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Discussion

Robert Gordon began the discussion by mentioning the existence of a labor share measure in the NIPA tables made by the Bureau of Economic Analysis (BEA). He suggested that the BEA measure is more appropriate for the paper since it is an economy-wide measure, in contrast to the series constructed by the Bureau of Labor Statistics (BLS) that includes only the nonfarm business sector. He also conjectured that the results presented by Giorgio Primiceri may be sensitive to the fact that he used the BLS series, especially because the BEA series does not drift down over the sample.

Jonathan Parker recognized that in the authors' model, demand shocks also affect productivity; he therefore asked if it was possible for the model to distinguish different shocks using the implied productivity reactions. He inquired whether it is possible for productivity to support the data, even when the labor share does not, because the Cobb-Douglas assumption is not true in their two-sector model. Additionally, he wanted to know what changed in the processes that made the pattern for the data look so different starting in the 1980s, especially since both Primiceri's model and the authors' model fit the second part of the data very well.

Paul Beaudry replied to the last point made by Parker by explaining that they do not see the data processes as changing much, since, according to their interpretation, demand shocks have always been at work. Only the response of inflation has changed. The authors agreed with both discussants that current models explain the data relatively well if all the necessary assumptions and shocks are put in place, but fail to produce all the comovements. The authors want to take a step back and think about a big picture in which demand shocks have always hap-

pened, and they want to avoid explaining big changes by a combination of many small things.

Beaudry agreed with the general comment that the model needs to be tested. The current state of their theory is to explain what assumptions are being changed and the reasons behind that, but the next step is to compare with other models. He resisted Martín Uribe's suggestion to introduce many different mechanisms into the model, and use structural estimation to decide which mechanisms are more important. Since their model does not feature a representative agent, it would be computationally costly to perform such an exercise.

Randall Wright found the model very interesting and asked why the authors did not introduce the mechanisms into a real business cycle (RBC) model first, without all the extra rigidities, to gain intuition. Because of its complexity, the model reminded him of the Greenwood, Hercowitz, and Huffman (1988) model with investment-specific technical change. Beaudry explained that they did use a simplified model to explain the intuition in section II of the paper. He also explained that they did not want to use an RBC model with complete markets, because agent heterogeneity would no longer play a role in that environment. He also explained that Greenwood, Hercowitz, and Huffman (1988) have a depreciation shock, which is similar to a productivity shock and produces a boom when agents depreciate all their capital. By contrast, the mechanisms in the paper are driven by gains of trade; given specialization in the economy, the desire to trade produces cycles: a boom per period in which high amounts are traded and a bust when there is less desire to trade. Whether shocks are inflationary or deflationary depends on monetary policy. The author added that having different sectors does make it easier to generate the type of comovement that other models fail to generate.

Varadarajan Chari liked the authors' assumption regarding immobility of labor, since it is potentially measurable. He also liked the potential that the authors' interpretation has to replace other common assumptions such as habit persistence, backward-looking wage indexation, adjustment costs in the rate of change of investment, and sticky wages. Chari agreed with Primiceri that inflation does depend on marginal costs. Finally, he asked Gordon whether the labor share measure he mentioned at the beginning includes proprietor's income. Gordon replied that it does not, but that since proprietor's income has not fallen that much, it should not make a difference.

Then Chari asked Primiceri about the link between the labor share

and the output gap. Primiceri responded that conditional on Gordon's comment, the labor share (which is a proxy for marginal cost under some assumptions) explains the movements in inflation relatively well. In particular, in the last three to four years the labor share went down, so inflation will go down in most models.

Franck Portier explained that they are not saying that the Phillips curve is not holding. Rather, the question is how to go from observed movements in the labor share to observed movements in output and hours while still maintaining that the Phillips curve holds. If movements in the output gap explain the last few years, then the gap would need to be small. He does not believe that there is yet a convincing story that produces all the changes that have happened.

N. Gregory Mankiw inquired about the authors' interpretation of the last few years, when there appears to have been a big demand shock, a big output gap, and yet inflation has not been as low as a normal Phillips curve would suggest. He explained one possible interpretation for such an outcome is that there is no gap, because natural output is what decreased, and then he questioned if the Fed should or should not be worried about this. Beaudry explained that these demand shocks are like supply shocks in the sense that monetary policy cannot get rid of their effects. Monetary authorities should react to prices, as they have been doing so far. Mankiw remarked that the Fed does not only look at prices, or nowadays the policy rate would not be so low. To that, Beaudry explained that his interpretation is that the Fed decreases the rate until they see an upward pressure on prices, but in this case they hit the zero lower bound before that occurred. Beaudry explained their interpretation of the cycles; it is based on a mismatch problem, in which as a cyclical phenomenon there are periods when there is desire to trade and others when there is not. Chari questioned that story based on the wages of construction workers, which have not fallen that much. Portier explained that lower wages are not an implication of their story, since it involves a proportional decrease among sectors.

Michael Woodford added to the discussion of monetary policy by questioning the implications of the model when the natural rate of output falls, because insurance is not perfect. The model does not deliver the result that monetary policy should follow what the flexible price version of the model implies, because it is not necessarily optimal. Portier replied to Woodford's remark by agreeing and explaining that the planner would like to perform transfers, similar to unemployment benefits, between workers of the two sectors to avoid falls in consump-

tion. So, Woodford asked if with optimal fiscal policy, monetary policy should track natural output. Beaudry indicated that was the case.

Finally, Marc Giannoni argued that the puzzle mentioned by Mankiw about the past few years can be explained with the long-term expansionary monetary policy that the Fed has implemented, since the absence of falling inflation can occur if the monetary policy effect offsets the demand shock.

Reference

Greenwood, Jeremy, Zvi Hercowitz, and Gregory W. Huffman. 1988. "Investment, Capacity Utilization, and the Real Business Cycle." *American Economic Review* 78 (3): 402–17.