Referee report on "Testing the New Keynesian Model on U.S. and Euro Area Data", by Mikael Juselius

General comments

In this paper, Juselius tests the restrictions implied by the two central equations (basically "supply" and "demand") of the New Keynesian Macro model (NKM) on a vector autoregressive model (VAR). As reflected in the title, both euro area and U.S. data are used, which means that the two data sets that underlie the New Keynesian Phillips curve's high status are re-analyzed in this paper. Both the New Keynesian Phillips curve equation and the aggregate demand curve are estimated and tested in the paper. Most other econometric evaluations focus on *one* of the equations, the Phillips curve having received most attention.

In this paper, the estimation principle is maximum likelihood, and both forcing variables and expectations are modeled jointly with the supply and demand equations. This means that the testing procedure is all-contained within the VAR approach. There is no introduction of new variables for testing purposes after first estimating the NPC. Hence this paper is immune to the argument used to brush aside encompassing tests of the New Keynesian Phillips curve, namely that additional variables should (if relevant) be included in rational agents' information sets in the first place.

In Juselius' framework, all variables are always in the model, either unrestricted or unrestricted. Hence, this approach gives a satisfactory test-situation for the null hypothesis that the defining restrictions of the NPC hold true. The flip of the coin is that there is no clear alternative hypothesis, apart from the unrestricted VAR of course. But, one might argue, as Juselius do, that the right priority at this stage is to obtain some consensus about the testing of the null of the maintained hypotheses of the NKM. Juselius' paper is a constructive contribution to this end, and the discussion appears to be balanced.

The econometric analysis of the VAR with forward looking variables is very competently done, and the results are carefully interpreted. Given the unit root assumption, the test of the "necessary conditions" for statistical acceptance of the NKP (i.e., cointegration) also represents a contribution. I regard the results of the paper as scientifically significant.

Detailed comments

1 p 4, l 5: I am surprised that the NKP *theory* has cointegration implications beyond "requiring" a stationary framework (i.e. I(0)-ness). The NKP *equation* obviously has cointegration implications, but at a deeper level is it not true that the underlying optimization theory assumes a stationary framework? It might be of general interest to clarify this point.

2 p 4. 2nd sentence from bottom: log-linearizing around the steady states seems to imply that the key variables have time invariant first and second order moments, so that the

unconditional expectation of inflation for example does not depend on *t*. So how can this DSGE be logically consistent with "allowing", or finding empirically, one or more unit-roots in a system consisting of Δp_t, x_t and y_t?

3 p 4, eq (1) and (2): Should there not be a disturbance term to (2) (unless one really means that theory is exact)?

4 p 6, § 2. Potentially this paragraph solves the problem pointed out in comment 1 and 2, and if it does, it should be presented earlier, to avoid reactions like the one I had. That said, I am not convinced that this argument carries the day, in terms of extending the NKP to the non-stationary/unit root case. For example "linearizing around cointegration equations" sounds a little strange, since those equations are already linear (unless we are talking about non-linear cointegration?); And difference stationarity is a linear property, at least before further deliberations. Perhaps better to speak about linearizing theoretical relationships that are hypothesized to hold in a steady-state situation?

5 p 8, footnote 10. Move to the body text to make this non trivial assumption explicit.

6 p 8, § 1. The NKP does imply that money has no predictive power for $\Delta p_{t.}$ cf (2), which is a testable property. That money is endogenous in the macroeconomic model is another issue and has to with the chosen monetary policy regime. If NKP is a structural equation it should remain invariant/apply also for other regimes (a regime with the money supply as the target and the interest rate endogenous (on the money market) for example.) There are no assumptions in underlying theory of the NKP that specifies a particular monetary policy regime. Conversely, in an inflation targeting regime, money supply is exogenous irrespective of which hypothesis/model one uses for price adjustments.

7 p 16, § 1. Although the ECB now sets the interest rate, the sample period covers years with different monetary policy regimes in different countries? So it is maybe not that surprising to find empirically that money has predictive power? However, the finding is interesting in its own right. State which variables are most affected.

8 p 22, § 2. This is however contrary to Gali and Gertler (1999), and Gali, Gertler and Lopez-Salido (2005) who state that the log of the wage-share is the best measure for marginal costs (i.e. necessary to obtain the results that are expected from theory).