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MONEY AND MICRO-ECONOMICS

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Professor Salin is the author of several books, including *European Monetary Unity: Who is Benefitting?* (foreword by Friedrich Hayek) (1980); *L'ordre monétaire mondial* (1982); *L'arbitraire fiscal* (1985); *La vérité sur la monnaie* (1990); *Macroéconomie* (1991); *Libre-échange et protectionnisme* (1991); *La concurrence* (1995); *Libéralisme* (2000); *Français, n'ayez pas peur du libéralisme* (2007); *Revenir au capitalisme pour éviter les crises* (2010); *La tyrannie fiscale* (2014), *Libérons-nous* (2014); and *Competition, Coordination and Diversity: From the Firm to Economic Integration* (2014). He is also the author of numerous articles, mainly in French and in English, published in academic journals and books, in France and other countries, as well as in several newspapers.

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Summary

- Discussion of monetary policy tends to ignore entirely the behaviour of individuals and focuses instead on aggregate, or macro-economic, variables such as inflation, growth and employment.
- An expansion of the quantity of money that leads to inflation will reduce the real value of cash balances that people hold.
- Inflation may also induce people to hold lower cash balances because of the greater risk of holding cash and the potential erosion of the purchasing power of cash. From the micro-economic point of view, therefore, expansion of the money supply and the creation of inflation are damaging.
- When the money supply is expanded, not all individuals are affected in the same way at the same time. The process by which the money supply is expanded and inflation is created distorts economic activity. In particular, by reducing interest rates, expansion of the money supply encourages investment that is not viable in the long term.
- In so far as monetary policy can expand the economy, it can only do so in the short run and by fooling wage-earners into thinking that real wages are higher than they really are.
- It may be argued that it is necessary to expand the money supply and create inflation because nominal wages are sticky in the short run. However, trying to reduce real wages by creating inflation creates distortions in the economy, will not be successful in the long run and takes attention away from the underlying causes of unemployment and slow growth.

- If the causes of slow growth are high levels of taxes and regulation, it is dangerous to use monetary policy to try to resolve these problems.
- The fashionable idea of 'market monetarism' would be better described as 'market Keynesianism'. Rather than trying to offset reductions in growth by tolerating higher inflation, monetary policy should be used to try to keep the growth in the money stock constant, thus allowing the economy to adjust to changes in real conditions.
- Devaluations and depreciations do not 'create jobs' in the long run. They simply distort the economy. Any benefit from a devaluation or depreciation would be offset by higher internal inflation.
- Low growth in Japan over the last two decades has been caused by real factors. There is no obvious relationship between low growth in Japan and the periods of tight monetary policy. Indeed, if anything, *higher* growth rates seem to follow periods of tight monetary policy.
- In order to ensure more responsible monetary policies three things are necessary:
  - — As an interim measure, central banks should limit the growth of the money supply using a pre-defined rule. There should be sanctions if the rule is broken. Sanctions could include fines on monetary authorities which do not respect the rules; removing the governor of a central bank who does not reach the prescribed targets; or reducing the governor's salary in proportion to the rate of inflation or money creation.
  - — Currency competition should be encouraged, including by the abolition of legal tender laws.
  - — New institutional arrangements which involve the private sector providing monetary services, most likely tied to a metallic standard, should be allowed to develop and replace central bank provision of money.

Introduction

At the current time, there is much debate about the so-called 'euro crisis', about US monetary policy and quantitative easing and about the decisions of the European Central Bank (ECB) in relation to sovereign debt. Many commentators favour active monetary policy in order to dampen economic cycles or to help economic recovery after a crisis. It is, therefore, important to analyse the role of monetary policy, the working of monetary systems and proposals concerning monetary policy in order to determine whether active monetary policy can help. This is the objective of this paper.

It is difficult to make judgements about monetary policy simply from empirical evidence. It is very difficult – if not impossible – to isolate the role of money in a process of economic activity as economic outcomes depend on the inter-play of numerous factors and the influence of each of them cannot easily be determined, even by modern econometric techniques. Much can be learned from theoretical reasoning and this is often neglected. Theoretical reasoning does not prevent us from evaluating afterwards particular empirical events. This is the approach we will use.[1]

1 This paper is adapted from my text in French, 'Que peut-on demander à la politique monétaire?', Paris, Fondation pour l'innovation politique, 2014.

The role of money

Money provides services to money-users. Statements about money and monetary policy are often inspired by supposed relationships between macro-economic variables. But these statements neglect the monetary behaviour of individuals. A realistic approach should be founded on the rational behaviour of individuals. The reasoning we use is inspired by the strict logic of human action. The approaches we are criticising depend on assumptions which have no necessary link with real human behaviour.

Money can be defined as a generalised purchasing power, which means it can be traded (at least relatively) against anything, at any time and with anyone. Holding money makes transactions easier and helps us face the uncertainties of life. A given currency at a given time can supply these services more or less efficiently and it is important to evaluate how to ensure that money is of the highest quality for the functions it performs.

Thus, money is held so that it can deliver the services it provides. But, holding money implies giving up other goods. As such, nobody wishes to hold an unlimited quantity of money. More precisely, each individual wants to hold, on average, a money balance which constitutes the *optimum* for him[2], given his income, wealth, other possible investment opportunities, and his evaluation of future risks or the variability of future receipts and expenditures. Individuals do not desire, however, a given quantity of *nominal* cash balances, but a given quantity of *real* cash balances.

2 It may be useful to stress that the notion of an optimum – which has a subjective nature – cannot have any meaning but at the individual level. It cannot be defined by an external observer, it can only be revealed by the behaviour of economic agents.

Assume that, at a given time, all individuals hold the amount of real money balances which they desire and let us assume that an expansion of the quantity of money takes place. What is the effect of that expansion?

The increase in the quantity of money and the real balance effect

Given that all individuals originally held the quantity of money that was optimal for them, they now hold too much money. Therefore, they will exchange their excess money balances for goods or claims on goods in the future (financial assets). Price theory implies that the money prices of goods will increase, since there is an excess supply of money compared with goods and so the purchasing power of a given quantity of money will decrease. From this we can draw two other important statements.

Money is a form of stored purchasing power: the better its purchasing power is preserved, the more useful it is. Money creation, which implies a loss of purchasing power of money balances, damages the quality of money. This is why we can say that inflation – namely the increase in the monetary price of goods – is necessarily a bad thing. From this point of view, it is as absurd to desire an inflationary monetary policy as it would be to desire square wheels. It could be said that inflation can bring other consequences considered as beneficial and which could more or less compensate for the loss in the real value of money. However, I will argue later that this is not the case.

Given that people aspire to hold given real money balances and they achieve this by exchanging money balances for other goods or financial assets, which makes their prices move, other things being equal the rate of inflation (or deflation) is determined by the gap between the rate of growth of real transactions and the rate of growth of the quantity of money. If the monetary authorities create too much money relative to real growth, there will be inflation so that the real value of money balances decreases. If the rate of growth of the quantity of money is lower than the real rate of growth, there is deflation. Contrary to what is usually claimed, deflation is desirable in that it means that the purchasing power of money is increasing over time, which implies that it brings about better services for money-holders.[3]

3 We will see later on why there can be a case in which deflation can have harmful consequences.

This real cash balance effect ought to constitute the core of monetary theory, but it does not – and may even be unknown by many. The real cash balance effect has a remarkable implication. Monetary policy consists of creating nominal cash balances; the more nominal cash balances one creates, the less people wish to hold real cash balances because money is performing its functions less well and will be depreciating in value.[4] Therefore, one can say that *the best way to create (real) cash balances is by not creating (nominal) cash balances*.

Thus, if we consider only the monetary aspect of the problem, money creation cannot stimulate an economy, quite the contrary. In fact, as it is damaging the quality of money, and as it may therefore induce individuals to decide to hold less money, it makes economic activities less efficient. Therefore, it is not surprising that one often observes an inverse relationship between inflation and economic growth.

Distributing credits of monetary origin

Money creation today is necessarily linked to a distribution of credits. Such creation is nothing but an accounting process in the balance sheets of banks: the credits granted by a bank increase its assets and they simultaneously increase its liabilities by an equal amount, corresponding to the increase in deposits. Many economic agents in an economy are not borrowers and those who do borrow get their credits at different dates. Those who are the first ones to borrow obtain a gain in purchasing power in comparison with others, since they can spend the money thus obtained before the increase in prices occurs when there is more money creation. Insofar as money creation implies a decrease in interest rates, some people also receive a benefit from money creation for this reason. Money creation therefore has distributional effects which cannot be justified since they are completely arbitrary.

Those who favour a more expansionary monetary policy often do not make explicit their justifications for such a claim. It is impossible to see how it could stimulate economic activity, i.e. how it could have consequences other than inflationary ones. And when proponents of monetary expansion

4 People escape from money in times of inflation, as one can most easily observe in cases of hyper-inflation in which money-holders may finally decide not to use money at all and to find real substitutes.

make their case, do they think of the counterpart of monetary growth, namely the distribution of credits? Supporters of an active monetary policy should state precisely the causal relations which they believe to exist if they are to argue that expansionary monetary policy will increase economic activity.

In addition, an expansionary monetary policy creates uncertainty since no one can forecast accurately and precisely the rate of inflation and, above all, the distortions in price structures (which depend on the structure of credit and the structure of expenditures made by those who benefit from credits of monetary origin).

Given these effects, economists should not be in favour of an expansionary monetary policy a priori.

It could be said we have started our reasoning from an assumption that is somewhat extreme, namely that all individuals hold initially the amount of cash balances which they consider as optimal for them. This is certainly a simplifying assumption, which is useful for the development of the analysis. But what might happen if we assume that individuals do not hold their optimal amount of cash balances initially? It is logical to assume that they will try to get closer to their optimal positions by purchasing or selling cash balances, which will induce variations of the relative prices between money balances, on the one hand, and goods and financial assets, on the other hand. It is precisely the real cash balance effect which will make these adjustments possible. But it would be bizarre to rely on monetary policy to help individuals reach their optimal position. In fact, an external observer cannot know the total amount of cash balances which can be considered as insufficient or excessive and he does not know who are the money-holders who would need higher cash balances or, on the contrary, who would need to reduce their holdings. Activist monetary policy cannot help move monetary holdings towards their desired level for all individuals.

Theoretical approaches to monetary policy

Given the widely held belief in the benefits of monetary expansion, it is also legitimate to ask the following question: can monetary policy have beneficial macro-economic effects which could compensate for the harmful micro-economic effects? To answer this question, we will consider the most important theoretical approaches.

The errors of the Keynesian approach

According to Keynesian theory, in certain circumstances, monetary policy can have a positive effect on economic activity. A monetary expansion implies a decrease in interest rates, which may stimulate investment. This increase in investment is desirable according to the Keynesian point of view, not because it would mean an increase in productivity, but simply because it is viewed as a means to increase total demand and, therefore, production. We will discuss this further below.

Under the pretext of developing a general macro-economic theory, and more specifically to explain unemployment, Keynes chose a set of very specific assumptions which, when combined together, are assumed to explain unemployment. They were then used to help define economic policies to take the economy back to full employment. The starting point was an assumption of a fall in investment and, therefore, an excess of savings brought about by the 'animal spirits' of entrepreneurs who had suddenly become sceptical about future economic developments. According to classical economists, in such a case, interest rates ought to decrease, which would open new opportunities for investment and reduce savings. Keynes put forward a mechanism that, he suggested, would prevent this

adjustment process from happening. He does this by introducing two *ad hoc* assumptions: the existence of the liquidity trap and the inelasticity of investment relative to interest rates.

Both these assumptions – which are the core of the basic Keynesian approach – are arbitrary and contrary to the very foundations of serious economic analysis. In fact, both of them implicitly assume that economic agents are not rational, either because investors would not change behaviour in response to changing interest rates or because individuals would hold cash balances instead of spending them. One of the most well known Keynesian theories is, in fact, one of the most arbitrary. It does, however, supply governments with a reason to create deficits.

The Phillips curve and monetarism

The Phillips curve can be considered as a supplement to Keynesian theory. It suggests an inverse relationship between inflation and unemployment. It should be mentioned that the curve was not deduced from rigorous economic analysis, but was the outcome of apparent statistical regularities.

Milton Friedman demonstrated convincingly that the Phillips curve could exist only in the short term, whereas there was, in the long term, a positive relationship between inflation and unemployment (which can probably be explained by the fact that inflation disturbs the good working of the economy, as we have already discussed). Milton Friedman demonstrated his case through theoretical and empirical analysis.

If the Phillips curve seems to exist in the short run, it is because monetary policy is creating an illusion: if the inflation rate increases, wage-earners may not be immediately aware of this phenomenon and they do not ask for a compensating increase in nominal wages. Thus, there is a decrease in real wages and in the cost of labour, which induces employers to increase employment. But illusions eventually vanish. As wage earners become aware of inflation and try to restore their real wages, nominal wages rise, thus reducing employment again. In order to maintain an artificial level of employment, monetary authorities must continually accelerate the supply of money so that they can continually create new illusions. To keep unemployment down, inflation rates will accelerate and destroy the normal working of the economy and the price signals that form the very foundations of economic calculus.

For this reason, Milton Friedman and others have favoured a monetary rule: i.e. a monetary policy by which monetary authorities announce in advance a rate of growth of the quantity of money which is both credible and low, and act consistently whatever the circumstances. They argue that monetary policy must have only one target: avoiding a high rate of inflation.

Monetary authorities then provide reliable information to markets and they avoid the instability which is inherent in discretionary monetary policy. These monetarist principles have inspired the monetary policies of many countries – as well as the euro zone –and one ought to give them credit for having thus limited the extent of inflation. However, the approach of monetarists, as of Keynesians, is macro-focused on total demand, the national rate of unemployment, the quantity of money, and so on. The analysis and proposals of Keynesians and monetarists differ, but they have this same characteristic in common. In comparison, the Austrian school has stressed the importance of production structures and price structures. It has pushed their analysis well beyond the mere consideration of macro-economic variables.

The Austrian theory of the business cycle

According to the Austrian theory of the business cycle, cyclical fluctuations have a monetary origin and the interest rate plays a crucial role in the process.[5] The rate of interest is, in effect, the price of time: i.e. the price which determines choices between the present and the future. The equilibrium interest rate is that which makes the supply of loanable funds by consumers equal to the demand for loanable funds by investors. If, for instance, consumers decide to consume less and to save more, the greater amount of savings available will decrease the interest rate, which will induce investors to borrow more funds to invest and the equilibrium between the supply of and the demand for loanable funds will be restored.

Money creation can also lead to a decrease in interest rates. This makes people believe that there are more savings available in the economy than is really the case. The decrease in interest rates induces investors to borrow in order to invest more – but there are no additional savings to finance that investment. Therefore factors of production are shifted from the production of consumer goods to the production of investment goods.

5 This analysis has been developed in Salin (2010).

But this distribution between consumption and investment does not correspond to the one which is really desired by consumers and savers. There are then too many investment goods produced and not enough consumption goods. Such a disequilibrium cannot last for long. The producers of investment goods (including housing) have to face a lack of sales and the crisis appears. If the monetary authorities try to put an end to the crisis, as is desirable, the appropriate response – higher interest rates - makes even more obvious the errors of the past as investment projects undertaken simply because of the previous lax monetary policy are revealed as non-viable.

The economy has to come back to structures of production which are more consistent with the real needs of economic agents. This is, in fact, the role of recession. It implies stopping or even destroying the activities which had been artificially developed beforehand and which do not have long-term intrinsic value and coming back to production structures and price structures more in line with those that individuals desire. Obviously, this adjustment process is particularly costly for some producers and wage-earners, but it has to be implemented at some stage. Keynesian policies prevent or delay the necessary adjustments by ensuring that the economy remains distorted or by increasing distortions by raising the size of the public sector. Continuing with an expansionary monetary policy also continues the distortion of the economy and delays the time at which an adjustment has to be made. It can even create the risk of a new business cycle.

In the case of several European countries, one should distinguish two different kinds of problem. The world monetary and financial crisis which began in 2007-2008 has come on top of a long-run situation characterised by low growth and high unemployment. This can be explained by excessive taxation and regulation (see Salin 2014).

An expansionary monetary policy will not take us out of a crisis caused by previously lax monetary policy. It will also be unable to help with the long-run causes of stagnation. To solve a problem one must know its causes. If the origin of a crisis is excess money creation, the efficient remedy will not be further money creation. If the long-run stagnation is caused by excess taxation and regulation, it will also not be solved by creating money. Creating money may create illusions in the short run, as we have noted, but it cannot resolve the underlying problem. There is a great risk of instability, because governments are always looking for short-

run results. The horizon of governments is necessarily short run – the next election – and politicians need to persuade voters that they are solving economic problems. The consequence is great instability in economic policy, which implies instability in economic variables.

Monetary policy as a source of illusions

As we have already seen, an expansionary monetary policy destroys the information of economic agents and blurs price signals. It creates illusions and is, in effect, dishonest. Monetary policy raises employment by making people think that the purchasing power of their incomes is greater than it really is. Monetary policy is also arbitrary because it changes the distribution of incomes in a way which cannot be predicted.

Milton Friedman focused on the information error arising from lax monetary policy when it came to the assessment of real wages. Austrian economists instead focus on information errors concerning the interest rate or, more precisely, the choices between present consumption and future consumption. These approaches are not incompatible. Monetary policy is at the origin of evaluation errors as regards real wages as well as interest rates.

The Phillips curve does exist - but only in the short run. It can be tempting, if there is an economic crisis, to create money to try to facilitate a decrease in unemployment by bringing about a decrease in real wages, which it would be difficult to obtain in other ways. This is made possible because wage-earners are not immediately aware of the real situation. However, in so doing, the government is creating new distortions - for instance between activities with a high labour content and other economic activities. Thus, distortions are increased in the economy and the return to equilibrium is delayed. When monetary policy returns to normal and inflation is reduced again, we simply have to accept the risk of real wages being too high as nominal increases in wages designed to keep up with inflation turn into higher real wage increases when inflation turns out to be lower.

Moreover, inflation is the source of another kind of illusion. Unanticipated inflation decreases the value of debts and this is why highly indebted governments are tempted to follow inflationary policies. The loss of purchasing power due to inflation is the means by which real resources are transferred from individuals to the state. This is why economists rightly speak of an 'inflation tax'. Such a tax is desirable for politicians because it is less visible than most other taxes.

These costs of inflation are high since, beyond the compulsory transfer born by creditors for the benefit of an indebted state, inflation diminishes the real value of all cash balances held by individuals. Such a solution to the debt problem – via a despoilment of cash-holders and creditors of the state – is possible only because states have a monopoly in money creation, which prevents citizens from choosing a non-inflationary currency.

In any human activity, we need to know the causes of a problem in order to define the best ways to solve it. This requirement often seems to disappear when people discuss economic problems. Thus, when there is a low rate of growth and/or a high level of unemployment, there is often a plea for an expansionary monetary policy and/or an expansionary fiscal policy without looking for the real causes of this low growth and high unemployment. If low growth is due to excessive taxation and regulation, monetary expansion cannot help. It can, at best, create short-run illusions in some cases. But, *by focusing on monetary policy, one diverts attention from the true problems*. As the illusions created by monetary policy fade away, the outcome is increased instability without any of the underlying problems being solved. *Monetary instruments should be used to solve monetary problems and real instruments to solve real problems*.

The targets of monetary policy

The monetary rule

According to a strict interpretation of monetarism – and one that would often have been supported by Milton Friedman - monetary authorities should aim at a given long-run rate of growth in the quantity of money and they must keep to this target whatever the circumstances. However, targeting a given rate of inflation has also often been recommended, especially in more recent years. This is so firstly because the available information is of a low quality and is often obtained too late. Time is necessary to evaluate the monetary and economic situation, to take the necessary monetary policy decisions and to understand the expected consequences of these decisions. Moreover, the criteria for acting are numerous (inflation, growth, unemployment, and so on) and, at a given time, we do not know precisely whether a given problem is caused by short-run transitory phenomena or by long-run structural factors. Secondly, governments are tempted to use monetary policy in order to reach short-run targets, whatever the long-run cost of this policy.

Milton Friedman did have an important influence on monetary policies and there has been a significant decrease in rates of inflation in a great number of countries in the last three or four decades. However, an important proposal of Milton Friedman – namely the necessity to avoid a variable monetary policy and the usefulness of long-run stability in the rate of growth of the quantity of money – has been forgotten. This is demonstrated by instability of monetary policies at the beginning of the 21st century, which was a major cause of the financial and economic crisis.

As regards the ECB, it was given initially a single target: that of maintaining the stability of the European currency. But European monetary authorities have interpreted this clause and it is now generally considered that the target consists of avoiding an inflation rate higher than 2 per cent per annum. One may legitimately wonder about the justification for such a target. In fact, an inflation rate of 2 per cent per year is not negligible, since it means that there is a continual loss in the purchasing power of money. Furthermore, this 2 per cent target seems to have more recently become a floor designed to avoid a so-called 'deflation risk'.

There is another reason to believe that a 2 per cent target as too high. At the beginning of a monetary expansion, the price of assets increases first, as well as the price of raw materials, investment goods and housing, whereas the price of consumer goods – which are usually used to measure the inflation rate – increase with a lag. Thus, the price of consumer goods did not increase significantly before the monetary crises of 1929-30 or 2007-8. By focusing on the rate of inflation of consumer goods' prices, monetary policy makers receive information which has a low quality and which comes too late. From this point of view, choosing the growth in the quantity of money as the target, as was recommended by Milton Friedman, is preferable. Moreover, one ought to add that it would be even better to choose as a target a zero rate of growth of the quantity of money, instead of, for instance, 2 or 3 per cent, for reasons we have already seen. It is better not to create nominal cash balances, as the monetary needs of individuals are necessarily met by the real cash balance effect.

'Market monetarism'

One of the new proposals following the financial crisis is that of 'market monetarism'. This approach has been promoted for example by Scott Sumner. It consists of replacing a target related to inflation or the quantity of money with a nominal GDP target (NGDP). According to this approach, monetary policy ought to be determined by the gap between the observed evolution of NGDP and the target which had been decided *a priori*.

Nominal GDP is equal to real GDP multiplied by an index of prices. It is legitimate to desire a higher level – or growth rate – of real GDP and a lower level of prices or inflation, since these variables directly influence the welfare of individuals. But one cannot justify the choice of NGDP as a target of monetary policy. If there is, for instance, a growth rate of 5 per cent in nominal GDP, the outcome is completely different depending on

whether we have an inflation rate of 5 per cent with a zero real growth rate or a zero inflation rate with a 5 per cent real growth rate.

Let us assume that, because of excessive taxation and regulation, there is a real rate of growth of -2 per cent in a country. If, because of monetary growth of 3 per cent, there is a 5 per cent inflation rate, the growth rate of nominal GDP will be 3 per cent. If the target for nominal GDP is equal to 5 per cent, monetary authorities will increase the rate of growth of the quantity of money in order to reach the target. This will lead to inflation of 7 per cent. Once again, we cannot solve a problem without knowing its causes. If the low rate of real growth is due to non-monetary factors, one cannot change it just by manipulating monetary instruments.

It is impossible to reach two targets of economic policy with only one instrument (monetary policy) and the NGDP measure combines together two variables which tend to be affected by different types of policy (monetary policy and policies that affect the real economy).

The supporters of market monetarism criticise the Friedman monetary rule because it assumes the stability of what is called 'the velocity of money'. But what are the factors that could modify the velocity of money? They are mainly the rate of interest – since it determines possible substitutions between cash balances and other claims - and inflationary expectations. An increase in inflationary expectations leads to a decrease in the size of desired cash balances, since people forecast that money will lose part of its purchasing power. But this means that it is the variability of monetary policy which explains, at least partly, the instability of the velocity of money.

Moreover, insofar as we cannot know to what extent nominal growth will be divided between real growth and inflation, determining a fixed growth rate of nominal GDP is completely arbitrary.

It is true that there is a strong relationship between monetary growth and the growth of nominal GDP, so that a nominal GDP target may be close to a Friedman monetary rule. But there is a fundamental difference between the proposals. The monetary rule implies a constant monetary policy, whatever the circumstances. Market monetarism implies varying monetary policy according to the variability of nominal GDP which, in turn, depends on the real growth rate and the inflation rate in differing proportions. This is why market monetarism cannot be related to traditional monetarism. In fact, as far as it assumes implicitly a positive relationship between an

expansionary monetary policy and real growth in certain circumstances, one ought rather to call it a 'market Keynesianism'. Indeed, it can be argued that it is simply a branch of new-Keynesianism.

Market monetarism, it is suggested, deals with productivity shocks better. However, if we wish to pursue macro-economic stability we ought to consider the causes of instability. Unexpected variations which can occur in a specific sector cannot explain the instability of macro-economic variables. To influence macro-economic variables, a generalised real shock or a monetary shock is needed. In a modern diversified economy, a real shock is unlikely to affect the economy as a whole. Thus the idea of a productivity shock must be questionable. A real shock could be produced by a brutal change in economic policy, for instance a large and unexpected increase in taxation. But monetary policy cannot offset the negative consequences of such a shock. The most likely explanation for economic instability is monetary shocks. Thus the best policy consists of maintaining stable and low growth in the quantity of money, whatever the circumstances. From this point of view, we agree with the supporters of market monetarism who criticise an inflation target. But we consider it preferable to stabilise the quantity of money rather than growth in nominal GDP.

The intellectual revolution which is needed is not one which consists of substituting a nominal GDP target for an inflation target; it is one which consists of not defining policy in terms of global quantities inspired by Keynesian economics and, instead, considering the system of incentives that face economic agents given the institutional, tax and regulatory environment.

The Fed and ECB

The US central bank, the Fed, is supposed to pursue two targets: price stability and a satisfactory level of economic activity. On the other hand, the ECB has only one target: price stability. But many people claim that the 'monetary constitution' of the ECB should be modified so that it pursues the two targets assigned to the Fed. But, if ever such a change were instituted, there would be a greatly increased risk of instability. One may think of market monetarism as a desire to synthesise both these targets and to consider them simultaneously instead of successively. But, in so doing, the central bank will be pursuing a meaningless target.

Money creation and exchange rates

There is a clear relationship between inflation and the exchange rate. In fact, the exchange rate is the price of one currency in terms of another. In general, in the long run, a change in an exchange rate reflects the gap between the inflation rates of two currencies. Assuming that arbitrage opportunities are exploited, the price of a given basket of goods in real terms should be the same across the whole world. Any change in the nominal price of this basket in terms of one currency should be compensated, in the long run, by a change of the exchange rate and/or a change in inflation in the other currency.[6]

Under floating rates, monetary policies of different countries are independent and changes in the exchange rate reflect inflation rate differences and, therefore, differences in monetary policies. Under fixed rates, monetary growth is endogenous because monetary policies are inter-dependent. If a country wants to pursue a monetary policy different from the one pursued by the other countries in the fixed-rate system, adjustment processes will be necessary to make the monetary policies compatible. If the monetary policy is too loose, the authorities will have to devalue their currency, abandoning the promise which had been made to exchange without limits, at a fixed price their own currency against the other currencies of the fixed-rate area.

Because of the relationship between the exchange rate and inflation rates, one may find similar illusions in relation to the exchange rate as when we have easy money creating inflation in a closed economy. Devaluation is

6 Both long and short-term capital flows as well as barriers to trade and the costs of trade can prevent this relationship holding in the short run.

often considered desirable to stimulate economic growth. As an example, it is frequently claimed that Greece could more easily solve its economic problems by leaving the euro zone since it could devalue its national currency. It is held that this devaluation could stimulate exports and reduce imports, so that total demand would be increased. But, in fact, the devaluation would mainly cause an increase in the quantity of money and an increase in national prices. More precisely, there would be two important consequences of the devaluation:

- In the short run, there would be a decrease in real wages because the cost of buying imports would increase. Again one finds a similar effect as with the Phillips curve. There is a short-run illusion but, in the long run, it is other aspects of the structure of the economy that determine employment.

- There is a decrease in the real burden of debtors, particularly the government. Again, this involves creating illusions. The debtor has promised a given nominal rate of interest in the context of a low inflation rate and then the creditor is fooled because he is reimbursed in a currency which has lost part of its purchasing power. This is immoral and short sighted because it will raise borrowing costs in that currency in the future – not just by the expected depreciation but also to compensate for the increased risk of a currency that cannot be trusted to maintain its value.

Some argue that the euro is too strong and should be devalued. This is extraordinary as the euro is part of a system of flexible rates in relation to other currencies and there cannot be a devaluation, only a change in its equilibrium value determined by millions of investors and other individuals. As an example, in France, the Treasury claimed in the 2014 budget documents: ‘If the euro were devalued by 10 per cent, France could have 150,000 additional jobs’. The euro zone could pursue a policy of increasing inflation that could lead to the euro’s depreciation but it is not possible to devalue the euro. And how can the Treasury know that a 10 per cent devaluation could create 150,000 jobs? In the long run, the inflation created in the euro zone would make French products more expensive, offsetting the impact of the euro depreciating and it would also distort economic structures in the way described above. This prediction reminds us of the so-called forecasts produced before the creation of the euro which claimed that the single currency would make possible 1 per cent higher real growth

rates in Europe and increase macro-economic stability. This has not been the experience.

Empirical illustrations

Using empirical evidence to test economic hypotheses can be dangerous. Certainly, observing facts in order to infer relationships, as was done in the case of the Phillips curve, is an invalid scientific method. In any particular case, there are a very great number of factors that can play a role simultaneously and can be considered as causes of the observed facts. Economists are always tempted to put forward the examples which seem to be consistent with the approach they are supporting whilst ignoring facts which point in the opposite direction. This is the merit of the theoretical approach used thus far. However, in this section we will assess some examples that illustrate the case made above, whilst accepting that they do not provide a proof.

US monetary policy post-2008

Let us take first the case of the US. Since 2008 the Fed has pursued an expansionary monetary policy. This may explain a growth rate of about 4 per cent per annum in nominal GDP since the beginning of 2010, which is close to the target suggested to the Fed by one of the main supporters of market monetarism, Scott Sumner (he proposes 3 to 5 per cent). As often happens, inflation measured by an index of consumer prices has been subdued (though it may accelerate later). However, the prices of assets and raw materials have increased rapidly. But this large monetary expansion has not helped real economic recovery. The real growth rate has remained low, though there was some acceleration in growth at the end of 2013. Unemployment has remained at about 7 per cent. It would seem that neither the high budget deficit nor the loose monetary policy has led to significant positive real effects.

According to Caroline Baum, who interviewed him, Scott Sumner explains this situation by suggesting that low real growth is now the norm in developed nations with ageing populations.[7] Scott Sumner does not bring any proof or any reasoning to justify such a statement. But, if it is true, it is a very-long-run phenomenon and it is not clear why it should have materialised only in recent years. Furthermore, if this is true, targeting nominal GDP is problematic as the target would need to be changed according to the characteristics of the population.

The decade of lost growth in Japan

Another case which is frequently quoted is that of Japan. It seems that it provides an example of a country in which a restrictive monetary policy during the 1990s and 2000s caused deflation and a low rate of growth. It is unquestionable that monetary policy has been restrictive. However, the decrease in the growth rates of nominal GDP have been more or less parallel to the decrease in the growth rates of the quantity of money, which can be considered a normal phenomenon. Overall, this has been a period of price stability rather than a period of deflation. But what happened to real growth, and was there some relationship between deflation (or price stability) and real economic activity? The growth rate of real GDP was close to zero during the period 1999-2002, but close to 3 per cent from 2003-2007, before becoming negative in the economic crisis in 2008-2009. The low growth in the period 1999-2002 followed a period of more lax monetary growth from the middle of 1998 to the middle of 1999. During the period 2002-2007, real growth was moderate, prices were more or less stable and growth in the quantity of money low. As regards nominal GDP, this has been highly variable, which suggests that it is not a very reliable indicator. Those who claim that Japan has registered two decades of stagnation because of so-called deflation are in fact considering the rate of change of nominal GDP, which is misleading. In fact, the prices of goods have been approximately stable, the prices of assets have fallen and the exchange rate has appreciated because inflation has been lower in Japan than outside.

From the beginning of the 1990s, Japan had huge budget deficits, between 2 and 10 per cent of GDP, so that it now has a government debt of 245 per cent of GDP. Its government has pursued this policy in the hope of an

7 Interview with Scott Sumner by Caroline Baum, *Bloomberg.com*, 24 January 2013.

economic recovery. The policy has completely failed and Japanese economic growth has been moderate, particularly compared with the past. Japan is a country with high marginal tax rates and a very high level of regulation. Regulation constitutes an important barrier to entry in many sectors of the economy. There is also significant state intervention in the financial sector. The *Fiscal Investment and Loan Programme* absorbs a high proportion of savings held in the postal bank and uses it for activities mainly determined by political priorities. These factors contribute to the relatively low growth rate. The correlation which has been observed in the past between moderate economic growth and low monetary growth is not sufficient to establish causality.

Proposals

One of the greatest errors of our time arises from the attempt to attribute to monetary policy the ability to have a positive influence on economic activity and to achieve macro-economic stability. But never in history has there been as much inflation and as many monetary crises than since monetary policy has been used with discretion from the beginning of the 20th century. Whereas, for most of history, economic fluctuations have had real causes (bad crops, wars, epidemics), modern crises tend to be of monetary origin.

It could be argued that techniques of monetary management could be improved. Thus, it is now generally proposed that central banks should be independent from political authorities. This is desirable. But it is not sufficient. When one can see the considerable damage that can arise from an ill-conceived monetary policy, one can legitimately ask whether it is reasonable to let a small independent group wield such power.

Monetary policy should have only one target: maintaining the purchasing power of the currency. As we have seen, the ideal decision rule would consist of simply not producing additional nominal cash balances – in other words, we should not have any activist monetary policy. Such a change in the habits of thought and action would probably not be easily accepted. But it ought to be the reference point of any proposals.

A second-best solution would consist in not creating new money balances except according to a given rule that will ensure price stability in the long term. What steps are necessary to reach this goal? As noted, independence of the central bank is not sufficient – the central bank needs external constraints to prevent monetary authorities from abusing their freedom of action. Traditionally, being obliged to maintain the convertibility of the currency in terms of an external asset – for instance gold – plays this role.

Sadly, monetary authorities can easily get rid of such a constraint as history demonstrates. Things were completely different in the monetary systems of the 18th and 19th centuries during which the gold convertibility guarantees were not given by a public authority but by private banks. In such a case, a convertibility guarantee was contractual between a banker and his customers and the contract had to be respected. The incentive to expand the quantity of money was thus constrained. Thus the most important policy change is to define a more appropriate institutional context in which the convertibility guarantee is to be respected.

What might be the best pragmatic step in this direction? It is possible to limit the temptation to create too much money by using either compulsory rules or by introducing competition.

Monetary rules must be defined and associated with sanctions. This could involve fines on monetary authorities which do not respect the rules; removing the governor of a central bank who does not reach the prescribed targets; or diminishing his (nominal) salary in proportion to the rate of money creation.

But there may not be a better rule and set of constraints than having to compete with others. However, even if competition between private money producers was not accepted, it could be possible to increase the degree of competition in existing monetary systems. To such an end, it would be necessary to repeal legal tender laws, i.e. to allow citizens of a country (or those of a monetary area such as the euro zone) to hold and to use the currencies they prefer. This would also imply the freedom to pay one's taxes with the currency one would choose, in order to avoid the national currency (or the currency of the monetary area) having a privileged position and being protected from competition.

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