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Whither New Consensus Macroeconomics? The Role of Government and Fiscal Policy in Modern Macroeconomics

by

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ABSTRACT

In the face of the dramatic economic events of recent months and the inability of academics and policymakers to prevent them, the New Consensus Macroeconomics (NCM) model has been the subject of several criticisms. This paper considers one of the main criticisms lodged against the NCM model, namely, the absence of any essential role for the government and fiscal policy. Given the size of the public sector and the increasing role of fiscal policy in modern economies, this simplifying assumption of the NCM model is difficult to defend. This paper maintains that conventional arguments used to support this controversial assumption—including historical reasons, theoretical propositions, and practical issues—do not have solid foundations. There is, in fact, nothing inherently monetary in the stabilization policies found in the model. Thus, fiscal policy could play a role at least as important as monetary policy in the NCM model.

Keywords: Fiscal Policy; New Consensus; Keynesian Economics; Macroeconomic Models

JEL Classifications: E12, E62, C30

1. INTRODUCTION

The last few months have seen a dramatic succession of events: the subprime crisis in the U.S. housing market triggered a national credit crunch and then a deep financial crisis around the world. If there was any doubt, this proved that the entire world economy is suffering badly, with discussions of a very long and serious recession. Many colleagues that took part in the Hans Bockler Stiftung conference in Berlin (October 2008) claimed that this is also the time of profound rethinking in academia and policymaking. Would the New Consensus Macroeconomics (NCM) wither away under the continuous challenges posed by the financial crisis and the worldwide economic recession? Or would the NCM amend itself so as to contain these challenges?

The paper does not attempt to answer these questions. Its purpose is much more modest. It aims to provide an overview of the recent evolution of formal models in macroeconomics before considering the NCM model and one of its main weaknesses, namely the absence of an explicit role for the government and fiscal policy in its core three-equation system. This provides only the beginning of an answer to those difficult questions, but it is possibly the necessary beginning in order to assess the significance of those questions.

2. THE HISTORICAL ORIGINS OF THE NEW CONSENSUS MACROECONOMICS MODEL

Academics and policymakers have been using models of the macro economy for a long time. The early formal models appeared in the early 1960s. They had two main features. First, they were the joint results of work in academia and central banks. At the time, the macroeconomic debate was dominated by the so-called neoclassical synthesis, and it was only natural that academics and practitioners build on their shared theoretical framework in order to produce formal models of the macro economy. Secondly, academics and policymakers worked together on the construction of models that would provide a comprehensive and in-depth representation of the structure of the economy. Early formal models were thus large structural models, built on a sector-by-sector, equation-by-equation basis, often using national income statistical categories.

These two main features of early formal models of the macro economy were well represented in the first structural model used at the Federal Reserve Board (FRB) in the United

States, namely the so-called MPS model. The MPS was a joint project from staff members at the FRB led by Frank de Leeuw, as well as academic economists led by Franco Modigliani at MIT and Albert Ando at the University of Pennsylvania. The name MPS itself is in fact an indication of this joint work between academics and practitioners; MPS is the acronym of MIT, University of Pennsylvania, and the Social Science Research Council, which supported the project. Also, the MPS model, which remained the primary formal model for the staff of the FRB from the late 1960s until the beginning of 1996, was a large structural model. Its early version had about 125 stochastic behavioral equations and more than 200 identities.

For decades, large structural models like the MPS remained popular with academics and practitioners, but slowly fell out of fashion in academia. There were two major causes for this outcome. First, academics complained that large structural models contained too many equations and identities, making them cumbersome. In practice, this meant that their policy implications were often difficult to grasp. Furthermore, when successful attempts were made, the policy implications were not entirely plausible. Secondly, academics complained that large structural models, by their nature, were not equipped to encompass new theoretical and empirical advances. Putting it in a different way, the academia progress recorded during the 1970s and 1980s could not easily be accommodated in formal models of hundreds of equations. Of course, this does not mean that theoretical or technical amendments to the general structure of large structural models were never made. Many theoretical or technical amendments were made and, in fact, for some time the changes introduced seemed to work. For instance, for several decades the old MPS model at the FRB survived theoretical and empirical criticisms.

By early 1990s the approach of incremental amendments was nevertheless called into question. Two major issues were raised. First, Sims (1980 and 2002) and other economists complained that the econometric techniques used in old structural models were obsolete. Secondly, and more importantly, the Lucas critique highlighted the limited role of expectations and intertemporal decision-making in the traditional modeling of the monetary policy process (Lucas 1976). In this regard, it is worth noting that large structural models did not ignore the role of expectations, but large structural models only included the case of adaptive expectations, which were implicitly formalized in the lag structure of the explanatory variables. This meant that key questions like the long-run effects of fiscal consolidation or the output losses of a disinflationary monetary policy strategy could not be easily assessed.

Therefore, starting in the early 1990s, the econometric criticisms, together with the Lucas critique, led to a major overhaul of large structural models, including the case of the MPS at the FRB (Fontana 2009d). As a result, large structural models were replaced with small formal models that closely reflected the most recent theoretical and econometrics advances in academia. Furthermore, small formal models explicitly modeled the role of expectations in policymaking. In particular, rational expectations took the place of adaptive expectations in formal models of the macro economy. In fact, according to some influential commentators, the explicit introduction of the rational expectation hypothesis in macroeconomic models constitutes the crucial change from the old to the modern macroeconomic models: "From a policy evaluation perspective, a fundamental difference between the old models and the new models is the rational expectations assumption. In my view this change in assumption is significant enough to be called a paradigm shift" (Taylor 1997).

The current NCM model is the latest and possibly the most successful version of these small formal macroeconomic models that have largely replaced large structural models in academia, as well as in policymaking. Interestingly, the NCM model shares an important feature of early formal models of the macro economy. Like the early 1960s models, the NCM model is the outcome of a joint effort of academics and policymakers. In other words, it is a model explicitly built on a shared theoretical framework. In fact, another name for the NCM model is the new neoclassical synthesis model. Putting it slightly different, the NCM model represents the result of a successful convergence in academia and policymaking toward a shared theoretical framework that draws on previous theoretical and empirical advances; in this case, the contributions of the real business cycle approach and the New Keynesian approach to macroeconomics.

The current NCM model is a typical product of the Lucas critique. One of the most important outcomes of the Lucas critique was to highlight the *ad hoc* structure of early formal models. This led to the view that modern formal models of the economy had to be "rigorous," meaning that the behavior of the agents in formal models had to have micro-foundations, be optimal, and based on rational expectations. These features have played a key role in the replacement of large models with small models. In fact, the NCM model has rigorous micro-foundations. Furthermore, in its standard version it only uses three equations, which, in turn< has facilitated the construction of highly mathematical and complex versions of it.

Whereas the NCM model encompasses some of the most attractive features of the modern, small formal models of the macro economy, it also shows some of their weaknesses. Small formal models have rigorous micro-foundations and are often based on rational expectations. However, these seemingly attractive features require the use of simplistic and often controversial assumptions, which strongly limit the explanatory powers of small models. For instance, one of the most controversial assumptions of the NCM model is the absence of any essential role for the public sector and fiscal policy. As argued by Goodhart "this is symptomatic of a deeper reluctance among macro-economists to conceive of any essential role for government. They seem intellectually happier to imagine an economy which is only inhabited by private sector agents and an 'independent' Central Bank with its own loss function (and no mandate from, or acceptability to, a democratically elected government)" (Goodhart 2005). Given the size of the public sector and the increasing role of fiscal policy in modern economies, this assumption is difficult to defend. This is even more the case today. How could the NCM model be used to assess, let alone propose, solutions to the 2007–2009 financial crisis and related recession when the public sector is not even part of the core model?

In conclusion, the historical evolution of formal models from early 1960s to now is not to be considered, as it is often done in the NCM literature, as a continuous progress from imperfect to perfect models. There are limitations to the use of the NCM model (and, more generally, modern small formal models) in the same way that there were limitations to the use of early 1960s models of the economy. It is only the *locus* of these limitations that has changed. From this perspective, as argued by Goodhart, "in many respects the Lucasian revolution has transferred the focus of implausibility, often down-right nonsense, from the implications of the solutions of the models to their initial structural assumptions" (Goodhart 2005). The next sections present the three-equation NCM model and discuss some of its more controversial features, before showing that these controversial features have origin in some simplistic assumptions, including (among others) the absence of a clear role for the government and fiscal policy.

3. THE THREE-EQUATION NEW CONSENSUS MACROECONOMICS MODEL

The NCM is based on a three-equation model, namely an IS-type curve, a Phillips curve, and a monetary policy equation. The model has several standard features of the modern New

Keynesian approach to macroeconomics. All three equations can be derived from explicit optimizing behavior of individual agents in the presence of market failures, including imperfect competition, incomplete markets, and asymmetric information. These market failures generate transitory price and wage stickiness, which, in turn, give support to the view that in the short-run, the aggregate supply responds to changes in the aggregate demand. Aggregate demand has thus a transitory, yet nontrivial, role in determining the equilibrium level of output and employment in the economy. In other words, where individual agents behave rationally, the outcome of their actions has adverse macroeconomic effects. On this basis, activist government actions are then justified to eliminate or limit some of these effects.

In terms of the mechanics of the model, price and wage stickiness play a key role in relating the monetary policy rule to the IS-type curve. The central bank, via changes in the short-run nominal interest rate, is actually able to control the short-run real interest rate. In this way, the central bank is able to affect the consumption and investment components of aggregate demand and, hence, the current level of output. This is an important theoretical result because it goes well with another important tenet of the NCM model, namely that low and stable inflation is conducive to growth, stability, and the efficient functioning of the market. When the economy is hit by shocks that take it away from its natural path, it is the central bank that is responsible for achieving the desired rate of inflation in the long run; subject to that, they are also responsible for bringing output and employment to their equilibrium levels in the short-run (Allsopp and Vines 2005). However, in pursuit of its objectives, the central bank faces a short-run trade-off between inflation and output. This trade-off is captured by the Phillips curve, which can be of thought as the aggregate supply component of the NCM model.

Drawing on Meyer (2001), Carlin and Soskice (2006), and Goodhart (2005), a simplified version of the NCM model can thus be represented by a set of three equations describing the dynamics of changes in the output gap (equation 1), in the inflation rate (equation 2), and the interest rate policy rule (equation 3).[1]

[1] See also Clarida, Galí, and Gertler (1999), Walsh (2002),and especially Arestis (2007) for an open economy extension of the NCM model.

$$\left(y-\bar{y}\right)_t = a_0 + a_1\left(y-\bar{y}\right)_{t-1} + a_2 E_t\left(y-\bar{y}\right)_{t+1} + a_3\left(i_t - E_t\left(\pi\right)_{t+1}\right) + s_1 \quad (1)$$

$$\pi_t = b_1\pi_{t-1} + b_2 E_t\left(\pi_{t+1}\right) + b_3\left(y-\bar{y}\right)_t + s_2 \quad (2)$$

$$i_t = r^* + c_1\left(\pi - \pi^T\right) + c_2\left(y-\bar{y}\right) \quad (3)$$

where $a_3 < 0$ and a_0 is a constant that indicates, among others things, the effects of fiscal variables on the output gap $\left(y-\bar{y}\right)$; $b_1 + b_2 = 1$, and $b_3 > 0$; $c_1 > 1$, and $c_2 > 0$; E_t is the expectations operator; i_t is the nominal interest rate controlled by the central bank; π is the rate of inflation; π^T is the target for the inflation rate; r^* is the equilibrium real interest, namely the interest rate that prevails in the long-run when current output y is at potential level $\bar{y}$; finally, s_1 and s_2 represent stochastic shocks.

Equation 1 describes an IS-type curve with the current output gap determined by past and expected future output gaps, as well the real interest rate. It is an IS-type of curve since, like the traditional IS curve of the 1960s neoclassical synthesis, it relates the real interest rate to the level of output and employment. However, it differs from the traditional IS curve for a variety of reasons. First, it is derived from intertemporal optimization of a utility function, which reflects optimal consumption smoothing. In other words, it is an IS curve that has rigorous micro-foundations. Secondly, and related to the previous point, the NCM-IS curve contains lagged and forward looking elements. The NCM-IS curve is thus a forward looking the IS curve. Thirdly, the NCM-IS curve relates the real interest rate to the output gap, namely the difference between current y and potential $\bar{y}$ levels of output.

Equation (2) is a Phillips curve with inflation determined by the current output gap, as well as past and expected future inflation rates. The latter term is of great interest. It is an indirect measure of the degree of commitment and credibility of the central bank to the long-run goal of price stability. Also, consistent with equation (1) and different from the traditional curve Phillips curve of the 1960s neoclassical synthesis, the current rate of inflation is determined by the current output gap rather than the level of output.

Finally, Equation (3) is a simple monetary policy rule, namely a standard Taylor rule, with the nominal interest rate explained by the current output gap, the deviation of current inflation from its target, and the equilibrium real interest rate. Some versions of the NCM model

present more complex monetary policy rules, adding to a standard Taylor rule variables such as a lagged interest rate, which indicates an interest rate "smoothing" policy strategy of the central bank (see, for instance, Arestis 2007). Equation (3) represents a major innovation of modern formal models of the economy. It replaces the old LM curve of the of the 1960s neoclassical synthesis, which assumed a monetary aggregate rather short-run interest rate as the main control variable of the central bank. This means that in the NCM model the quantity of money is a residual of the money supply process (Fontana 2009a). Furthermore, Equation (3) shows that monetary policy as a systematic response to the inflation and output performance of the economy.

This set of equations (1–3) summarizes the core propositions of the "New Consensus" macroeconomics and its policy implication, namely that the central bank has a key role in achieving and maintaining price stability in the long-run, while at the same time providing as much output stabilization as possible in the short-run. These short- and long-run goals are achieved through an aggregate demand channel and an inflation expectations channel of the transmission mechanism of monetary policy. Figure 1 below present the aggregate demand channel.

Figure 1. The Aggregate Demand (AD) Channel of the Transmission Mechanism of Monetary Policy in the NCM Model

$$\Delta i \Rightarrow \Delta r \Rightarrow \Delta C \,\&\, \Delta I \Rightarrow \Delta AD \Rightarrow \Delta Y \,\&\, \Delta UN \Rightarrow \Delta\left(y - \bar{y}\right) \Rightarrow \Delta\pi$$

The aggregate demand channel of the transmission mechanism of monetary policy in the NCM model strongly relies on the short-run price and wage rigidities, which allow the central bank to influence the short-run real interest rate, namely $\left(i_t - E_t\left(\pi\right)_{t+1}\right)$, by simply changing the short-run nominal interest rate i_t. This mean that, *ceteris paribus*, the central bank can alter real interest rate-sensitive components of the IS-type curve in equation (1), like consumption *C* and investment *I* and, hence, the aggregate demand function *AD*, which, in turn, affect the level of current output *y* in the output gap $\left(y - \bar{y}\right)$. In addition, equation (2) shows that the current inflation rate is function of the output gap $\left(y - \bar{y}\right)$. Therefore, by appropriate changes in the level

of current output and, hence, of the output gap, the central bank is able to bring (and then maintain) the current inflation rate to its desired target level π^T.

Figure 2. The Inflation Expectations Channel of the Transmission Mechanism of Monetary Policy in the NCM Model

$$\Delta i \Rightarrow \Delta\left(\pi - \pi^T\right) \Rightarrow \Delta E_t\left(\pi_{t+1}\right)$$

Figure 2 above presents the inflation expectations channel of the transmission mechanism of monetary policy in the NCM model. Once established, the inflation expectations channel is less laborious, though not less important, than the aggregate demand channel. Equation (2) shows that the current inflation rate is a function of the expected value of the future rate of inflation $E_t\left(\pi_{t+1}\right)$. This means that as long as the central bank is seen to be committed through its interest rate policy strategy to achieving and maintaining price stability in the long-run, namely $\pi = \pi^T$, then $E_t\left(\pi_{t+1}\right)$ is anchored to the actual level of inflation π. In other words, in this case, the expected value of the future rate of inflation becomes less important in determining the current rate of inflation. There are two main policy implications of this situation. First, the two main channels of the monetary transmission mechanism in a closed economy are strongly related to each other; the stronger the inflation expectations channel, the lower the output cost of achieving and maintaining the goal of (long-run) price stability by interest rate changes. In other words, the aggregate demand channel is strengthened by the working of the inflation expectations channel. Secondly, the central bank can be more activist in pursuing the short-run output stabilization objective; the stronger the inflation expectations channel, the lower the inflation cost of deviating in the short-run from the goal of achieving and maintaining price stability in the long-run. This important feature of the inflation expectations channel of the transmission mechanism of monetary policy in the NCM model is confirmed by Adam Posen, a leading monetary economist and one of the main contributors to the NCM model. “The ability to have an active policy is exactly what we are hoping for as a result of the Fed’s greater transparency regarding its inflation goal and forecasts. […] If you can keep inflation expectations anchored, you can be more activist in the short-term” (Posen 2008).

In conclusion, the NCM model is based on a three-equation model of the macro economy, namely an IS-type curve, a Phillips curve, and a monetary policy equation, which highlight the role of the central bank in achieving and maintaining the long-run goal of price stability, while at the same time providing as much output stabilization as possible in the short run. Long-run price stability and short-run output stabilization are achieved through an aggregate demand channel and an inflation expectations channel of the transmission mechanism of monetary policy. Furthermore, the NCM model incorporates the most advanced and powerful features of the small formal models described in the previous section. It is a rigorous model in the sense of the Lucas critique: the behavior of its two agents, namely the central bank and the private sector, has accurate micro-foundations, is optimal and is based on rational expectations. The next section will consider some of its most controversial features, including the absence of a public sector and an explicit role for fiscal policy.

4. INSIDERS'AND OUTSIDERS' CRITICISMS OF THE NCM MODEL

Over the past decade, the NCM model has been the object of several criticisms. Some of these criticisms originate from economists that have contributed to its creation and development. They are thus insiders' assessments of the weaknesses of the NCM model. For instance, this is the case of Adam Possen in his disapproval of the dominant use of the rational expectations hypothesis in the NCM model:

> "In the 1980s and into the 1990s, the forward-looking rational-expectations models applied to monetary policy by conservative economists, like Robert Barro, Alan Meltzer, and Alex Cukierman, showed that whenever any central bank looked the least bit dovish by having too much concern for real output versus inflation goals, inflationary expectations would shoot up with no growth benefit. … That characterization turned out to be not just an exaggeration through simplification, it was completely misleading. … So you can have a very activist monetary policy with respect to stabilizing the real economy—which, frankly, the Bernanke Fed seems to have adopted—without worrying that inflation is going to explode by so doing." (Posen 2008: 20)

Similarly, Blanchard (2008) has argued that the NCM model suffers from the lack of a proper analysis of the credit and financial markets (the transversality condition excludes *de facto* the failure of banks and financial institutions), the labor market (workers are always on the labor supply curve), and the goods markets (the desired mark-up of price over marginal—rather than fixed—costs is assumed to be constant). For obvious reasons of space, this paper will not discuss these criticisms, but it is important to point out some key features of these assessments of the NCM model. Borrowing Goodhart's (2008) characterization, the NCM model is now seen as a "fair weather" model, which may have some application in a low and stable inflation environment, but is increasingly seen even by his stronger supporters much less relevant in the current economic climate of highly unstable inflation, deep financial crisis and serious economic recession (see, for example, Buiter 2008). Most of the economists critical of the NCM model are now working on various ways to amend it, possibly adding more realism to its core equations.

Other criticisms of the NCM model originate from economists that have been skeptical of theoretical and empirical advances in recent decades. These economists show appreciation for some features of the NCM model; for example, the rejection of the monetarist hypothesis that central banks control monetary aggregates. Yet, they are critical of some of the core assumptions of the NCM model, which are considered unrealistic, if not patently false. These criticisms are thus outsiders' assessments of the weaknesses of the NCM. They are also very heterogeneous, going from outright rejection of the model to proposal for its amendments (see, for instance, contributions in Symposium 2002, 2006a, 2006b, 2007a, and 2007b). Looking at the more constructive criticisms, they can be organized around two broad themes, namely the amended roles of: (a) monetary policy and (b) fiscal policy in the NCM model. The first set of criticisms is related to some controversial features of conventional monetary policy in the NCM model and suggests different ways to contain, if not eliminate, those features. Since the focus of this paper is on the role of fiscal policy in the NCM model, this first set of criticisms will only be briefly discussed.

The criticisms of conventional monetary policy can be collected under three headings, namely "unemployment bias," "distributional effects," and "financial instability effects." First, one of the most controversial features of the conventional policy in the NCM model is the so-called "unemployment bias," namely the persistent tendency of conventional monetary policy to keep the unemployment rate above the natural rate of unemployment, as long as the economy is not at price stability. Dalziel (2002), Fontana and Palacio-Vera (2007), and Fontana (2009c),

among others, have proposed an “opportunistic” use of the interest rate policy strategy to alleviate the effects of this bias; under some circumstances, the central bank should give extra weight to output and employment compared to inflation in its monetary policy function. Second, another controversial feature of the conventional policy in the NCM model is related to the distributional effects of interest rate changes. Interest rate payments are a cost for firms borrowing money from banks and, hence, they may fuel an inflationary or deflationary process if policy changes in interest rates are passed on from firms to consumers. Furthermore, interest rate payments are an income for renters, mostly financial agents who do not play any productive role in the economy and earn income from their ownership of financial assets. Lavoie and Seccareccia (1999), Smithin (2006), Rochon and Setterfield (2007), and others have discussed different interest rate policy rules that take into account these distributive effects. Finally, according to the NCM model, monetary policy must respond to changes in the output gap and the difference between current and targeted inflation rate. However, since the bubble of the 1990s, it has been commonplace to discuss if the central bank should also consider asset prices when setting the short-run interest rate. Drawing on the work of Minsky (1982), Wray (2008) and Tymoigne (2009), among others, it has been argued that financial matters, rather than simply asset prices, should indeed be a major (and possibly the exclusive) concern for the central bank. From the perspective of these authors, continuous manipulations of the short-run interest rate generate financial instability and speculation. For this reason, they suggest that the central bank should set the short-run interest rate permanently at zero.

The second set of criticisms is related to the role of fiscal policy in the NCM model. The previous section discussed the key role played by the central bank in the NCM model: the central bank is in charge of achieving the desired inflation target and, subject to that, to deliver as much output stabilization as possible in the short-run. By contrast, fiscal authorities are either ignored or asked to concentrate on the control and sustainability of public finances. In other words, the NCM model downplays the role of fiscal policy at the advantage of monetary policy. Several arguments have been put forward to justify this policy choice.

First, supporters of the NCM model have pointed out at the historical evidence of previous decades. The historical explanation for the current disaffection with discretionary fiscal stabilization policy at the advantage of monetary policy usually maintains that the neoclassical synthesis of Keynesianism failed to provide any understanding of the events of the 1970s, let alone to solve them. For this reason, the neoclassical synthesis of Keynesianism was replaced by

a new theoretical framework, namely the New Classical Macroeconomics (Lucas and Sargent 1978), which rejected the use of discretionary fiscal stabilization policies. Recent works by Seidman (2003), Blinder (2006), and Forder (2007a, 2007b) have called into question this explanation. Whatever the merit of the contributions by New Classical Macroeconomists, the works of Seidman, Blinder, and Forder suggest an alternative story, where ideology, policy mistakes, and particular historical circumstances played a role at least as important as economic theory in the rejection of neoclassical synthesis Keynesianism and the consequent downgrading of fiscal policy (Fontana 2009b).

Secondly, supporters of the NCM model have justified the prominent role of monetary policy at the expenses of fiscal policy in terms of the so-called "Ricardian equivalence" theory, namely the idea that it does not matter whether a government finances spending with debt or tax increase, the total level of demand in the economy is the same. Putting it boldly, if consumers are "Ricardian" they will save more now to compensate for current higher taxes (in the case of tax-financed government expenditure) or future higher taxes (in the case of bond-financed government expenditure), as the government has to pay back its debts. The increased government spending is therefore exactly offset by decreased consumption on the part of private agents, with the result that aggregate demand does not change. As in the previous case, this argument against the use of discretionary fiscal policy has also been called into question. Blinder (2006) and Arestis and Sawyer (2003 and 2006), among others, have argued that the "Ricardian equivalence" view is based on unrealistic theoretical assumptions, including long time horizons, perfect foresight, perfect capital markets, and the absence of liquidity constraints. Furthermore, Hemming, Kell, and Mahfouz (2002) have also shown that the "Ricardian equivalence" view is poorly supported by empirical evidence.

Finally, supporters of the NCM model have justified the prominent role of monetary policy at the expenses of fiscal policy in terms of practical or political arguments, namely that fiscal policy has potentially long inside lags compared to monetary policy. Inside lags indicate the amount of time it takes for the government to recognize that fiscal policy needs to be changed (this is the so-called "recognition lag") and then to introduce appropriate fiscal measures (this is the so-called "decision lag"). The conventional view is that fiscal policy is subject to long inside lags because it takes time to design, approve, and implement fiscal measures. Importantly, the bigger is the discretionary, structural component of the fiscal policy change, the longer are the inside lags. Certainly, the long inside lags of fiscal policy are a

potential problem for fiscal policy compared to monetary policy. However, the latter has also it own practical problems, especially regarding the outside lags (Arestis and Sawyer 2003 and 2006). The converse of inside lags are outside lags, which indicate the amount of time it takes for policy change to affect the economy, namely the time the fiscal or monetary action takes to feed through the aggregate demand. The conventional view is that outside lags for fiscal policy are variable but short. By contrast, for monetary policy, outside lags are considered to be very long and unpredictable, usually 18–24 months. In short, the choice between fiscal and monetary policy in terms of practical or political arguments is not a clear one.

In conclusion, in the last decade the NCM model has been subject to several criticisms. After a brief overview of these criticisms, the focus of this section has been on one of the most controversial assumptions of the NCM model, namely the absence of the government and an explicit role for fiscal policy in its core three-equation model. The conventional defense for this controversial assumption has been discussed: historical, theoretical, or practical reasons are nevertheless inadequate to support this controversial assumption. Given the size of the government and the increasing role of fiscal policy in modern economies, the next section explores a more explicit role for this policy in the NCM model.

5. FISCAL POLICY IN THE NEW CONSENSUS MACROECONOMICS MODEL

In a recent paper published by the National Bureau of Economics (NBER), aptly titled “The State of Macro,” Blanchard (2008) maintains that modern macroeconomics is experiencing a period of great excitement: theoretical and empirical advances are going hand-in-hand with convergence in both vision and methodology. Yet, he does acknowledge that the current state of macroeconomics is unsatisfactory regarding the role of government and fiscal policy: “A good normative theory of fiscal policy in the presence of nominal rigidities remains largely to be done” (Blanchard 2008).

In fact, the academic literature on the effects of fiscal policy is scarce and divisive (Fontana 2009e). Whereas policymakers around the world are strongly supporting an increase in government expenditure in order to solve the deep financial crisis and economic recession of 2007–09, academics are not sure about the direction of the effects of fiscal interventions, let alone the magnitude of those effects. For instance, Giavazzi and Pagano (1990) have studied the effects of large fiscal contractions in Denmark and Ireland in the 1980s concluding that the large

consolidations had strong expansionary effects on consumption and output. If taken to their face value, this analysis suggests that Portugal, Italy, Greece, Spain, just to mention few EU countries with high public deficit, should actually reduce rather than increase their state interventions in the economy in the face of the current financial crisis and deep recession. Interestingly, according to Kuttner and Posen (2001), the idea of expansionary fiscal contractions was invoked by policymakers in Japan in late 1996 to legislate a large increase in a value-added tax on national consumption. But, as they note, when by late 1997 Japan experienced a recession and a series of financial failures, the idea of expansionary fiscal contractions lost most of its appeal.

Academics and policymakers have now achieved a large agreement about the role of monetary policy and its effects on the economy. The NCM model has crystallized this agreement through the three-equation model described above, but there is nothing like approaching a convergence of views about fiscal policy. There are at least two theoretical models to study the effects of fiscal policy, namely the neoclassical model and the New Keynesian model. Furthermore, there are at least two alternative approaches or methodologies for calculating the empirical estimates of the consequences of fiscal policy changes, namely the "narrative record," or "dummy variable" approach, and the "structural vector auto regression (SVAR)" approach. Finally, the theoretical and empirical uncertainties about the direction and magnitude of fiscal interventions are compounded by the different forms of fiscal instruments. There is, in fact, a net contrast between the diversity of fiscal interventions and the uniformity of monetary policy interventions, which now take the universal form of changes in the short-run interest rate. In the face of such diverse and often divisive literature on the effects of fiscal policy, it is therefore not surprising that in the NCM model there is no explicit role for the government and fiscal policy.

However, there is nothing intrinsically monetary in the nature of stabilization policy in the New Consensus model (Fontana 2009b). In other words, theoretically there is little or no reason to justify the current marginal role of fiscal policy in modern macroeconomics. If anything, looking at the set of equations 1–3 above, fiscal policy should actually have the most prominent role in the NCM model; the reason being that the role of the policy instrument in the NCM model can be played by any variable affecting components of the aggregate demand function and, *prima facie,* fiscal policy seems to be more direct in its effects compared to monetary policy.

Figure 1 has shown that interest rate policy strategies have a role in the aggregate demand channel as long as prices and wages are sticky. This is the essence of the so-called Taylor principle, namely the proposition that the central bank can stabilize the economy by raising the nominal short-run interest rate instrument more than one-for-one in response to higher inflation (Davig and Leeper 2005). The Taylor principle implicitly assumes that either prices or wages are fixed in the short run, or whatever little change there is in their values, this is known to the central bank, which can then use this information in order to attain (via changes in the controlled nominal interest rate) the desired level of the real short-run interest rate. This means that when changing i_t , the central bank takes into account these rigidities and, hence, is able to actually influence the short-run real interest rate, namely $\left(i_t - E_t(\pi)_{t+1}\right)$. This is the initial, but essential, stage of the demand channel of the transmission mechanism of monetary policy. At the same time, the NCM model also assumes that in the long run, price and wage rigidities disappear. This is indeed the definition of long run in the model. What this means is that, except for the short-run when price and wage rigidities exist, the central bank is unable to influence the real interest rate. Putting it boldly, in the long run there is no aggregate demand channel for the transmission mechanism of monetary policy. This long-run neutrality of monetary policy raises an interesting conundrum for modern central banks.

> "Given the central bank claim that, in the medium and longer run, their influence is solely on nominal variables, e.g. inflation, and *not at all* on real variables, such as output and unemployment, it is somewhat difficult and sensitive to explain that, at much *higher* frequencies, up to two or so years out, their influence on inflation is via the transmission mechanism of bringing about changes to exactly such real variables, i.e. output and unemployment. Moreover, given the long lags involved before inflation responds to monetary policy, […] an attempt to drive a deviation of inflation from target *rapidly* back to that target could only be done by enforcing an (undesirably) large change in output, especially if that deviation emanated from an initial supply shock." (Goodhart 2007)

Furthermore, the Calvo pricing mechanism, which provides the theoretical justification for the short-run price and wage rigidities, does not have much empirical support.

The reliance of the transmission mechanism of monetary policy on short-run price and wage rigidities severely limits the role of the central bank in the NCM model. However, these

limitations do not necessarily apply to the government; there are no implicit or explicit assumptions on the values that prices and wages take either in the short-run or long run. Furthermore, it is not necessary to make unrealistic assumptions about the level of knowledge required by the government in order to achieve its policy target. The government can directly affect aggregate demand, and hence the output gap, by moving real government expenditure (*G*) and/or taxes (*T*). Figure 3 below presents the new aggregate demand channel.

Figure 3. The Aggregate Demand (AD) Channel of the Transmission Mechanism of Fiscal Policy in the NCM

$$\Delta G \,\&\, \Delta T \Rightarrow a_0 \Rightarrow \Delta AD \Rightarrow \Delta Y \,\&\, \Delta UN \Rightarrow \Delta\left(y - \bar{y}\right) \Rightarrow \Delta\pi$$

The government has complete control on the fiscal variables *G* and *T*, which can be manipulated for its own purposes. Figure 3 shows that changes in *G* and *T* will influence the parameter a_0 in equation (1) of the NCM model presented above. Changes in a_0 will then produce direct and indirect (via private consumption and investment) effects on the aggregate demand *AD* function. In turn, changes in the *AD* function affect the current level of current output *y* in the output gap $\left(y - \bar{y}\right)$ and via equation (2), the current inflation rate. Therefore, by appropriate changes in the level of government expenditure and taxes, the government is able to bring, and then maintain, the current inflation rate to its desired target level π^T. Comparing the transmission mechanism of fiscal policy with the transmission mechanism of monetary policy, it is clear that in the former case the government has a direct control of the lever affecting the *AD* function and, hence, the output gap, namely a_0, whereas in the latter case the central bank has only an indirect control on the real interest rate and, hence, no more than an imperfect and temporary influence on the *AD* function and output gap.

In conclusion, the government and fiscal policy have only an implicit, if not marginal, role in the NCM model. However, it is not clear why this needs to be the case. Even with all of its limitations and problems, the NCM model can encompass a transmission mechanism of fiscal policy, which is at least as powerful as the transmission mechanism of monetary policy.

6. CONCLUSIONS

This paper considered the recent evolution of formal models in macroeconomics from late 1960s through the modern NCM model. Early macro models had two main features. They were the joint work of academics and policymakers and they aimed to provide a comprehensive and in-depth representation of the structure of the economy. The 1970s and 1980s were difficult decades for large structural models. The theoretical framework on which they were grounded, namely the neoclassical synthesis, was considered outdated. Furthermore, the comprehensive structure of the models proved, at times, to be too difficult to use for policy purposes. By the early 1990s, large structural models were out of fashion in academia and were slowly but increasingly discarded by policymakers around the world. Small models with few equations were developed. These post-Lucas critique models were "rigorous," in the sense that the behavior of all agents in the model was built on microeconomic foundations, was optimal, and based on rational expectations. The price for these new features was the use of simplistic, and often unrealistic, assumptions.

The current NCM model is the latest and most successful version of these post-Lucas critique models. It is a three-equation model made of an IS-type curve, a Phillips curve, and a monetary policy equation. It lays the foundations for the ubiquitous inflation-targeting policy strategies of modern central banks. In the face of the dramatic economic events of recent months and the inability of academics and policymakers to prevent them, the NCM model has been subject of several criticisms. This paper has considered one of its main criticisms, namely the absence of any essential role for the government and fiscal policy in the NCM model. Given the size of the public sector and the increasing role of fiscal policy in modern economies, this simplifying assumption of the NCM model is difficult to defend. This paper has maintained that conventional arguments supporting this controversial assumption, including historical reasons, theoretical propositions, or practical issues, do not have solid foundations. There is, in fact, nothing inherently monetary in the nature of stabilization policies in the model. Fiscal policy could play a role at least as important as monetary policy in the NCM model.

Let us go back to the original questions at the beginning of this paper: would the NCM wither away under the continuous challenges posed by the financial crisis and the economic recession worldwide or would it amend itself to contain these challenges? These are difficult questions to answer. What is not difficult to imagine is that whatever formal macroeconomic

model is going to prevail in the near future, it cannot ignore the role of the public sector and the increasing role of fiscal policy in modern economies.

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