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Macroeconomic Consequences of Inflation

Persistence in Austria

Panel Discussion

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The purpose of this note is to discuss the macroeconomic implications of the Inflation Persistence Network (IPN), and to review some of the arguments made during the panel discussion at the workshop. First and foremost, one needs to emphasize the significance of the results obtained by the IPN concerning the analysis of price behaviour in Austria. I think that the research undertaken gives a systematic, structured and deep insight into the evolution of prices as never before. In that respect, one needs to praise the Oesterreichische Nationalbank (OeNB) for its courage to undertake this research, particularly as it could imply a deviation from the dogma of dichotomy in real and monetary economics. The note is organized in three parts. First, I will emphasize some of the stylized facts that I found particularly significant. Then, I will bring some theoretical implications before turning to issues of economic policy.

1. Stylized Facts

The most startling fact of the research program has been the enormous degree of price flexibility. Whilst inflation rates per se tend to exhibit a lot of inertia, individual prices do not. Prices change at rather high frequency, and both upward and downward. Indeed, the fact that only slightly fewer price changes are upward than downward has important implications for economic policy, as will be discussed below.

The second surprising fact is that prices are sticky in the sense that a price increase is not likely to be followed by a price decrease, or price innovations tend to be persistent. This may be due to the fact that (permanent) supply shocks or much more common than (temporary) demand shocks. However, this fact rules out

the possibility that registered price reductions are purely special offers, sales and discounts, but have a deeper economic rationale.

The third surprising fact is that prices react differently to different kinds of shocks. In particular, prices tend to be downward sticky and upward flexible following a cost shock, whereas prices are downward flexible and upward sticky following a demand shock. This, too, has important policy implications, as will be analyzed below.

2. Theoretical Considerations

In a way, the research undertaken by the IPN may lead to a rethinking of the theory of prices. Given the fact that individual prices are highly mobile, but inflation is not, one imagines a theoretical approach that models inflation with a flow approach, where price increases enter and price decreases exit, leading to an equilibrium rate of inflation, in an approach not dissimilar from the flow approach to unemployment, where job creation and job destruction are modelled to explain the inert behaviour of unemployment rates. Just like the flow approach to unemployment has changed our understanding of labour markets, the flow approach to prices may change our understanding of inflation.

On a more modest scale, the analysis also challenges a well established dogma of monetary economics, the dichotomy of money and the real economy. In one form or another, monetary economists tend to believe in the quantity equation, stating that nominal spending (prices P times real GDP Y) equals nominal balances (velocity of money V times the money supply M), $PY = MV$. The general perception is that monetary velocity and real GDP are set exogenously, so that changes in inflation are purely due to changes in money supply, or as Milton Friedman¹ has so beautifully put it, “Inflation is always and everywhere a monetary phenomena.” This of course implies that at least in the long run prices should behave differently, depending on whether the shock is monetary or not. Indeed, a monetary shock (that is not actively reversed by central bank policy) should lead to a permanent increase in prices, whereas a (temporary) demand shock should lead to a temporary increase in prices only. But of course, firms faced with an increase in demand cannot possibly observe whether the shock is monetary or not. Hence, reactions to shocks should be treated with a lot of caution.

3. Consequences for Economic Policy

As mentioned above, the results obtained by the IPN exhibit important policy implications. First, the fact that prices are downward mobile is worrisome. Contrary to suspicion, prices are not sticky downwards, like for instance wages are.

¹ Friedman, Milton, *Monetarist Economics*, Cambridge MA: Basil Blackwell, 1991.

This of course implies that there are no mechanisms to prevent a majority of prices to fall, and therefore to prevent periods of deflation. Monetary policy would need to react to this fact by not only introducing an upper bound to inflation, but also a lower bound for inflation. In that respect, the revision of the ECB strategy in 2003, which before has been “below two percent” and now reads “close to, but below 2 percent” is certainly an important policy change to prevent periods of deflation.

The research has also shown that prices exhibit a certain degree of inertia. That fact that prices do not immediately adjust to supply and demand shocks implies that prices, at least in the short to medium run, have an impact on the real economy. Monetary policy may therefore matter for real output, the business cycle, and employment. In that respect, monetary policy has to be undertaken with much more caution. A sudden increase in money supply may not only alter prices, but have major implications for real economic activity and the business cycle. Given different reactions to shocks in different sectors (e.g. tourism may react much faster to shocks than e.g. the intermediate supply sector) monetary policy will have an impact both on the industrial structure and on regional economic growth. Volatile monetary policy will foster tourism and hurt the intermediate supply sector. As tourism is predominantly located in the west and south of Austria, whereas the intermediate supply sector is located in the north and east, active monetary policy would also favour the west and south at the expense of the north and east.

Finally, the research has shown that prices react differently to cost and demand shocks. Under this light, a reassessment of policy strategies appears justified. We will undertake this for three specific shocks, the (positive) productivity shock due to the New Economy in the second half of the 1990s in the U.S.A., the recent oil price shock as a (negative) demand shock, and the apparent surge in the European business cycle at the end of 2005.

First, the New Economy can be considered a positive supply shock that leads to a reduction in producer costs. With prices sticky downward, this leaves ample room for expansionary monetary policy. An expansionary monetary reaction is a positive demand shock that also benefits from sticky prices (this time upward). Thus, offsetting a positive supply shock with a positive demand shock will lead to a business cycle boom without fear of inflation, supporting the Greenspan strategy. Second, the oil price shock can be considered a negative cost shock. Prices are flexible following negative cost shocks, hence the appropriate reaction would be to tighten monetary policy. This can be considered a negative demand shock, and prices are flexible there, too, so that indeed the appropriate reaction to an oil shock is tight money, which European and American central banks have followed. Finally, looking at the indications of an improvement of the business cycle, which was triggered by an increase in orders (and hence can be considered a demand shock), we would conclude that prices would have remained constant for a while, given the inert reaction to a positive demand shock. The appropriate reaction would have been an accommodating monetary policy. However, monetary policy reacted

by tightening interest rates, and thus may have prematurely turned off the economic recovery