

## **What do micro price data tell us on the validity of the new Keynesian Phillips curve?**

### **Comments on the paper by Luis Alvarez.**

This paper reviews the theoretical models of price-setting behaviour at the level of the individual firm that have been developed to support the New Keynesian (NK) Phillips curve and confronts them with the data. The paper argues that these models differ considerably in their ability to match salient characteristics of these data. However, none is available to account for all of them, suggesting the need to develop more realistic micro-founded price setting models.

I found this paper interesting and informative since it is some time since I have looked at this topic. Thus my comments come from a distant perspective and may betray my lack of familiarity with this field. However, as I read into this paper I began to have my doubts about the nature of this exercise.

The paper begins by describing the data sets documenting price setting behaviour at the level of the individual firm. These contain prices for specific firms and products, such as those shown as in figure 1. However, the sample statistics for the countries displayed in table 2 seem to be aggregates of prices – the footnotes for some of these discuss ‘aggregate frequency’ of change for example. The hazard functions reported in figure 2 also appear to be for national aggregates of data, possibly CPI indices. Indeed, the ensuing discussion of these data on page 14 is in terms of aggregation of heterogeneous individuals.

Thus it seems that the theoretical models are not being compared with micro data collected at the level of the individual firm. Contrary to the remark of the first reviewer, this paper does not seem to do what it says on the tin. That is a pity because it would be nice to see the results of such an exercise. Why not test these various models against individual price data? Is this not feasible with these data sets? Obviously this data lacks the fine granularity and frequency of the price data used in the financial market microstructure literature, but surely conditional durations and hazard rates can be approximated and estimated using long series of monthly data? This would be an interesting exercise, but different from the one advertised.

For an NK macroeconomist however, the more relevant question is surely whether these micro-based price setting models really have much to say at the aggregate level. Specifically, how do individual decisions interact and aggregate? This is a difficult research area and the present paper cannot do more than graze its hard surface. Heterogeneity is discussed and is clearly important. The models of Alvarez and others (2005) are insightful, but surely need further development. Asymptotic results such as those of Block et al (2003) are perhaps a start, but known to depend critically upon model structure.

I would be tempted to start from scratch, or again take a look at what is being achieved in other fields. We know that in the absence of interaction effects, aggregate responses are statistical mixes of individual responses. Even in this case, some very strange phenomena can result. For example Abadir and Talmain (2002) show that

aggregation over firms with mean-reverting (AR1) output responses and heterogeneous speeds of adjustment (in a RBC structure) will precipitate an aggregate response to monetary shocks exhibiting long memory. Do we get the same effect in this NK pricing context? Is that why monetary shocks produce long-lasting effects in some of these models? The responses shown in figure 2 do seem to exhibit a long memory effect. Indeed, various econometric studies have revealed long memory (with the order of integration around 0.3 to 0.4) in long runs of US and UK inflation data. It would be nice to have a micro-based explanation of this effect.

## **Reference**

Abadir K. and Talmain G, (2002): *The Review of Economic Studies*, Volume 69, Number 4, October, pp. 749-779.