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WOODFORD'S *INTEREST AND PRICES* FROM THE PERSPECTIVE OF THE HISTORY AND METHODOLOGY OF ECONOMIC THOUGHT: A MINI-SYMPOSIUM

BY
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Michael Woodford's 2003 *Interest and Prices* has been regarded as the most important contribution to monetary economics since the publication of Don Patinkin's *Money, Interest and Prices* fifty years ago. Like Patinkin, Woodford sought inspiration in Knut Wicksell's 1898 *Interest and Prices*. But, while Patinkin built on Wicksell's incipient formulation of the real balance effect and stability analysis of the price level (see Boianovsky 1998), Woodford has elaborated on Wicksell's concept of a pure credit economy (called "cashless economy" in the 2003 version), a theme largely disregarded by Patinkin. This difference in perspective is in part related to the fact that Patinkin's concern was mainly monetary theory, whereas Woodford has focused on monetary policy instead. In early 2004 I invited a group of scholars to discuss Woodford's book from the point of view of the history of thought and methodology in a session at the History of Economics Society meetings, held in June of that year at Victoria University, Toronto. Michael Woodford was also invited to participate in the session and reply to the comments. The revised papers are published here as a mini-symposium.

Until recently, theoretical discussions of monetary policy have been based, after Friedman (1968) and Sargent and Wallace (1975), on the formulation of monetary policy by a money supply rule instead of interest rate targeting. Woodford's book brings back to theoretical prominence Wicksell's approach under the guise of Taylor rules followed by central banks. Woodford develops a rational-expectation dynamic general equilibrium model with monopolistic competition and price inflexibility to argue, again in contrast with the received view, that optimal monetary policy should involve active macroeconomic stabilization. In particular, he shows that the only policy rule that ensures price stability is to set the nominal market rate of interest, through a feedback rule, equal to the natural rate of interest, which fluctuates over the business cycle (see the reviews by Goodhart 2004, Nakajima 2005 and, especially, Green 2005). Woodford's *Interest and Prices* may be regarded as the first important

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contribution to Wicksell's theme since Axel Leijonhufvud's 1981 *Information and Coordination*, from whom Woodford (2003, p. xiv) first learned about the Wicksellian tradition of monetary analysis. While Leijonhufvud has called attention to the key role of intertemporal coordination failures in macroeconomic theory, Woodford's concern is to lay down the welfare analysis of monetary policy based on quantitative models of the monetary transmission mechanism.

Kevin Hoover examines the issues involved in Woodford's attempt to develop a neo-Wicksellian framework of analysis in the context of the prevailing methodology of new classical economics. It is the contrast between Woodford's economic innovations and his somewhat traditional methodology that has caught Hoover's attention. His main target is the representative-agent microfoundations deployed throughout Woodford's book. According to Hoover, that methodological strategy comes from a misapprehension of the Lucas critique and from the wish to assess policy rules through welfare analysis based on individual preferences. He is critical of the widespread interpretation that the methodological implication of the Lucas critique is that microfoundations can protect economic theory against non-invariance, whereas the main point should be the ability of models to in fact reveal the economic reactions to policy. The problems with welfare analysis of monetary policy are caused by the impossibility to aggregate preferences (Arrow's theorem) and by the strict conditions necessary to show that general equilibria are Pareto efficient. As claimed by Hoover, they both point to the necessity to base welfare analysis of monetary policy on empirical evidence about individual preferences.

David Laidler critically investigates Woodford's model of a cashless economy from the perspective of the traditional approach based on the interaction between supply and demand for money. In Laidler's view, the recent tendency by academic economists and central bankers alike to stress yields and downplay stocks is not fully warranted by the properties of modern monetary systems. Outside money is still an important empirical feature of those systems, which has implications for the transmission mechanism of monetary policy. Whereas Wicksell, in Laidler's interpretation, conceived of the pure credit economy as an analytic fiction useful for some purposes of monetary theory but not for the formulation of monetary policy, Woodford has claimed that the cashless economy is a faithful description of present actual monetary systems and their policy options. Laidler finds Woodford's cashless model unsuitable to deal with open monetary economies in which some currencies (like the U.S. dollar) play the role of international means of payment and store of value. Another problem with Woodford's approach, in Laidler's view, is its apparent inability to distinguish between a Hicksian "liquidity trap"—that is, perfect elasticity of the demand for money at some low positive value of the long rate of interest—and a Hawtreyan "credit deadlock" related to the difficulty of increasing the money supply through the banking system in a depression.

Perry Mehrling sees Woodford's *Interest and Prices* as the culmination of the new neoclassical synthesis, with a revival of the old role played by economics as a policy science in the days of the original neoclassical synthesis in the 1950s and 1960s. The book is read largely as a response to what Mehrling calls "the challenge of finance," that is, the notion that in financially developed economies deviations between the natural and the bank rates of interest are not possible in equilibrium. That proposition was worked out in the 1970s by Fischer Black,

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who claimed, in contrast with Woodford, that there would be no room for monetary policy in a cashless economy. According to Mehrling, Woodford's response to Black's challenge is to introduce a market distortion (sticky prices) and by that reformulate monetary economics as a problem of public finance in terms of welfare analysis of second best situations. Mehrling, however, is critical of Woodford's argument that the central bank is able to set the nominal rate of interest in a cashless economy because of its power to establish the unit of account. Instead, he suggests an alternative mechanism that takes into account the presence of banks, absent from Woodford's framework.

Hans-Michael Trautwein and I discuss to what extent Woodford has incorporated some of the central concepts of Wicksell and the old Wicksellians (especially Lindahl) into the neo-Wicksellian synthesis. We argue that, differently from Wicksell's original concept of pure credit, Woodford's assumption of complete financial markets renders other riskless nominal assets perfect substitutes for money. This means that the central bank cannot fix nominal interest rates independently of the market rates for those substitutes.[1] Lindahl's and Wicksell's views about the role of expectations and nominal rigidities in the cumulative process (including Wicksell's notion of a negative natural rate of interest) are compared to Woodford's treatment. Woodford shares with Lindahl a concern with forward looking expectations, but his use of Calvo pricing is not consistent with a high inflation setting typical of cumulative processes. There are also problems in Woodford's definition of the natural rate of interest, which should take into account the notion of "optimal" nominal rigidities. Finally, the 2003 *Interest and Prices* is not clear about non-neutrality of money in the short and/or long runs, which is related to the difficulty to accommodate the old Wicksellian themes of income redistribution and maladjustment of investment and saving in the new framework.

Michael Woodford's response has clarified some important aspects of his book. From the methodological standpoint, the neglect of aggregation issues is justified by the resort to linearizations of individual decision rules. Moreover, the research program put forward in the book is defended as leading to models consistent with the co-movements of aggregate time series. Woodford claims that his analysis of monetary policy in a cashless economy is a useful simplication that can be applied even if monetary frictions make necessary the use of money balances in transactions. The Wicksellian cumulative process is reformulated in the book as the result of a gap between the natural rate and the intercept term in the central bank reaction function. Furthermore, he elaborates the point that the market value of the liabilities of the central bank does not depend on the market's expectation of the interest rate, which is behind the central bank's ability to set the nominal rate of interest. Finally, Woodford explains that he has decided to call his approach "neo-Wicksellian" instead of "new-Keynesian" because of his emphasis on the short-term nominal rate of interest as the instrument of monetary policy and the role of changes in the natural rate of interest over the business cycle (including supply shocks). The neo-Wicksellian model is deemed able to derive results similar to the traditional Wicksellian literature, despite important analytical differences in their assumptions.

[1]See also Rogers (2006) about the distinction between Wicksell's pure credit and Woodford's cashless economy.

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Woodford recalled, at his presentation at the 2004 HES meetings, the reaction from his colleagues of the economics department at Princeton University (where he had an appointment at the time) when he informed them about the discussion of his book at a history of thought conference. They said, in a funny way, that the book, published just a year before, was already getting old enough to attract the attention of historians. Woodford replied to his colleagues that historians of economic thought are not just people who pay attention to old texts, but primarily economists who read carefully other economists' works. Exactly.

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