belief that the basic differences among economists are

empirical, not theoretical” (Friedman 1970b, 234; GV, 61). The irony is that a painstaking theoretical analysis proved necessary to vindicate his contention.

Friedman’s common model is “a highly simplified aggregate model of an economy that encompasses both a simplified quantity theory and a simplified income-expenditure theory as special cases” (Friedman 1970b, 217; GV, 29). According to him, “almost all economists would accept it” (1970b, 234; GV, 61). The model has six equations, directly drawn from the IS-LM model, and seven variables. There is thus ‘a missing equation’ to be determined by relationships outside the system. This indetermination can be filled in two ways: using the ‘simplified quantity theory’ or the ‘simplified income-expenditure theory.’ The first solution assumes that real income is determined outside the system. Friedman suggested that its magnitude could be determined using the Walrasian system of equations. In this case, what he called the “simple version of the quantity theory” applies: changes in money supply exert an impact only on nominal magnitudes. The second solution involves considering that the price level is determined outside the system. “[It] appends to this system a historical set of prices and an institutional structure that is assumed ... to keep prices rigid” (Friedman 1970b, 219–20; GV, 32).

The first solution is odd. The IS-LM and Walrasian models are two alternative ways of capturing the outcome of an economy. They are based on different premises. Their variables are hardly interchangeable. For example, there is no direct equivalent to real income in the Walrasian theory. Furthermore, Walrasian categories were not meant to have empirical counterparts. As for the second solution, stating that price rigidity was the hallmark of Keynes’s *General Theory* is rather uncommon. Friedman’s justification for it is found in the historical part of his essay. He regarded Keynes as a Marshallian economist who departed from Alfred Marshall on one point—the relative speed of adjustment of prices and quantities. Marshall was of the opinion that prices adjust faster than quantities, as illustrated in his fish market example (Marshall 1920, 307). Following Leijonhufvud, Friedman took it that in his *General Theory*, Keynes reverted Marshall’s speed of adjustment order by having output react to shocks faster than prices. As long as the economy is below full unemployment, the argument runs: demand activation increases output without causing changes in prices.

Keynes’s assumption about the relative speed of adjustment of price and quantity is still the key to the difference in approach and analysis between those economists who regard themselves as Keynesians and those who do not. Whatever the first group may say in their asides and in their qualifications, they treat the price level as an institutional datum in their formal theoretical analysis (Friedman 1970b, 210–1; GV, 20).

Friedman’s reasoning did not stop at the above confrontation. He gave the problem another shot in a section on the adjustment process. The following two equations summarize his analysis of the short-run division of a change in nominal income between prices and output.

$$\frac{d \log P}{dt} = \left(\frac{d \log P}{dt} \right)^* + \alpha \left[\frac{d \log Y}{dt} - \left(\frac{d \log Y}{dt} \right)^* \right] + \gamma [\log y - (\log y)^*]$$

$$\frac{d \log y}{dt} = \left(\frac{d \log y}{dt} \right)^* + (1 - \alpha) \left[\frac{d \log Y}{dt} - \left(\frac{d \log Y}{dt} \right)^* \right] - \gamma [\log y - (\log y)^*]$$

P is the price level, y is the real output, Y is the nominal output, α and γ are the parameters, and the asterisk indicates equilibrium values. According to what Friedman called “simple quantity theory,” increases in the rate of money creation are absorbed in price changes, whereas output keeps increasing at its equilibrium rate. This result is obtained by setting $\alpha = 1$ and $\gamma = \infty$, the latter assuring that $y = y^*$. By contrast, in Keynesian theory, the impact of increases in the rate of money creation completely falls on output as long as the economy is below full employment. This is obtained by setting $[(d \log P)/(dt)]^* = 0$, and $\alpha = \gamma = 0$ as long as $y < y^*$.

The above formulation is of course correct but hardly helpful in solving the dispute between monetarists and Keynesians. It all hinges on the value given to a , and theory has nothing to say about it. Hence, the conclusion is that a choice between them must be made on empirical grounds. This result may seem dispiriting, yet it was not to Friedman because it confirmed his claim that the dispute must be solved empirically rather than theoretically.

Brunner and Meltzer's comments

Brunner and Meltzer did not want to join the crowd of “almost all economists” that Friedman presumed could accept his framework. Above all, they disapproved of Friedman’s decision to devise a common theoretical framework between monetarism and Keynesianism. Their main regret concerned Friedman’s lack of attention to the transmission mechanism—the channels through which the changes in the quantity of money exert an effect on the real economy. Brunner and Meltzer held the strong conviction that the IS-LM model could not be used for such a purpose because it comprised only one relative price, the interest rate. A second relative price was needed.

We believe that more than one equation is missing. Relative prices, real rates of return, the outstanding stock of government debt, and the government budget are additional “missing” variables. Without better evidence for the model than has been provided, we do not accept the framework as a useful statement of short-run macro theory. Too many familiar features of cycles are omitted or ignored. (Brunner and Meltzer 1972a, 818; GV, 74–5).

Friedman could not be indicted for having completely neglected the idea of a multi-channel transmission mechanism. He evoked it in several of his earlier papers but only in a casual way (Friedman 1961; 1963; 1970a). Writing a theoretical framework essay could have been the ideal opportunity for devising a specifically monetarist general equilibrium model—possibly based on Brunner and Meltzer’s own freshly minted model. To Brunner and Meltzer’s disappointment, no such line was taken in Friedman’s essay.

This was Brunner and Meltzer’s main bone of contention with Friedman’s essay. But their bill of indictment was larger. Let us mention three other criticisms. First, they regretted his failure to discuss the money multiplier mechanism. Although we will not integrate the mechanism in our subsequent presentation of their model, it plays an important role in those versions of their

model comprising a banking sector. Second, Brunner and Meltzer lamented Friedman's lack of consideration for the endogenous component of the money base, which they regarded as a key factor enabling the system to return to equilibrium. Finally, they complained that Friedman was remiss not to consider fiscal policy. According to them, fiscal policy had to be part of the model for at least two reasons. The first is that the interaction between fiscal and monetary policy plays an important role in explaining inflation. The second reason relates to the long-run impact of the budget process on the level of normal output: increases in real government expenditures imply increases in taxes. As a result, the stock of real capital, the available labor supply, and ultimately the normal output is reduced.³

Friedman's response

Friedman's response to Brunner and Meltzer was one of amazement:

Granted... I really am puzzled that Brunner and Meltzer could have inflated the role of the common model as much as they did. (Friedman 1972, 911; GV, 136)

My aim was much less ambitious. It was to outline a general approach that could suggest what empirical issues required study, an approach that could then be elaborated in further detail in connection with such empirical studies. (Friedman 1972, 909; GV, 134–5)

His framework, he wrote, was “only a beginning” (1972, 912; GV, 137) that does not “profess to be a complete, fully worked out, analysis of short-term fluctuations in aggregate economic magnitudes” (Friedman 1971, 332; GV, 43).

Friedman's responses to the other criticisms were in the same vein. In his earlier writings, he recognized the endogenous character of the money multiplier and the money base. “A two-way relation between monetary change and business conditions is, indeed, one reason why the lag in the effect of monetary action might be expected to be long and variable” (Friedman 1961, 449). However, he did not deem it worthwhile to provide a formal treatment of this in his essay, arguing that “no purpose for which we shall use the model would be affected in any way by treating money supply as simply an exogenous variable” (Friedman 1970b, 219; GV, 31).⁴ As far as fiscal policy is concerned, Friedman initially (e.g., in his 1948 paper) took for granted that fiscal policy could have significant effects, but he gradually changed his mind later on. It is thus a small wonder that fiscal variables are absent from his essay. In his words, “We can neglect (...) the fiscal role of government, by assuming that there are neither government expenditures nor government receipts” (Friedman 1970b, 217; GV, 29).

COMMONALITIES AND DIFFERENCES

Our aim in this section is to sort out the basic methodological choices on which Brunner and Friedman saw eye to eye and those for which they chose different bifurcations. To this end, we take up the set of methodological benchmarks used in De Vroey (2018). When it comes to

³All this led M. Monti (1974) to label their particular brand of monetarism “fiscal monetarism.” On the importance of the money supply process and fiscal policy issues in the work of Brunner and Meltzer, see also Laidler (1995, 3–10).

³See Nelson (2018a, chap. 4 and 8).

comparing monetarism *à la* Friedman and monetarism *à la* Brunner, it turns out that they agree on eight benchmarks yet disagree on four other ones. Tables 1 and 2 summarize these.

Table 1. Commonalities

	Friedman's monetarism	Brunner's monetarism
1.1 Vision of economics: Marshallian (pragmatic vision)	✓	✓
1.2. Equilibrium concept: state of rest equilibrium	✓	✓
1.3. Microfoundations: implicit	✓	✓
1.4. Methodological positivism	✓	✓
1.5. Prior on the working of the market system: inherently stable	✓	✓
1.6. Characterization of demand activation: generating a disequilibrium	✓	✓
1.7. Principle guiding the functioning of central banks: rules rather than discretion	✓	✓
1.8 Long-run money neutrality	✓	✓

Node 1.1. Brunner and Friedman adhered to the Marshallian vision of economics as opposed to the Walrasian one.

Node 1.2. They shared the same equilibrium concept: the state of rest concept. That is, equilibrium is defined as a state of affairs in which agents have no incentives to change their behavior. Rather than effectively existing, equilibrium acts as a center of gravity. In other words, more often than not, markets experience disequilibrium.

Node 1.3. All neoclassical economists agree on the view that aggregates are grounded in individual agents' optimizing decision-making. The "implicit microfoundations" bifurcation means that skipping the formal derivation of households' market demand and supply functions from their individual decisional process is deemed acceptable.

Node 1.4. They both adhered to the positivist creed, according to which the validation of theoretical propositions hinges on their empirical verification.

Node 1.5. They shared the view that the market economy is inherently stable.

Node 1.6. They regarded monetary activation as a shock on an equilibrium position, the result of which is to generate a temporary disequilibrium.

Node 1.7. They favored a monetary growth rule and opposed central banks' discretion.

Node 1.8. They took it that inflation is always a monetary phenomenon. Money can be non-neutral in the short run but not in the long run.

Table 2. Differences

		Friedman's monetarism	Brunner's monetarism
2.1. Mission of monetarism	Reasserting the central role of the quantity of money in nominal income variations	✓	
	Constructing a specifically monetarist framework		✓
2.2. Focus	A simplified model of the economy		✓
	A few empirical relations	✓	
2.3. Readiness to use the IS-LM model	Yes	✓	
	No		✓
2.4. Attention to transmission	Little	✓	
	Huge		✓

Node 2.1. Friedman and Brunner differed on the score of their aspirations for monetarism. Brunner's project was more ambitious because it aimed at making monetarism a full-fledged theoretical model. Jointly with Meltzer, Brunner strived at making monetarism evolve at the same theoretical level as Keynesian macroeconomics. They wanted to be theory-builders. This was not the case for Friedman. He was focused on policy, and in his eyes the dismissal of Keynesian theory did not require building an alternative theory.

Node 2.2. They differed on the importance of building a general equilibrium model of the economy.

Node 2.3. They differed on whether the IS-LM model is apposite as a general framework into which monetarist propositions can be incorporated.

Node 2.4. They diverged on the importance to be given to the transmission mechanism.

A priori, a highly ambitious program like Brunner and Meltzer's looks more appealing than a modest one like Friedman's. However, what matters is achievement. Did Brunner and Meltzer succeed in their project of building a new general model capable of replacing the IS-LM model? Answering this question is the task undertaken in the last section of the paper.

THE BRUNNER–MELTZER MODEL

A prototype Brunner–Meltzer model

There is no single Brunner–Meltzer model. There are several versions of it, with the first one published in a 1972 issue of the *Journal of Political Economy*. Over the years, they developed a few variants of it, some emphasizing financial intermediation and others providing a more detailed analysis of the fiscal policy dimension. Two insights prevail in all of their models. The first is the presence of two relative prices. The second is them borrowing Leijonhufvud's idea of differences in speed of adjustment. All models also display policy conclusions different from those of the IS-LM model.

Our reconstructed Brunner–Meltzer model comprises three asset markets—the money market, the bonds market, and the real asset market—and one output market. It also comprises a government pursuing a fiscal and a monetary policy. This prototype model incorporates two features that are present in most of their models. The first is the absence of a labor market. The words “firm” and “worker” are usually not to be found in their models. They rather speak of producers and purchasers but stop short of declaring that the agents in their models are self-employed workers. The second feature is that the same physical good can act in two ways, either as a final good or as a capital good. As a final good, it is durable and hence can be traded on a second-hand market. There are thus two distinct markets for the same physical good. In the first, which they call the “output market,” newly produced goods (y) are traded at a price p . In the second, the existing good acts as a capital good. Brunner and Meltzer call this second market the “real asset market,” ranking it within the asset markets cluster alongside money and bonds.⁵ The price prevailing in this market is called P . The last market is the bonds market, wherein government bonds are traded at the interest rate i .

Brunner and Meltzer implicitly assume that all three asset markets are auction markets

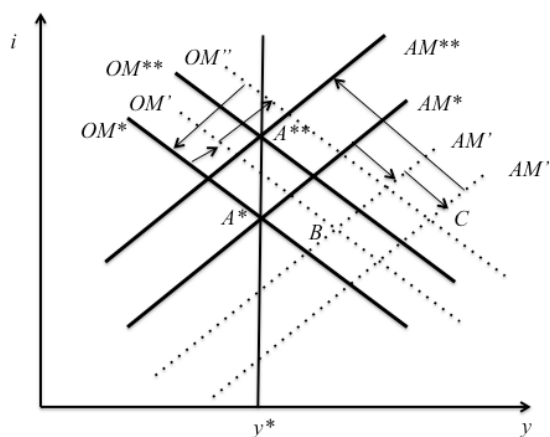
⁵ The drawback of this terminology is that it may lead to confusion between the real asset market and the equity market, which suggests that Brunner and Meltzer's model is close to Tobin's Q model. Yet no equity market is present in their model.

wherein agents are price-takers, that information problems are absent, and that adjustment is instantaneous. By contrast, they assume that the producers of output are price-makers. Brunner and Meltzer's demand for money function has several arguments, including i and P . They select P as the money market adjustment variable. The demand for y is the sum of the demand of the private sector and that of the government. Brunner and Meltzer assume that p is an increasing function of output and producers' expectations of future prices. Noticeably, they assume price "stickiness" in the output market on the premise that "acquiring information is costly" (Brunner and Meltzer 1972, 38).⁶ This implies, they claim, that producers adjust the price of output in a sluggish manner. For the same reason, they also assume that producers and purchasers only gradually revise their expectations.

The government levies taxes to finance its expenditures. Taxes increase along p and y . Budget deficits can be financed through the issuance of bonds and through the creation of base money by the central bank. Changes in the base money can also stem from "pure" open-market operations, which are independent from the budget deficit. Such operations generate simultaneous and opposite changes in the stocks of base money and government bonds.

The economy has two relative prices, i and the P/p ratio. In equilibrium, output is at its normal level ($y = y^*$), real existing assets sell at the reproduction cost ($P/p = 1$), and the government budget is balanced. Such an outcome can be graphically presented in an i - y plan as the intersection of two curves called the AM and OM curves (A for assets, O for output, and M for market). The AM relation indicates the locus of points for which the bond and money markets clear.⁷ This relation is positively sloped. An increase in the money base, or a decrease in the issuance of government bonds, generates a fall in i for a given level of y . As a result, the AM curve shifts rightward. The OM relation represents the locus of points for which the output market clears. This relation is negatively sloped. The position of the OM curve depends on the ratio of existing equipment to new equipment. Figure 1 illustrates the AM/OM model.

Figure 1. The AM/OM model



⁶ In the 1980s, Brunner and Meltzer (especially in their work with Alex Cukierman) provided a more detailed account of what they meant by "costs of acquiring information."

⁷ On several occasions, Friedman and Brunner presented non-market clearing as a fact of life. However, they did not introduce it within their theoretical constructions (the only notable exception being Brunner, Cukierman, and Meltzer 1983).

Figure 1 presents the equilibrium output (y^*) of the model as a function of the equilibrium AM and OM curves (AM^* and OM^*). The curves intersect at point A^* . Like Friedman, Brunner and Meltzer are interested in a situation wherein the government decides to engage in a positive monetary expansion despite the fact that the economy is in equilibrium. Their inquiry bears on the mechanism by which, after this monetary shock, the economy returns to its equilibrium allocation—in terms of the graph, how it goes from A^* to A^{**} . At both points, output is in equilibrium but with different nominal interest rates.

Let us assume that a money shock taking the open-market purchase route arises, and simultaneously brings about an increase in the money base and a decrease in the issuance of government bonds. The expansion in base money instantaneously increases the price of existing real assets P . Given price stickiness in the output market, P/p increases. The demand for new output increases as producers are induced to substitute new for existing real assets. Moreover, the real value of non-human wealth appreciates. This positive wealth effect also entails an increase in consumption expenditures. As a result, the OM curve shifts to the right (from OM^* to OM'). Point B , at the intersection of AM' and OM' , is definitely not an equilibrium position because p and y are higher than they initially were. This movement may continue: for example, pushing output to the level corresponding to the intersection of AM'' and OM'' at C . However, counter-acting forces will set in. First, the higher output price leads producers to adjust their price-level expectations upward, this time shifting the OM curve back to the left. Second, higher p and y raise tax collections, producing budget surpluses. This entails an endogenous fall in both the money base and the issuance of government bonds. The larger the proportion of the budget financed by the base money, the stronger the leftward shift of the AM curve. Gradually, the system converges toward point A^{**} , where output is back at its equilibrium level. All monetary prices (p , i , and P), and expectations, increase in the same proportion as the base money.

Brunner and Meltzer are adamant that their model is superior to the IS-LM model. First, it provides a richer account of the transmission mechanism because it comprises two relative prices rather than one. Second, their analysis questions the policy conclusions of the IS-LM model. In the IS-LM model, the interest-rate elasticities of investment and money demand play a crucial role in the study of the real effects of monetary shocks. If the economy is stuck in the so-called liquidity trap (for which the interest-rate elasticity of money demand is infinite), monetary policy is impotent. The same conclusion ensues if investment is insensitive to interest-rate movements. By contrast, in their model, even in the liquidity-trap case (and if investment is interest-insensitive as well), variations in P/p allow monetary impulses to have prominent real effects—a revenge of the “classics” over Hicks!

Critical remarks

Unfortunately, the Brunner–Meltzer model does not stand up to scrutiny. First, in this model, everything hinges on the difference in speed of adjustment between P and p . If P were as sticky as p , there would be no variations in P/p and the transmission process would be restricted to the interest-rate channel, like in the IS-LM model. It is true that the market for financial assets instantaneously adjusts. But their real asset market is not a financial market in

the usual meaning of the term. There is no reason for extending the instantaneousness of price adjustment proper to the other types of asset markets to the second-hand equipment market. In the output market, stickiness is justified on the grounds that it is beset with information problems. However, since G. Akerlof's lemon market paper, it is well known that information problems are especially big in second-hand markets. Hence, the increase in P/p ends up being unjustified.⁸

The second critical remark concerns the labor market. The labor market is absent from the Brunner–Meltzer model. Does this mean that their economy is composed of self-employed workers? They certainly do not explicitly write this. If this were the case, another problem would arise: why would self-employed workers need to buy a good that they can produce themselves?

The third criticism is that many assumptions made by Brunner and Meltzer appear *ad hoc*. The central role given to the second-hand equipment market and the substitution between old and new equipment is far-fetched. The factors selected to explain the return of the *AM* and *OM* curves to their equilibrium positions also seem *ad hoc*. In the same vein, the price-setting function is not justified. Likewise, the link between the cost of acquiring information and stickiness is hardly established.

CONCLUDING REMARKS

In this paper, we have compared Friedman's and Brunner's aspirations for the development of monetarism. Brunner, jointly with Meltzer, cherished the hope that monetarism would dethrone Keynesian macroeconomics and replace it as the mainstream approach in macroeconomics. They wanted to change theory. By contrast, Friedman's overarching aim was to persuade politicians and the public that it was time to relinquish the Keynesian vision of the workings of the market economy. This aim also pervaded his academic activities, but these were hardly geared toward starting a theoretical revolution, the outcome of which would have been the rise of a theoretical monetarist framework. Friedman believed that it was possible to defeat Keynesian theory through historical and empirical work.

Economic theory can be compared with a machine. A scientific revolution—in macroeconomics, the transition from Keynesian to DSGE macroeconomics—can then be regarded as a change of machine, marking the old one obsolescent. Brunner and Meltzer engaged in a battle for replacing the Keynesian machine—to no avail. Friedman was not interested in the whole machine but in one of its pieces, a spare part that had an autonomous usage yet also happened to fit the Keynesian machine. The advantage of regarding monetarism as a spare part that can be part of different machines is that its fate ceases to be linked to that of the machine that it once was a part of. More or less in the same period when Brunner and Meltzer and Friedman had the dispute we have documented, both the IS-LM model and monetarism were the joint victims of the Lucasian revolution. As noticed by Sargent, this revolution was “impartial in the rough treatment it handed out to participants on both sides of the monetarist-Keynesian controversies” (Sargent 1996, 5). Now, decades later,

⁸ Laidler (1978; 1990) makes the same point.

the Lucas model has evolved into RBC modeling and the latter into DSGE modeling, the same machine in different modes. But when observing the novelties in the latest version of the machine, we can see that the monetarist spare part has made a comeback. Like cats, monetarism *à la* Friedman seems to have several lives, the very result of its modest ambition.

REFERENCES

- Allen, R. G. D. 1967. *Macroeconomic Theory. A Mathematical Treatment*. London: Macmillan.
- Brunner, Karl. 1974. "Inflation, Money and the Role of Fiscal Arrangements: An Analytical Framework for the Inflation Problem." In *The New Inflation and Monetary Policy*, edited by M. Monti. London: Macmillan.
- Brunner, Karl, Alex. Cukierman, and Alan Meltzer. 1983. "Money and Economic Activity, Inventories and Business Cycles." *Journal of Monetary Economics* 11: 281–319.
- Brunner, Karl, and Alan Meltzer. 1972a. "Friedman's Monetary Theory." *Journal of Political Economy* 80: 837–51.
- Brunner, Karl, and Alan Meltzer. 1972b. "Money, Debt, and Economic Activity." *Journal of Political Economy* 80: 951–77.
- Brunner, Karl, and Alan Meltzer. 1993. *Money and the Economy: Issues in Monetary Analysis*. Raffaele Mattioli Lectures,. Cambridge: Cambridge University Press.
- De Vroey, Michel. 2012. "Marshall and Walras: Incompatible Bedfellows?" *The European Journal of the History of Economic Thought* 19: 765–84.
- De Vroey, Michel. 2018. "The History of Macroeconomics (from Keynes to the Present) under the Lens of the Marshall-Walras Divide." *IREES Discussion Papers*. No. 18.
- Friedman, Milton. 1948. "A Monetary and Fiscal Framework for Economic Stability." *The American Economic Review* 38: 245–64.
- Friedman, Milton. 1956. "The Keynesian Revolution and Economic Liberalism." Lecture, Wabash College, June. Available on Hoover Institution website.
- Friedman, Milton. 1961. "The Lag in Effect of Monetary Policy." *Journal of Political Economy* 69: 447–66.
- Friedman, Milton. 1970a. "The Counter-Revolution in Monetary Theory." *IEA Occasional Paper* 33. London: Institute of Economic Affairs.
- Friedman, Milton. 1970b. "A Theoretical Framework for Monetary Analysis." *Journal of Political Economy* 78: 193–238.
- Friedman, Milton. 1971. "A Monetary Theory of Nominal Income." *Journal of Political Economy* 79: 323–37.
- Friedman, Milton. 1972. "Comments on the Critics." *Journal of Political Economy* 80: 906–50.

- Friedman, Milton, and Anna Schwartz. 1963. "Money and Business Cycles." *Review of Economics and Statistics* 45: 32–64.
- Gordon, Robert J. 1974. *Milton Friedman's Monetary Framework: A Debate With His Critics*. Chicago: University of Chicago Press.
- Hicks, John. 1937. "Mr. Keynes and the Classics. A Suggested Interpretation." *Econometrica* 5: 147–59.
- Keynes, J. M. 1936. *The General Theory of Employment, Interest, and Money*. London: Macmillan.
- Laidler, David. 1978. "Money and Money Income: An Essay on the 'Transmission Mechanism'." *Journal of Monetary Economics* 4: 151–91.
- Laidler, David. 1990. "The Legacy of the Monetarist Controversy." *Federal Reserve Bank of St. Louis Review* 72: 49–64.
- Laidler, David. 1991. "Karl Brunner's Monetary Economics - An Appreciation." *Journal of Money, Credit and Banking* 23: 633–58.
- Laidler, David. 1995. "Some Aspects of Monetarism Circa 1970: A View from 1994." *Kredit und Kapital* 28: 323–45.
- Leijonhufvud, Axel. 1994. "Hicks, Keynes and Marshall." In *The Legacy of Hicks. His Contributions to Economic Analysis*, edited by H. Hagemann and O. Hamadou, 147–62. London: Routledge.
- Marshall, Alfred. 1920. *Principles of Economics*, eighth edition. London: Macmillan.
- Modigliani, Franco. 1944. "Liquidity Preference and the Theory of Interest and Money." *Econometrica* 12: 44–88.
- Monti, Mario. 1974. "Discussion of 'Inflation, Money and the Role of Fiscal Arrangements: An Analytical Framework for the Inflation Problem' by Karl Brunner." In *The New Inflation and Monetary Policy*, edited by M. Monti. London: Macmillan.
- Nelson, Edward. 2018a. *Milton Friedman and Economic Debate in the United States, 1932-1972*, Book A. Mimeo.
- Nelson, Edward. 2018b. *Milton Friedman and Economic Debate in the United States, 1932-1972*, Book B. Mimeo.
- Patinkin, Don. 1965. *Money, Interest and Prices*, second edition. New York: Harper and Row.
- Sargent, Thomas. 1996. "Expectations and the Non-Neutrality of Lucas." *Journal of Monetary Economics* 37: 535–48.

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