

Comment on “**The Choice of a Monetary Policy Reaction Function in a Simple Optimizing Model**” by Dale W. Henderson and Jinill Kim

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I admire the ingenuity and skill with which Henderson and Kim have built their model. Their formal framework is both sufficiently general to provide an exhaustive assessment of the relative merits of the most popular monetary rules and sufficiently micro-founded to derive the relevant macro-relations from the solutions of the intertemporal optimization problems of imperfectly competitive agents. Indeed, it seems to me that the purpose of modelling firms that are monopolistically competitive in the product market and households that are monopsonistically competitive in the labour market is to give solid micro-foundations to adjustments that in the aftermath of a macro-shock may take place both through changes in quantity (output and employment) and through changes in prices and wages.

While sympathetic to this style of modelling and to the spirit of the paper, I would have preferred nominal rigidities to have been derived from the optimizing behavior of agents rather than being introduced as *ad hoc* assumptions. Admittedly, this way of introducing rigidities is common to a large part of the relevant literature on the subject, and there seems to be nothing wrong with not deriving nominal wage and price stickiness from first principles. After all, we know that these nominal rigidities are present in the real world and are important. So, why bother about their micro-foundations?

I see two reasons for doing so. The less important of them has to do with being consistent with the spirit of the paper: one cannot seek to derive a macro-model from the optimizing behaviour of price-maker firms and (nominal) wage-maker workers, and then introduce the presence of price and wage stickiness as *ad hoc* features of the model. I would expect a genuinely micro-founded model to show how optimizing behaviour can generate

nominal inertia: the possible presence of nominal rigidities and its type (price versus wage), the possible existence of a threshold in the intensity of a shock beyond which a random disturbance triggers a nominal adjustment, the length of the possible temporal lag separating shock and price (or wage) response, and so on, should be derived from - or at least should be shown to be consistent with- optimal agents' behaviour.

The second and more important reason relates to the Lucas' critique. Something important may be lost if the effectiveness and the merits of alternative stabilization policies under imperfect competition are assessed by treating the process of price and wage formation as invariant with respect to the choice of the central bank's reaction function. For instance: nominal contract length is a function of the variability of the price level, which in its turn may depend on whether the monetary authority targets the price level or seeks to stabilize the nominal income, or something else. In their turn, the performances of different monetary rules depend crucially on the degree of nominal stickiness. The usual defence against this type of argument is that the effects of a change in some macrovariable's variance on firms' profits and households' utility is likely to be of second order magnitude (for example, see Asako and Wagner (1992)). In other words, one may argue that the decreased variability of some macro-variable at the expense of the increased variability of some other macro-variable - due to the choice of a certain stabilization rule instead of some alternative policy - has negligible effects on agents' behaviour. Nevertheless, in some institutional contexts, different monetary regimes affecting the relative variance of some key macroeconomic variables may have significant implications for the processes of price and wage formation, thereby influencing also the mean values, the trend followed by the real variables. This amounts to saying that in the presence of market imperfections (i) the choice of the macrovariables which the monetary authority wants to immunize against random shocks is not neutral with respect to the opportunities and the incentives that agents face when they decide, and also with respect to what group of agents is supposed to bear the heavier burden of the unavoidable macroeconomic volatility and uncertainty; hence, (ii) the "natural" (rational-expectations equilibrium) levels of economic

activity and employment may be systematically affected by the stabilization rule selected by the monetary authority.

In more concrete terms, assume that the relevant labour market imperfections are due to the bargaining power of incumbent workers (the insiders), who - and this especially the case in some European countries - act as a group in the wage-setting process. In current models of the game between the monetary authority and the public, the undesired reduction of total employment caused by the insiders' influence on wage formation creates an incentive for the Central Bank to 'cheat' the private sector with unexpected inflation. Since agents are 'smart', any systematic attempt to push the unemployment rate below its natural rate is bound to fail. Moreover, the monetary authority is entirely unable to affect this natural rate. Therefore, the conclusion of these models is that the deadweight loss due to the presence of labour market distortions "cannot be reduced through monetary policy in a time-consistent rational expectations equilibrium" (Schaling (1995), p.202). Yet one can show that the Central Bank affects the natural rate of unemployment by choosing whether to give more weight to the reduction of the price level's variance or to a less volatile level of employment.¹ This possibility for the monetary authority to influence the real variable depends on the fact that - in a world in which insiders can lose their jobs almost solely in the case of firms' shutdown or downsizing - the union representing the insiders negotiates the nominal wage so as to achieve the optimal trade-off between the expected real wage and the likelihood of the representative insider remaining in employment. If, at the moment of signing the wage contract, there is uncertainty about the onset of random shocks affecting labour demand and determining employment, the insider's probability of remaining employed decreases - other things being equal - with the variance of the employment level. In this context, a monetary reaction function designed to stabilize the employment level and leave the price level free to fluctuate tends to increase the desired real wage of insiders. This is because with less employment volatility incumbent workers feel more secure, given that equal insiders' chances of remaining employed are

¹ For a formal treatment of this issue see Bonatti (1997).

associated with a higher expected real wage: as job insecurity diminishes as a result of a more stable volume of activity and employment, the ex ante preferred (real) wage is increased. Indeed, a policy reducing the variance of the employment level relatively to the variance of the price level (inflation rate) induces incumbent workers to step up their wage demands by increasing their job security. The opposite occurs when price-level (or inflation-rate) targeting in the absence of clauses indexing the nominal wage to the consumer price - or the presence of such clauses - creates some real wage stickiness² and shifts the burden of adjusting to shocks onto changes in the employment level. In this case, the insiders' position becomes weaker, and their desired real wage tends to be lower in order to safeguard their jobs. As a consequence, one would expect the economy to move around an equilibrium trajectory characterized by a higher employment level when monetary policy shifts volatility from the price level to the employment level, since a more volatile employment level is associated with a lower probability of remaining employed for the (risk-neutral) insiders at any expected level of the real wage. It is worth emphasising that this conclusion does not depend on workers' risk aversion: it is the insiders' expected labour income that is affected by their probability of remaining employed.

There are obviously other potential channels through which the choice of a monetary rule may exert (unintended) effects on real variables via its impact on the volatility of the relevant macrovariables. For instance, it may be the case that a policy change affecting the volatility of (short-term) interest rate relatively to the volatility of firms' real profits has significant real effects, in a world in which debt and equity financing are not equivalent for firms because of the presence of incentives and information problems.

Henderson and Kim have developed a consistent analytical framework which provides policy-makers with a complete set of general guidelines. Depending on the nature of the shock, and on the type of nominal rigidity prevailing in the economy, these guidelines suggest the appropriate conduct to be adopted by the monetary authority. However, policy-makers should be

² In this respect, pure price level (or inflation rate) targeting and perfect wage indexation are equivalent in terms of their effects on real variables. Obviously, the absence of indexation mechanisms creates - as is well known in Germany - a wider constituency for policies designed to keep the value of money stable.

aware of the possible side-effects of stabilization policies in the presence of market imperfections, since the choice of the macrovariable(s) whose volatility must be minimized may have a significant impact on agents' behaviour.

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