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Milton Friedman on the interaction between fiscal and monetary policy

Is monetary policy more powerful than fiscal policy, or vice versa?

John Greenwood

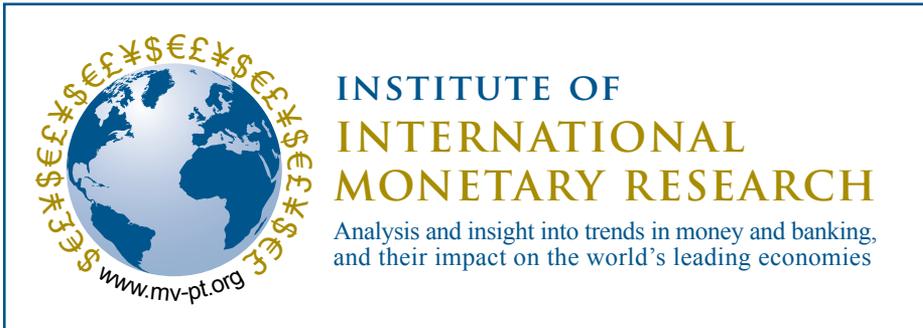


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In his 1970 Institute of Economic Affairs pamphlet on *The Counter-Revolution in Monetary Theory* Milton Friedman, who was to be awarded the Nobel prize for economics six years later, wrote,

“Inflation is always and everywhere a monetary phenomenon in the sense that it is and can be produced only by a more rapid increase in the quantity of money than in output. ... A steady rate of monetary growth at a moderate level can provide a framework under which a country can have little inflation and much growth. It will not produce perfect stability; it will not produce heaven on earth; but it can make an important contribution to a stable economic society.”

Milton Friedman on the Interaction Between Fiscal and Monetary Policy: Is monetary policy more powerful than fiscal policy, or vice versa?

John Greenwood

Much has been made of the two views that Milton Friedman held during his lifetime about fiscal policy. As Congdon puts it in his book *Money in a Free Society*, “The inconsistency between [Friedman’s] standpoints in 1948 (when he said fiscal policy mattered enormously) and 1996 (when he said fiscal policy did not matter at all) is so extreme that someone new to his work might ask questions about his intellectual integrity”.¹

In this paper Section 1 discusses this inconsistency and explains how the apparent conflict of views can be reconciled. Section 2 sets out Friedman’s settled, empirically-based view of fiscal policy which he arrived at in the late 1940s or early 1950s. Section 3 applies this more mature, data-based analysis of the interaction of monetary and fiscal policy to a series of episodes:

- first, in the United States during the 1960s, relying on the content of a lecture given by Friedman in 1969 on the evolution of fiscal and monetary policy through those years,
- second, in some more general cases from different economies and different eras,
- third, in the UK, and
- finally, in Japan.

One of the paper’s contributions is to offer a simple matrix in line with Friedman’s formulation of the problem. The matrix encapsulates *both* cases where monetary and fiscal policy were acting in the same direction, *and* cases where they were operating in opposite directions. The matrices are populated with relevant case studies and an assessment is made of how Friedman’s general observations on the effectiveness of monetary and fiscal policy apply in these specific cases. Section 4 concludes.

Friedman’s Early Views on Fiscal Policy, 1941-48

In his early years as an economist, Milton Friedman’s views on fiscal policy were similar to those that became conventional after the 1936 publication of Keynes’ *General Theory*. He first became involved in the public policy debate about fiscal versus monetary policy through his work at the US Treasury Department from 1941 to 1943. The evolution of his thinking can be traced from an interview with John Taylor, given in 2000 when Friedman was 88.²

Friedman said that he became particularly interested in monetary economics during his spell at the Treasury, “because the crucial question was, ‘what are we going to do to keep down inflation?’”. Friedman had observed a widespread acknowledgement that in World War I taxes had paid for only a modest fraction of the war effort and inflation had followed. So, in his words, during World War II Treasury officials “were determined to raise the fraction paid for by taxes. At the same time, they also had the problem of predicting inflation, and that’s how I got involved.”

Friedman noted in more detail that, “The problem – it was interesting from a political point of view and from a scientific point of view – was that a group in the administration who were trying to get a price control statute didn’t want us [in the Treasury] to come up with a tax proposal because they were afraid we would say, ‘we can stop inflation through taxes, we don’t need price controls’. They wanted price controls.” Taylor wondered whether people mentioned money in all the inflation talk and asked, “Was money discussed at all?” Friedman’s reply was,

Hardly. As a result of the Keynesian revolution, money had almost dropped out of the picture. I look back at that and say, ‘how the hell could I have done that?’. I had good training in monetary theory at Chicago and yet, once the Keynesian revolution came along, everything was on taxes and spending, everything was on fiscal policy, and that’s why I was trying to answer the question about the level of taxation needed to stem inflation. With a sufficiently expansive monetary policy, no amount of taxes could do it. It was the wrong question. The right question was, ‘what monetary policy do we need?’ [Failure to ask that question] was the result of the mind-set we had.

During the 1940s Friedman wrote one article on inflation and two articles on macroeconomic stabilization. All three conveyed his Keynesian cast of mind in those years. The first article ‘Discussion of the Inflationary Gap’ was published in the June 1942 issue of the *American Economic Review*. It was later republished in Friedman’s 1953 collection *Essays in Positive Economics*, with a footnote which reflected the shift in his view. The footnote said the 1953 version had “indicated additions to correct a serious error of omission in the original version”.³ Friedman was referring to “the omission from [the original version] of monetary effects...which is not excused but may perhaps be explained by the prevailing Keynesian temper of the times”.

The two articles on macroeconomic stabilization were also influenced by Keynesian perspectives, treating monetary policy as something to be managed as the by-product of fiscal policy. The first considered ‘The Effects of a Full-Employment Policy on Economic Stability: A Formal Analysis’ and focused on fiscal policy rules.⁴ Friedman proposed that the quantity of money should vary counter-cyclically, increasing when there was a recession and decreasing when there was an expansion. The article developed fiscal policy rules for taxes and spending that would give budget balance on average, but also generate deficits and surpluses over the cycle that would produce the appropriate growth of money. At this stage, fiscal policy was clearly the senior partner in Friedman’s thinking.

The second was a 1948 contribution to the *American Economic Review*, on ‘A Monetary and Fiscal Framework for Economic Stability’, which had similar themes. (It too was reprinted in *Essays in Positive Economics*.) The analysis of the monetary component of policy-making was based largely on the 100% reserve proposal of the Chicago Plan of the 1930s.⁵ The Chicago Plan aimed at eliminating the variability of money that derived particularly from privately-owned commercial banks’ ability to extend loans and create new deposits. Friedman, along with other economists sharing a Chicago background, wanted to curtail this private-sector power. Instead, according to Friedman, the “chief function of the monetary authorities” should be “the creation of money to meet government deficits or the retirement of money when the government has a surplus.” In addition to being a fiscally-driven plan for monetary control, this was also an argument from first principles. The 1948 paper contained no references to real-world statistics and no quantification of empirical relationships.

However, by the early 1950s Friedman had moved on. He appears to have been persuaded by greater exposure to data and evidence, and to the work of other researchers in the field, that the quantity of money mattered more to macroeconomic outcomes than the government's budget balance.⁶ The 2000 Taylor interview picked up the story. Taylor posed the question, "Was part of the reason for the change [in your view] that the link from deficits and surpluses to changes in money growth were not so tight [as they were] with changes in the money multiplier?". Friedman's response was

Partly it was that, and partly it was that the link from fiscal policy to the economy was of no use... Certainly the argument that money plays an important role in the economy has been settled...[But] I still have more extreme views about the unimportance of fiscal policy than the profession does.

Taylor resumed, "In looking back at these monetary versus fiscal debates, it seems that most of your articles are empirical rather than theoretical. Macroeconomic models appear sometimes, but they are not the main focus. Would you agree with that?". It is clear from Friedman's answer that real-world facts had driven his change of position. To quote, "I believe that one reason the work had whatever effect it has had is because it did have an empirical base. I believe that I can honestly say that I never reached a judgment about monetary or fiscal policy because of my beliefs in free markets. I believe that the empirical work is independent and honest in that sense. If fiscal policy had deserved to play a much larger role, that would have showed up in the data."

The exchanges in the Taylor interview show that in the 1930s Friedman had absorbed the new thinking on fiscal policy associated with Keynes' *General Theory*, even though this thinking had not been tested by experience, and did not appeal to independent and objective empirical research.⁷ Already adept at economic analysis, Friedman was able to formulate a plausible theoretical model of the interaction of fiscal and monetary policy from a Keynesian point of view. But his proposal for counter-cyclical changes in the rate of money growth – contained in two of the papers from the 1940s – was to be rejected by him a few years later. For the remainder of his career Friedman was an economist who accepted a theory only when it was supported by empirical evidence. In addition, he was also sceptical of large-scale econometric models. As he said in relation to time-series analysis in the Taylor interview,

I think the major issue is how broad the evidence is on which you rest your case. Some of the modern approaches involve mining and exploring a single body of evidence all within itself...I believe that you have a more secure basis if, instead of relying on extremely sophisticated analysis of a small body of data, you rely on cruder analysis of a much broader and wider body of data, which will include widely different circumstances. The natural experiments that come up over a wide range provide a source of evidence that is stronger and more reliable than any single very limited body of data.⁸

(The author would like to inject a personal note here. Friedman was an enthusiastic reader of the journal, *Asian Monetary Monitor*, which the author edited from 1977 to 1996 for the investment company, G. T. Management Ltd. The *Asian Monetary Monitor* covered the monetary experience of many Asian economies over two decades, together with some selected episodes from Asian monetary history, providing Friedman with exactly the kind of "broader and wider" evidence that he valued.⁹)

Friedman's Settled View on Fiscal Policy, and its Interaction with Monetary Policy

In September 1969 Friedman gave a lecture in Tokyo on the relative roles of monetary and fiscal policy in the United States over the period 1961-69, building on the debate he had held with Walter Heller less than a year previously.¹⁰ (Heller had been chairman of President Kennedy's Council of Economic Advisers.) His approach was to divide the decade into four distinct macroeconomic episodes. In an account of fiscal and monetary policy in each episode, he asked which branch of policy dominated. His handling of the historical record was compelling and difficult to contest. He showed convincingly that, if fiscal policy were known to be either expansionary or contractionary, that knowledge by itself would have no clear implications for demand and output. Instead monetary policy was needed to obtain an unambiguous steer on the business cycle. If monetary policy was either expansionary or contractionary, that was enough to explain broadly how securities and asset markets, the economy, and later inflation would behave. The purpose in this section is mostly to summarise Friedman's argument on the reasons that fiscal policy is invariably subordinate to monetary policy as a driver of cyclical changes in aggregate demand, although the theory is illustrated by references to the 1960s.

One of Friedman's favoured approaches was to argue that there are only three ways to finance a rise in government spending. First, the government can increase taxes, in which case individuals or firms will have less to spend, and therefore increased government spending will be offset by reduced private sector spending. Second, the government can borrow the funds in capital markets, in which case there will be less funds available for private sector firms or households to borrow and invest. Third, the government or the central bank can arrange for the additional government spending (or private sector investment spending) to be financed via the central bank or through the banking system by credit expansion. (Such borrowing is often labelled "the printing of money", although usually the increase in bank deposits by the banking system is many times larger than the increase in the note issue by the central bank.) In this third case it was certain that total spending would rise, but in the first two it was not. By implication, extra government spending is stimulatory only when it is financed through a sustained increase in the quantity of money. This was a position that Friedman reached in the late 1940s or early 1950s, and a conclusion which he continuously reinforced by reference to a growing catalogue of real-world examples.

In the 1969 lecture Friedman presented two contrasting examples of fiscal policy: the 1964 tax cut in personal and corporate incomes, and the 10% tax surcharge of 1968. On the tax cut he remarked that, after its enactment in 1964, "it was given, by the public at large as well as by many informed economists, primary credit for the rapid expansion in the American economy which got under way in late 1962 and continued for some years thereafter". Friedman demurred, proposing that the evidence on the tax cut was very mixed. The problem was that the rate of growth of the economy started to accelerate before the tax cut took effect, while its above-trend expansion continued long afterwards. If the tax cut were invoked to explain both the early upturn and the continued advance several quarters later, one had logically to contend that the tax cut had a large part of its effect ahead of the event -- because of anticipations -- and that it gave yet another boost after the event -- because of momentum. This seemed implausible. Friedman noted that in reality

...two things were going on at the same time: there was a tax cut on the one hand, but on the other the rate of growth of the quantity of money speeded up rather sharply in the middle of 1962, and this preceded, by roughly six months, the speeding up of the economy which in turn preceded the tax cut, so that from a scientific point of view the evidence of the period from 1961 to 1964 or 1965 is very mixed. There were two factors at work: on the one hand the changes in fiscal policy and on the other hand the changes in monetary policy. They were both working in the same direction, and therefore one cannot, on a simple view, determine which was primarily responsible.¹¹

In summary, Friedman's view was that the tax cut of 1964 was potentially positive, but that the stimulus coming from a simultaneous acceleration of monetary growth was far more powerful.

The next major fiscal event was the 10% tax increase of 1968. The Keynesian view was that tax increases (leading to reductions in the budget deficit or increases in the surplus) are disinflationary, whereas increases in government spending (leading to reductions in the budget surplus or increases in the budget deficit) are stimulatory. Keynesianism on these lines was so ingrained that Friedman sometimes resorted to hyperbole or polemics to counter his opponents' arguments. In Tokyo he started out with the rhetorical question: "How can it be that an increase in taxes is not anti-inflationary? Is it not the most obvious thing in the world that – if you raise taxes and thereby cut the incomes of tax-payers – they will have to reduce their spending, and that this in turn will reduce the [upward] pressure on prices? How can anybody be so foolish as to suppose anything else?" Friedman then argued that economists needed to think outside the Keynesian box.

But then how do you explain the results? How is it that the sharp tax increase (the 10% surtax on personal and corporate income) in the middle of 1968 in the U.S. appeared to have had little effect on the pressure of spending? The answer is that the usual analysis of the tax increase of the kind that I have given is only half the story. It is true that if taxes are increased, then tax-payers have less to spend. So far as that goes, that does reduce the pressure of demand.

But we have to look at the other side of the government's accounts. If the government continues to spend what it otherwise would have, it has to borrow less in order to finance it. If it raises \$10 billion more in taxes, it needs to get financing from other sources of \$10 billion less. If the reduction from other sources occurs because it borrows \$10 billion less, then that means that those who would have loaned funds to the government have \$10 billion more to pay their taxes, or to maintain consumption, or to lend to somebody else. Tax-payers have less; potential lenders have more. So far as that goes, there is no net effect of a tax increase on the funds available. So far as that goes the effect of the tax increase will be to lower interest rates, but it will not directly reduce spending. It will mean that people who would otherwise have loaned the funds to the government will now have to find other borrowers. In order to find other borrowers, they will have to offer slightly lower interest rates. This will induce business investors – or maybe people who want to build houses or [other capital equipment] -- to borrow the funds that otherwise would have gone to the government. The effect of the higher taxes will be lower consumption and higher capital formation – and that is precisely what happened in the last half of 1968.

In summary, Friedman considered that the 1968 tax increase was not effective in slowing aggregate demand first because the government continued to spend the funds acquired by the tax increase, while at the same time there was merely a shift in private sector spending away from consumption towards investment. However, there was also a second reason: sustained rapid monetary growth. Once again, monetary policy dominated fiscal policy. To continue with a further quotation from Friedman's 1969 Tokyo lecture,

Of course, if the higher taxes are matched not by a reduction in borrowing from the public, but by a reduced printing of money then the situation is different. Then the tax increase is accompanied by a slower rate of monetary growth, and that will have a definitely deflationary effect. So the reason in 1968 in the United States why you had a controlled experiment was because the counterpart of the tax increase was a reduction in [private] spending but not a reduction in monetary growth. Monetary policy remained expansionary, while tax policy became contractionary. And the results were those that you would expect from the kind of theoretical analysis I just have just given – namely there was no slowdown in the rate of economic expansion, but there was a shift in the composition of output with some slowing down in the rate of consumption spending and some increase in the rate of investment spending.

Much later in his life Friedman summarised his analysis with this challenge: “One of the things I have tried to do over the years is to find cases where fiscal policy is going in one direction and monetary policy is going in the opposite. In every case the actual course of events follows monetary policy. I have never found a case where fiscal policy dominated monetary policy and I suggest to you as a test to find a counter-example.”¹²

Responding to this challenge and using Friedman’s separation of the two key tools of macroeconomic policy suggests the construction of a simple 2x2 matrix that contains four possible cases of the interaction of fiscal and monetary policy (as in Figures 1-4),¹³

- first, expansionary monetary policy can be accompanied by either expansionary (case A) or contractionary (case C) fiscal policy, and
- second, contractionary monetary policy can be accompanied by either expansionary (case B) or contractionary (case D) fiscal policy.

(Note that Friedman seems never to have presented his analysis of monetary versus fiscal policy with the aid of this kind of matrix.)

Case Studies of the Interaction of Monetary and Fiscal Policy

Before embarking on selected case studies of the interaction of fiscal and monetary policy, the measures of monetary and fiscal policy used in this paper need to be defined. On the fiscal side the preferred measure is the change in the cyclically-adjusted or “structural” budget balance for each economy, meaning the change in the annual budget balance relative to potential nominal GDP expressed as a percentage of potential GDP. These data are available from successive issues of the International Monetary Fund’s *World Economic Outlook* in terms of level from 1980 for the US, UK and Japan, and from 1995 for China. (The database of cyclically-adjusted budget balances, is henceforth called “IMF CABB”.) Analysts can therefore calculate the annual change for the US, UK and Japan from 1981, and from 1996 for China. Where the cyclically-adjusted data are not available, budget balances relative to GDP are used. In the current exercise a stimulatory fiscal policy is represented by a series of negative numbers (i.e., increases in the budget deficit), and conversely a tight fiscal policy by positive numbers (i.e. decreases in the budget deficit or increases in the surplus). If specific figures for budget balances are not available, changes in the outstanding stock of government debt are used instead.

In practice, this means that for case studies in the US and UK in periods after World War II but before 1981, changes in the budget balance relative to GDP are obtained. For the UK and Japan before World War II changes in the budget balance apply wherever possible, but

changes in the outstanding stock of government debt – the nearest approximation to the changes in the budget balance – are used when other measures are not available. Departures from the definitional framework are explained in the footnotes. On the monetary side Friedman's view of monetary policy is highlighted not by changes in interest rates, but by use of the rate of growth of broad money on a year-on-year basis. The use of year-on-year changes is consistent with Friedman's view that it requires a sustained change in the rate of broad monetary growth to have any substantial impact on the economy or inflation. Again, departures from this procedure are explained in footnotes.

Figure 1: The interaction of fiscal and monetary policy: the United States during the 1960s

	MONETARY POLICY																								
FISCAL POLICY	Expansionary	Contractionary																							
Expansionary	Case A	Case B																							
	<p>1964 tax cut ‘Great Society’ programmes and the Vietnam War, from 1964</p> <p>Change in budget balance <table border="0"> <tr> <td><u>1963</u></td> <td><u>1964</u></td> <td><u>1965</u></td> </tr> <tr> <td>+0.1%</td> <td>-0.1%</td> <td>+0.6%</td> </tr> </table> </p> <p>Monetary acceleration: <table border="0"> <tr> <td></td> <td><u>Feb 61</u></td> <td><u>Nov 63</u></td> <td><u>Apr 65</u></td> </tr> <tr> <td>M2</td> <td>6.0%</td> <td>8.8%</td> <td>8.4%</td> </tr> </table> </p>	<u>1963</u>	<u>1964</u>	<u>1965</u>	+0.1%	-0.1%	+0.6%		<u>Feb 61</u>	<u>Nov 63</u>	<u>Apr 65</u>	M2	6.0%	8.8%	8.4%	<p>1967 Economic slowdown/ mini recession</p> <p>Change in budget balance <table border="0"> <tr> <td><u>1966</u></td> <td><u>1967</u></td> </tr> <tr> <td>-0.3%</td> <td>-0.8%</td> </tr> </table> </p> <p>Monetary deceleration: <table border="0"> <tr> <td></td> <td><u>Apr 66</u></td> <td><u>Jan 67</u></td> </tr> <tr> <td>M2</td> <td>7.8%</td> <td>4.2%</td> </tr> </table> </p>	<u>1966</u>	<u>1967</u>	-0.3%	-0.8%		<u>Apr 66</u>	<u>Jan 67</u>	M2	7.8%
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<p>Data sources: Fiscal policy data from Thomson Reuters Datastream. Change of M2 from FRED, Federal Reserve Bank of St Louis, website as at 23 October 2018.</p>																									

Illustrations from the USA in the 1960s (Figure 1)

Prompted by Friedman's 1969 Tokyo lecture on US macroeconomic policy, the analyst can review episodes with different fiscal-monetary policy mixes by filling up four cells in a matrix, as in Figure 1. Fortunately, there was one case of each type (Cases A, B, C and D) during the 1960s, and even more remarkably they occurred chronologically in that order. When monetary and fiscal policy were each acting in the same direction (Cases A and D in the matrix), the outcome was straightforward. However, a remaining issue is determining the relative influence of fiscal or monetary policy on the ultimate outcome.

For Friedman, and for economists today, the more interesting cases are those (Cases B and C) where monetary and fiscal policies were acting in opposite directions. With respect to the slowdown or mini-recession in the US in 1967 (Case B), Friedman's view was that, "However you interpret it, it is clear from the data that the tight monetary policy had a greater effect on the course of economic activity in 1967 than the expansive fiscal policy."¹⁴ As discussed, any contractionary impact of the 1968 tax increase (Case C mentioned in section 2 above) was swamped by the expansionary monetary policy in force at the same time.

However, the two case studies (B and C) from Friedman's 1969 lecture in which monetary policy conflicted with fiscal are only the start of empirical work. The 2x2 matrix approach can be readily extended to cover other economies and other eras. In line with his preference for "broader and wider" evidence, Figure 2 highlights striking case studies from China, the US, the UK and Japan in different eras, while Figures 3 and 4 focus on the UK and Japan respectively. In all the case studies in Figures 2, 3 and 4, but particularly Cases B and C of each matrix, the data point to the same conclusion. Almost always, whenever monetary and fiscal policy point in opposite directions, monetary policy seems to dominate over fiscal policy. The remainder of Section 3 offers a brief overview of the episodes selected in Figures 2, 3 and 4. Most attention will be paid to the episodes listed under Cases B and C in each case where monetary and fiscal policies were operating in opposite directions.

Classic illustrations from around the world (Figure 2)

China's so-called "fiscal stimulus" of 2008-10 (Case A in Figures 2) is of great importance to anyone interested in the Great Recession of 2008-09. In contrast to many advanced Western economies, which had built up considerable leverage especially in the household and financial sectors, China's economy had entered the Great Recession with those sectors in a much stronger, less leveraged position as measured by the ratios of sectoral debt-to-GDP. Accordingly, unlike those developed economies that needed to undertake an extended period of de-leveraging and balance sheet repair (and whose banks were therefore constrained in their ability to expand credit and hence money), the Chinese authorities were able to launch a strong stimulus programme starting in November 2008.

However, the standard media narrative about the programme is misleading. Many reports correctly state that the central government of China announced a huge fiscal injection amounting to CNY 4 trillion, or 6.5% of China's GDP at the time. But general government (i.e., central and local governments together) increased its deficit only from 0.3% of GDP in 2008 to 1.8% in 2009, according to the IMF's CABB database. This represented a stimulatory shift of a mere 1.5% of GDP (Figure 2), which was almost entirely reversed in 2010 when the budget balance returned to -0.4% of GDP, a contractionary shift of 1.4% of GDP. The boost to activity and spending came partly from provincial governments, many of

which set up local government financing vehicles (LGFVs) to borrow from the banking system. In short, rather than funding the additional spending by taxation or from capital market sources, most of it was in fact financed by new credit creation from the banking system. As a result, M2 and bank credit increased enormously over the two years, 2009 and 2010. Average annual growth of M2 over this period was 25%, compared with about 15% p.a. before the crisis. As Friedman would no doubt have pointed out, while fiscal policy was mildly expansionary in 2008 and 2009, monetary policy was highly expansionary. The outcome was that China's stock market doubled in 2009, accompanied by surges in house prices and commodity prices, and a strong economic recovery ensued. In addition, consumer price inflation increased from minus 1.8% year-on-year at its low point in July 2009 to 6.5% in 2011.

Experience in the highly-leveraged developed economies after the 2008-09 crisis, such as the USA and UK, was different from that in China. In these economies – despite budget deficits expanding to 10% of GDP and more, despite interest rates being lowered to almost zero, and despite large amounts of “quantitative easing” – the recoveries proved to be universally sub-par. A crucial difference between the developed economies and China was that none of the former experienced the kind of sustained surge in broad money growth that prompted China's recovery. Arguably, the lack of expansionary broad money growth in the developed economies was the missing ingredient that was needed for a normal recovery. Again, as Friedman would no doubt have pointed out, circumstances combined to offer a controlled experiment contrasting two very different combinations of fiscal and monetary policy in China on the one hand (Case A) and in the advanced western economies on the other (which were examples of Case B). In both cases monetary policy (as measured by broad money growth) proved decisive.

The episode selected for Case B in Figure 2 is President Reagan's policy of tax cuts and increased defence expenditure in the first half of the 1980s. The episode is interesting in the current circumstances because there are obvious parallels between his fiscal programme and President Trump's current fiscal agenda. Under Reagan the budget deficit swelled from 1.6% of GDP in 1981 to 5.3% by 1986. (The data are from IMF CABB.) However, far from accelerating under the pressure of increased government spending, inflation fell sharply in the same period from 14.8% in March 1980 to 1.1% by December 1986. How could it be that with such a large stimulatory fiscal spending plan the inflation rate could come down so dramatically? The answer, of course, was that this was the period when Paul Volcker, as chairman of the Federal Reserve, was on a mission to raise interest rates, and to squeeze money and credit until inflation fell. Monetary policy was therefore extremely tight and – as usual – it overwhelmed fiscal policy. The period was, however, one of confusion for followers of the money supply data, including Friedman himself, due to significant deregulation of the financial system and the introduction of new “sweep” accounts by the banking system. But the results in terms of inflation were unambiguous. Tight money brought down inflation, even in the face of a highly expansionary fiscal policy.

Cases from British financial history (Figure 3)

As Chancellor of the Exchequer in 2008 and 2009 at the end of the UK's 1997 – 2010 Labour government, Alistair Darling engineered an allegedly expansionary budgetary response to the Great Recession of 2008-09. The result was an example of a policy mix – stimulatory fiscal policy and restrictive monetary policy (in terms of broad money growth) – that was widely adopted in the developed economies after 2008. However, fiscal policy did not deliver the recovery that seemed to work well in China's Case A-type policy in Figure 2. The reason was that, although the UK fiscal deficit was indeed substantial, broad money growth was weak or negligible. The two approaches – in China and the UK respectively – coincided in their timing, but had strikingly different outcomes.

Figure 2: The interaction of fiscal and monetary policy: classic cases from around the world

	MONETARY POLICY																																		
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<p>Data sources: Chinese and US fiscal data show changes in cyclically-adjusted budget balances (CABB) as % of GDP, using the IMF's World Economic Outlook database (October 2008 and October 2018 editions). A negative change indicates a stimulatory fiscal policy. Following Friedman, monetary growth refers to percentage year-on-year rates of change of M2. The source for China's M2 is the Federal Reserve Bank of St Louis's FRED database, as of November 2018.</p>																																			

Figure 3: The interaction of fiscal and monetary policy: cases from British history

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Case C in Figure 3 refers to two controversial and much-discussed episodes from British financial history: the 1931 budget of the Labour Party's Chancellor of the Exchequer, Philip Snowden, and the celebrated 1981 budget of the Conservative Chancellor, Geoffrey Howe, in the first Thatcher administration. Both budgets were much tighter in terms of their squeeze on government spending and in their supposed impact on private sector spending than supporters in the two respective political parties had hoped.

In the 1931 budget Snowden pursued a fiscal squeeze at home and orthodox trade policies abroad, despite recession and deteriorating government finances. On the domestic side he cut unemployment benefits and reduced public sector pay, leading to riots in the streets and a mutiny among sailors of the Royal Navy at Invergordon in Scotland. On the external side he refused to follow the US in raising tariffs or adopting protectionism despite the onset of the global economic downturn. These decisions triggered a split in the Cabinet, ultimately resulting in the fall of the Labour government later in the same year. Although Snowden (and Prime Minister Ramsay MacDonald) survived politically, winning re-election in a "National" coalition administration, he was widely excoriated for his adherence to liberal Gladstonian policies and was branded a traitor to Labour's cause.

The 1981 budget was delivered by Chancellor of the Exchequer, Sir Geoffrey Howe, at a time when the economy had suffered seven successive quarters of decline in real GDP (from the third quarter of 1979 [Q3] to the first quarter of 1981 [Q1]) as a by-product of the struggle against inflation. A Medium Term Financial Strategy (MTFS) had been put in place in 1980 to ensure a gradual reduction in the rate of growth of broad money over a period of years and was starting to prove successful. The policy mix flew in the face of conventional or Keynesian wisdom that the government should use fiscal spending to promote a recovery. Confronted in 1981 with a projected £14 billion Public Sector Borrowing Requirement (PSBR) or fiscal deficit for the 1981/82 tax year, nearly twice what had been forecast in official budget documents a year earlier, Chancellor of the Exchequer Howe and his team nevertheless decided to reduce the PSBR to £10.5 billion in 1981/82. The government thereby committed itself to a third successive year of so-called fiscal "austerity". This was to be accomplished on the revenue side mainly in three ways, by above-inflation increases in indirect taxes (including on petrol and diesel fuels), by new one-off taxes on the banks and North Sea oil, and by cancelling the indexation of personal tax allowances for inflation. On the spending side the plan was to keep public expenditure flat in real terms, with tight controls maintained on spending by extending the coverage of "cash limits". The Bank of England's Base Rate was simultaneously cut by two percentage points from 14% to 12%. In policy-makers' thinking the rate cut was feasible only because the PSBR had been reduced, making "space" for lower interest rates.

Perhaps the most famous response to this combination of fiscal tightening and monetary easing was the letter of protest in *The Times* newspaper from 364 disgruntled university economists. They predicted that the government's plans to narrow the fiscal deficit would end disastrously. Echoing criticism of the 1931 budget, they opined that, "present policies will deepen the depression, erode the industrial base of our economy and threaten its social and political stability."¹⁵ But nothing of the sort happened. Instead their prognoses, which stemmed from Keynesian fiscalist thinking, were contradicted by events. The economy troughed in 1981 Q2 and a recovery started in the third quarter, just a few months after the budget. By 1981 Q4 the real GDP had increased by 1.5% over the previous year, with the growth rate rising further to 1.8% in the year to 1982 Q4 and to 4.1% in the year to 1983 Q4.

In both 1931 and 1981 the fiscal stance was allegedly “tight”, but monetary policy was being eased. In 1931 the fiscal measures were not especially restrictive in terms of the budget balance. (See Figure 3.) Indeed, given that Snowden’s budget decisions were occurring against the backdrop of the onset of the Great Depression, it is not surprising that the budget deficit widened as a percentage of GDP in 1931 from 1.5% to 2.4%. Although Keynesian arguments about using increased public sector spending to boost demand and employment were already being ventilated in public debate, Snowden’s 1931 budget ignored such arguments in favour of fiscal conservatism. On the monetary side, broad money growth was 3.3% in the year to December 1930, falling to minus 4.7% in the year to December 1931, but surging to 10.3% in the year to December 1932.¹⁶ In addition, a 28% devaluation of sterling relative to the US dollar occurred in late 1931 after the UK left the gold standard in September. This caused the average rate of \$4.86 in 1930 to drop to an average of \$3.50 in 1932, which was doubtless a stimulus to the exporting and import-competing sectors, even if it raised the price of imports for domestic consumers and businesses. The net result in 1931-32, as we saw in the case of the US surtax in 1968, was that monetary ease overcame fiscal tightness. Britain was therefore far less impacted by the Great Depression than the US.

In retrospect, the British budget of 1981 is widely acknowledged to have marked the start of a sustained period of expansion for the UK economy. It was also a turning point in the management of the fiscal deficit. On a cyclically adjusted basis the public sector’s financial deficit declined from an average of 5.1% p.a. in the four years 1977 to 1980 inclusive to an average of just under 0.5% in the next four years.¹⁷ More importantly, as we have seen from Friedman’s forensic separation of fiscal and monetary forces, the continued growth of the quantity of broad money (M3) played the key role in ensuring a sustained expansion of nominal income during the 1980s. The steady reduction in the PSBR or budget deficit was widely criticised as an extension of “austerity”¹⁸, but the widening recovery meant that the gradual reduction in the ratio of public debt to national output became something of a sideshow in the macroeconomic narrative.

Cases from Japanese financial history (Figure 4)

To conclude our survey, Figure 4 features eight episodes from Japan. Its two Case A episodes (to remind, expansionary monetary and expansionary fiscal policy) both had a momentous impact on the Japanese economy, if in widely different political and intellectual contexts. Finance Minister Takahashi’s monetary and fiscal expansion of 1931-36 succeeded because it was based on a deliberate plan to combine monetary, fiscal and exchange rate elements. By contrast, Prime Minister Tanaka’s plan in 1972 was a purely fiscal plan that did not improve supply-side performance or “remodel the Japanese archipelago,” but did by chance coincide with a massive monetary expansion. Rapid money growth led to a bubble in the stock market, plus serious overheating in the economy and a peak rate of consumer inflation of over 22% between February and November 1974.

Finance Minister Takahashi’s fiscal expansionism of the 1930s (Case A) is sometimes credited with being the first example of a Keynesian stimulus, a few years ahead of the publication of Keynes’ *General Theory*. However, its success was at least as much due to the monetary and exchange rate parts of the programme as to its fiscal element. First, after Japan left the gold standard in December 1931 (devaluing the currency by 60% against the US dollar and 44% against the British pound), the performance of exports and industrial production improved dramatically relative to the USA or the UK.

Figure 4: The interaction of fiscal and monetary policy: cases from Japanese history

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Contractionary	<p>Case C</p> <p>i. Pre-WWI prosperity, 1902-14</p> <p>Fiscal Policy: After the Russo-Japanese War of 1904-05, Debt/GDP was reduced.</p> <p>Govt Debt/GDP:</p> <table border="1"> <tr> <td>1905</td> <td>1908</td> <td>1913</td> </tr> <tr> <td>84%</td> <td>67%</td> <td>59%</td> </tr> </table> <p>Monetary Growth, (1902-14, % yoy average):</p> <table border="1"> <tr> <td>M2</td> </tr> <tr> <td>+9.6% p.a.</td> </tr> </table> <p>Inflation</p> <p>Wholesale Prices +2.2% p.a. (1902-14 average)</p>	1905	1908	1913	84%	67%	59%	M2	+9.6% p.a.	<p>Case D</p> <p>i. Matsukata Deflation, 1881-85.</p> <p>Fiscal Policy: Level of Govt Debt (Yen Mn)</p> <table border="1"> <tr> <td>1876</td> <td>1877</td> <td>1878</td> <td>1881</td> <td>1884</td> </tr> <tr> <td>53.9</td> <td>238.2</td> <td>252.4</td> <td>246.1</td> <td>241.9</td> </tr> </table> <p>Monetary Policy: Deflation of Paper Money to lower price level</p> <p>Currency issue outstanding (Yen Mn)</p> <table border="1"> <tr> <td>1877</td> <td>1878</td> <td>1881</td> <td>1884</td> <td>1885</td> </tr> <tr> <td>139.7</td> <td>189.2</td> <td>178.2</td> <td>152.5</td> <td>153.0</td> </tr> </table> <p>Results: Wholesale Price Index, 1873=100</p> <table border="1"> <tr> <td>1877</td> <td>1878</td> <td>1881</td> <td>1884</td> <td>1885</td> </tr> <tr> <td>111</td> <td>117</td> <td>162</td> <td>110</td> <td>112</td> </tr> </table>	1876	1877	1878	1881	1884	53.9	238.2	252.4	246.1	241.9	1877	1878	1881	1884	1885	139.7	189.2	178.2	152.5	153.0	1877	1878	1881	1884	1885	111	117	162	110	112						
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53.9	238.2	252.4	246.1	241.9																																										
1877	1878	1881	1884	1885																																										
139.7	189.2	178.2	152.5	153.0																																										
1877	1878	1881	1884	1885																																										
111	117	162	110	112																																										

Cont'd: Figure 4: The interaction of fiscal and monetary policy: cases from Japanese history

	MONETARY POLICY																																										
FISCAL POLICY	Expansionary	Contractionary																																									
Contractionary	Case C	Case D																																									
	<p>ii. The 1980s and Asset Bubble of 1985-90</p> <p>Fiscal Policy: Budget Balance Shifted steadily from -6% (1979) to +2% (by 1991).</p> <p>Change in CABB (% GDP):</p> <table border="1"> <thead> <tr> <th>1985</th> <th>1986</th> <th>1987</th> <th>1988</th> <th>1989</th> <th>1990</th> </tr> </thead> <tbody> <tr> <td>0.6</td> <td>0.5</td> <td>1.0</td> <td>0.0</td> <td>0.7</td> <td>0.2</td> </tr> </tbody> </table>	1985	1986	1987	1988	1989	1990	0.6	0.5	1.0	0.0	0.7	0.2	<p>ii. The Dodge Line, 1949.</p> <p>Fiscal Policy: Cessation of budget deficits.</p> <p>Change in Government Debt (Yen Bn)</p> <table border="1"> <thead> <tr> <th>1946</th> <th>1947</th> <th>1948</th> <th>1949</th> <th>1950</th> </tr> </thead> <tbody> <tr> <td>+65.9</td> <td>+95.3</td> <td>+163.8</td> <td>+112.8</td> <td>-83.2</td> </tr> </tbody> </table> <p>Monetary Policy: End to Bank of Japan financing of government budget deficits</p> <p>Change in BOJ credit to govt (Yen Bn)</p> <table border="1"> <thead> <tr> <th>1946</th> <th>1947</th> <th>1948</th> <th>1949</th> <th>1950</th> </tr> </thead> <tbody> <tr> <td>+35.3</td> <td>+156.5</td> <td>+124.9</td> <td>-40.4</td> <td>-124.8</td> </tr> </tbody> </table> <p>Results: Wholesale price Inflation (% yoy)</p> <table border="1"> <thead> <tr> <th>1946</th> <th>1947</th> <th>1948</th> <th>1949</th> <th>1950</th> </tr> </thead> <tbody> <tr> <td>+365</td> <td>+196</td> <td>+166</td> <td>+63</td> <td>+18</td> </tr> </tbody> </table>	1946	1947	1948	1949	1950	+65.9	+95.3	+163.8	+112.8	-83.2	1946	1947	1948	1949	1950	+35.3	+156.5	+124.9	-40.4	-124.8	1946	1947	1948	1949	1950	+365	+196	+166	+63
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<p>Sources: <i>Hundred Year Statistics of the Japanese Economy</i>, Statistics Department, The Bank of Japan, July 1966, Thomson Reuters Datastream, OECD Economic Outlook, and IMF WEO databases.</p> <p>Fiscal policy: Where changes in the IMF's CABB were not available data used was government expenditure (Case Ai), Government debt/GDP (Cases B i & C i), or the level of government debt (Cases D i & D ii). Monetary policy refers to the % year-on-year rates of change of M2 where available. The wholesale price index is equivalent to a producer price index.</p>																																											

Second, the incremental spending by the Japanese government in 1931-36 was financed by monetary means. From November 1932 the authorities sold entire issues of deficit-financing bonds to the central bank rather than to private institutions. The consequence was an acceleration of money growth (that is, of money in the hands of the public or M2), as the government spent the funds. In other words, the increased government spending was funded directly and entirely by the Bank of Japan. Takahashi's motivating idea was first to boost the money supply and stimulate industry, and then, as conditions improved, to engineer private sector purchases of government bonds from the Bank of Japan. This was intended to soak up money balances from the private sector (effectively reducing M2) and thereby control inflation. By 1933 Japan had emerged from the Great Depression.

The two episodes of Case B in Figure 4 illustrate the futility of fiscal stimulus programmes unaccompanied by monetary stimulus, at least as far as the growth of total nominal spending is concerned. The over-valuation of the Japanese yen in the 1920s caused persistent balance-of-payments deficits, depleting foreign exchange reserves and reducing banks' cash balances at the central bank. The downward pressure on banks' cash reserves curbed their ability to lend and to create new money balances, undermining any attempt at monetary stimulus despite several efforts at fiscal expansion (e.g. after the Great Kanto Earthquake in 1923). In the 1990s and 2000s, by contrast, the yen exchange rate was generally freely floating and external factors were not such a constraint on domestic monetary policy. Even so the failure to boost money growth (on the broad definitions) meant that Japan continued to suffer from deficient domestic demand and deflation. Meanwhile, the Japanese government deficits have continued subsequently, causing the Japanese government's gross debt-to-GDP ratio to rise to over 235% in 2018. In both cases, inadequate monetary growth constrained overall spending, or nominal GDP, and the result was sustained economic weakness. Monetary policy dominated over fiscal policy.

The second Case C episode in Figure 4 arose as a result of the two international currency agreements of the 1980s: the Plaza Agreement in September 1985 and the Louvre Accord in February 1987. After a decade of stable monetary growth and approximately steady-state growth and inflation, Japan's monetary policy was derailed by these external agreements. In response to the Plaza Agreement the Bank of Japan lowered interest rates steeply, while in response to the Louvre Accord the Japanese authorities intervened heavily in the foreign exchange market.¹⁹ The foreign exchange intervention had the side-effect of increasing banks' cash reserves, and prompted faster growth of credit and money. The pace of credit expansion was further enhanced by a wider programme of financial deregulation. The Case C examples also illustrate the important lesson that private spending can be stimulated by rapid money growth even as the government's budget shifts from deficit to surplus. Since Japanese government tax revenues were very buoyant throughout the boom period of 1983-90, a fiscal deficit of 4.0% of GDP in 1983 was transformed into a fiscal surplus of 2.0% by 1990. In effect, this was – in Friedman's phrase – a "natural experiment" consisting of monetary expansion combined with fiscal contraction. (This episode is comparable in certain ways to the experience in the US a decade later in the late 1990s under President Clinton when there was an information-technology bubble in the stock market and vigorous growth in the economy, while at the same time the federal government's budget gradually shifted from deficit to surplus.)

Finally, Figure 4 includes two dramatic Case D episodes of economic stabilisation in Japan, following periods of high inflation. Both the Matsukata and Dodge stabilisation plans relied on abrupt slowdowns or tightening of monetary policy, in tandem with fiscal contractions. In

the first case an inflation-financed war in south-western Japan had been necessary to suppress the Satsuma Rebellion of 1877. The money-printing had drastically raised Japan's price level. To reduce the price level after the rebellion and to restore equilibrium in the balance of payments under the silver standard, Finance Minister Matsukata deliberately cut government spending and reduced the money supply. After the internal price level was reduced, Japan was able to return the value of the Japanese silver yen to its pre-rebellion parity and to maintain the silver standard until 1897 when it was abandoned as Japan switched to the gold standard.

In the second case, the "Dodge Line" refers to the policy-mix adopted by the Japanese government in April 1949, following the recommendations of Joseph Dodge. Dodge was a Chicago financier who had been brought in by the Occupation authorities to restore order to Japan's chaotic post-war finances. The aim was to end the abusive financing of post-war budget deficits through the Development Bank of Japan and the printing of money by the Bank of Japan to fund government spending. These policies had caused persistently high triple-digit inflation between 1945 and 1949. It was therefore decided, first, that the government would try to balance the budget and, second, that any persisting deficit would be financed by borrowing in the open market and not from the central bank. In addition, the Japanese exchange rate was fixed at 360 yen to the US dollar. In short, for a time both monetary and fiscal policies were contractionary. Just as the Matsukata deflation of the 1880s had enabled Japan to maintain the silver standard, the Dodge Line enabled Japan to adopt and maintain a fixed exchange rate of 360 yen per US\$ for the next twenty-two years under the Bretton Woods system from 1949 to 1971.

Conclusion: whenever monetary and fiscal policies have been acting in opposite directions, monetary policy invariably dominates

Friedman often said that for clear thinking on macroeconomic policy, monetary and fiscal issues should be separated from one another. This article has discussed a series of macroeconomic policy episodes across some key economies in different eras, examining the distinct contributions of monetary and fiscal policies.²⁰ In every case Friedman's observations have been validated. When monetary and fiscal policy have been acting in the same direction the results have been clear-cut, whether expansionary or contractionary. However, whenever monetary and fiscal policies have been acting in opposite directions, monetary policy invariably dominates.

These were not the conclusions of an ivory-tower economist, but were based on a lifetime's study of real-world data. As Friedman said in a 1970 lecture, "One swallow does not make a spring. My own belief in the greater importance of monetary policy does not rest on the dramatic episodes [I have just presented]. It rests on the experience of hundreds of years and of many countries. These episodes of the past few years illustrate that effect; they do not demonstrate it. Nonetheless, the public at large cannot be expected to follow the great masses of statistics. One dramatic episode is far more potent in influencing public opinion than a pile of well-digested, but less dramatic, episodes. The result in the USA at any rate has been a drastic shift in opinion, both professional and lay."²¹

How is the relative ineffectiveness of fiscal policy to be explained? Arguably, fiscal deficits without monetary expansion fail to stimulate economic activity because the effects of responsible, non-inflationary deficit financing neutralise or substantially counteract the

stimulus. An increase in budget deficits has always to be financed by some means or other, and the process of financing the deficit – which may consist in taxation or capital-market borrowing – offsets the effect of the supposed fiscal “boost”. Only in the case of financing by the creation of new money did Friedman find an unmistakably positive effect from additional government spending and an increase in the deficit. Moreover, in those cases it was difficult to say which was more important in providing the stimulus, monetary policy or fiscal policy. The examples in this paper confirm the validity of Friedman’s logic.

Conversely, if a smaller budget deficit was planned with an unchanged monetary policy, then the government would have less to spend but the private sector would have more. The fiscal multiplier would be nil. Only in the case of a reduction of overall spending accomplished by means of slower money growth or a monetary contraction was there an unmistakably negative effect from the reduction in government spending. In cases where both monetary and fiscal policies were restrictive (that is, case D in our typology), it was hard to say which branch of policy was responsible for the outcomes. Again, Friedman’s findings are confirmed by the cases studied in this paper. No wonder Friedman was quoted as saying, “How can the government stimulate the economy by taking money out of one pocket of the public and putting it into another pocket?”²²

Bibliography

Alesina, Alberto, Favero, C. and Giavazzi, F. (2019). *Austerity – When it Works and When it Doesn't*, Princeton and Oxford: Princeton University Press

Bank of Japan, July 1966. *Hundred Year Statistics of the Japanese Economy*, Statistics Department.

Barnett, William A, and Samuelson, Paul A (2007). “Interview with John Taylor,” *Inside the Economist’s Mind, Conversations with Eminent Economists*, 128-132.

Congdon, Tim (2011). *Money in a Free Society: Keynes, Friedman, and the New Crisis in Capitalism*, New York: Encounter Books.

Cord, Robert A., and Hammond, J. Daniel (2016) *Milton Friedman: Contributions to Economics and Public Policy*. Oxford University Press, Oxford Scholarship Online.

Friedman, Milton (1942). *Discussion of the Inflationary Gap*, American Economic Review, June 1942.

Friedman, Milton (1948). “A Monetary and Fiscal Framework for Economic Stability,” American Economic Review, 38, 245-264, and reprinted (1953) in *Essays in Positive Economics*.

Friedman, Milton (1951 in French, and 1953). “*The Effects of a Full-Employment Policy on Economic Stability: A Formal Analysis*,” *Essays in Positive Economics*.

Friedman, Milton and Heller, Walter W (1969). *Monetary vs Fiscal Policy*, Graduate School of Business, New York University (W.W.Norton & Co, New York).

Friedman, Milton (1969). “*Fiscal versus Monetary Policy in the 1960s*,” a lecture by Milton Friedman at Nikkei Hall, Tokyo, September 1969, recorded and transcribed by the author.

Friedman, Milton (1970). “*The Counter-Revolution in Monetary Theory*”, IEA Occasional Paper, no. 33 (Institute of Economic Affairs, London).

Friedman, Milton, and Rose D. Friedman (1998). *Two Lucky People: Memoirs*. Chicago: University of Chicago Press.

Ogus, Simon (2016) *Episodes from Asian Monetary History – A selection of articles published in the Asian Monetary Monitor, 1977-89*, privately published by Simon Ogus, Hong Kong.

Selden, Richard (2016), ‘Reflections on Friedman’s macroeconomics’, pp. 156 – 64, in Robert Cord and J. Daniel Hammond (eds.) *Milton Friedman: Contributions to Economics and Public Policy* (Oxford: Oxford University Press).

Simons, Henry (1948) *Economic Policy for a Free Society* (Chicago: University of Chicago Press)

Snowdon, Vane & Wynarczyk (1994). Interview published in *A Modern Guide to Macroeconomics: An Introduction to Competing Schools of Thought* (Cheltenham, UK, and Northampton, Mass.: Edward Elgar), 198-218.

Snowdon, Brian and Vane, Howard R (2005). “Interview with Milton Friedman,” *Modern Macroeconomics: Its Origins, Development, and Current State* (Cheltenham, UK, and Northampton, Mass.: Edward Elgar), 198-218.

Wood, Geoffrey (2006). “364 Economists on Economic Policy,” *Economic Journal Watch*, Vol 3, no. 1, January 2006, 137-147.

References

- ¹ Congdon (2011), p. 189.
- ² Barnett and Samuelson (2007), pp. 110 – 42.
- ³ Milton Friedman *Essays in Positive Economics*, p. 251.
- ⁴ The paper first appeared in English in *Essays in Positive Economics*. It seems to have been a translation back into English of a memo written by Friedman and translated by Jacques Mayer for publication in the July-December 1951 issue of the French journal, *Economie appliquee*. The memo was written in the 1940s.
- ⁵ The idea was developed, for example, in Henry Simons' 1948 *Economic Policy for a Free Society*.
- ⁶ Clark Warburton, the first chief economist at the Federal Deposit Insurance Corporation, was active in the late 1940s and early 1950s in arguing that money played a key role in the business cycle. According to Richard Selden, who attended the early meetings of Chicago University's "Seminar on Monetary Dynamics" in spring 1951, Friedman had at that stage "not settled his mind on any particular favoured macroeconomic model". Selden "teamed up with two others to examine Clark Warburton's empirical work on the velocity of money", and they conveyed Warburton's views to the seminar. Friedman was "especially interested" in Warburton's finding that falls in the quantity of money due Federal Reserve mistakes had been responsible for the Great Depression. See Selden, p. 159, in Cord and Hammond (eds.) (2016).
- ⁷ Edward Nelson has pointed out to me that Friedman's "chapter in *Taxing to Prevent Inflation* does consider the empirical importance of monetary growth, but that he is too dismissive of the evidence that he does find in that article on money. Also, while his 1940s multiplier/inflationary gap work did accept the existing Keynesian analytical framework, it did undertake empirical work within that framework." (E-mail to the author, November 2018.)
- ⁸ See Taylor interview in Barnett and Samuelson (2007), p. 133
- ⁹ See for example, Ogus, Simon (2016) *Episodes from Asian Monetary History – A selection of articles published in the Asian Monetary Monitor, 1977-89*.
- ¹⁰ Friedman and Heller (1970).
- ¹¹ *Fiscal versus Monetary Policy in the 1960s*, a lecture by Milton Friedman at Nikkei Hall, Tokyo, September 1969, recorded and transcribed by the author.
- ¹² See Snowdon and Vane (2005), p. 213.
- ¹³ If needed the 2x2 matrix could be extended to a 3x3 format where the third element in each column and each row would be neither expansionary nor contractionary, but simply neutral. I have not done that in this paper, but if central banks become adept at managing monetary growth so that their economies enter a prolonged steady state with stable real growth and stable, low inflation, it may be worthwhile to include a third column and row in future versions of the tables shown here.
- ¹⁴ The sentence comes from *Fiscal versus Monetary Policy in the 1960s*, a 1969 lecture in Tokyo by Milton Friedman, recorded by the author.
- ¹⁵ Geoffrey Wood, 2006.
- ¹⁶ Forrest Capie and Alan Webber *A Monetary History of the United Kingdom, 1870 – 1982*, vol. 1 (London: George Allen & Unwin, 1985), pp. 86 – 7.
- ¹⁷ Tim Congdon *Money in a Free Society* p. 139. Congdon and his colleagues used Treasury research papers described on p. 136 of *Money in a Free Society* to obtain their numbers.

- ¹⁸ There is a considerable literature on the subject of “expansionary fiscal contractions” featuring writers such as Alberto Alesina, Francesco Giavazzi and others, but this literature mainly focuses on the question of whether cuts in government expenditure or tax increases cause less of a cyclical setback in demand. The problem, however, is that where the analysis does take into account changes in monetary policy it does not always use changes in the quantity of money as the measure of monetary policy. In Friedman’s terms, overall spending growth is ultimately determined by monetary growth; fiscal policy – changes in government spending or changes in taxes – only determines the division of that spending between the private and the public sectors. See, for example, Alesina *et al* (2019).
- ¹⁹ Japan’s gold and foreign exchange reserves almost doubled between January 1987 (\$51.5 billion) and January 1989 (\$98.2 billion), while M2 growth accelerated from 8.2% year-on-year in September 1985 to 12.3% by February 1988.
- ²⁰ Notice that in all these case studies we have barely mentioned interest rates. In Friedman’s view, interest rates are the price of credit (not the price of money), and in that sense they are only an instrument used by the central bank for the purpose of achieving a certain rate of monetary growth.
- ²¹ Milton Friedman (1970).
- ²² Where Carter is Going Wrong: Interview with Nobel Prize Winner Milton Friedman, *New York: U.S. News and World Report, Inc, March 7th, 1977*.

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John Greenwood Biography

John Greenwood is the Chief Economist of Invesco Ltd, an asset management firm. He has responsibility for providing economic analysis and forecasts to Invesco portfolio managers and clients. After graduating from the University of Edinburgh (in Economics & Economic History) he did post-graduate research at the University of Tokyo. He has spent much of his career in Hong Kong, and was for four years in San Francisco. As publisher of the Asian Monetary Monitor he proposed a currency board scheme for stabilising the Hong Kong dollar in 1983 which is still in operation today. He has been a research fellow at the Bank of Japan, a member of the HKMA's Currency Board Committee since 1998, and is also a member of the IEA's Shadow MPC in England. He has been a Fellow of the Johns Hopkins Institute of Applied Economics since June 2016.

John holds an MA and an Honorary PhD from the University of Edinburgh.

Synopsis

This paper first traces the evolution of Milton Friedman's views on fiscal policy from his early acceptance of the prevailing Keynesian orthodoxy to his later adoption of a radically different view that fiscal policy played almost no role in macroeconomic stabilisation. Until the late 1940s or early 1950s Friedman believed that fiscal policy should be the primary tool of government policy in macroeconomic stabilisation. However, by 1953 he had shifted to the diametrically opposite position that fiscal policy was ineffective and policy-makers should rely principally on monetary policy. Second, the paper explores some of the theoretical arguments Friedman used to defend his new position. Third, the paper takes up a challenge that Friedman himself proposed to assess the relative importance of monetary and fiscal policies by comparing a series of episodes when fiscal and monetary policies were acting either in the same direction or in opposite directions. All the examples cited conform to Friedman's conjecture that monetary policy dominated fiscal policy, a pattern that was particularly clear when the two branches of policies were acting in contrary directions.



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