

Comments on Pierre Siklos' paper

Richard Dennis¹

Introduction

Inflation expectations are central to most modern macroeconomic models. Through the Phillips curve, which critically links the real and nominal sides of the economy, inflation expectations are an important determinant of actual inflation, and the mechanism by which inflation expectations are formed has important implications for the sacrifice ratio. As a consequence, managing inflation expectations is important for central banks tasked with the duty of keeping inflation low and stable. But in most macroeconomic models, everyone residing in the model holds the same expectation of inflation; there is no heterogeneity or disagreement about inflation expectations, a feature that is very much at odds with observations on actual economies.

In this paper Pierre Siklos takes a close look at the inflation outcomes and inflation forecasts of twelve economies, all of which are in the Asia-Pacific region, and those of the United States and the euro zone.² By gathering together the one-year-ahead inflation expectations/forecasts produced by surveys, professional forecasters, central banks and government agencies, and such like, Siklos is able to construct a time-series for the distribution of inflation expectations for each of these fourteen economies. These distributions can then be used to quantify inflation forecast disagreement, they can be correlated with shocks, recessions, and crises to assess how well inflation expectations are anchored, and they can be used to investigate spillovers in inflation from one economy to another.

Main findings

As you might expect for a paper about inflation expectations, one of the first questions asked is whether the inflation forecasts are "rational". Perhaps unsurprisingly, in light of the literature on this issue, the inflation forecasts are found not to be rational/efficient. At the same time, using a weak definition of efficiency, one that simply looks at whether inflation and expected inflation move one-for-one, the forecasts for India, Japan, Singapore, and Thailand look to be more efficient than those for the other economies. When forecast biases are taken into account, the inflation forecasts do not appear to be rational/efficient for any economy. Although the inflation forecasts do not appear to be rational, Siklos shows that forecast accuracy (at least when measured using a criterion such as RMSE) does not appear to deteriorate during crisis periods. This finding might

¹ University of Glasgow.

² The twelve Asia-Pacific economies included in the study are Australia, China, Hong Kong SAR, India, Indonesia, Japan, Korea, Malaysia, New Zealand, the Philippines, Thailand, and Singapore.

suggest that forecast errors – at least those of inflation – play little role in determining the depth and duration of crises, an issue that may be well worth investigating. Of course, there is plenty more that we might learn about rationality from these data. In particular, by picking through the forecast errors we might learn whether forecasters tend to under-react or over-react to data releases, and to which data releases. Such information would surely be useful to central banks, helping them to better understand movements in inflation expectations.

Since inflation expectations do not seem to have been formed rationally, an obvious question to ask is whether the forecasts point to an alternative description of expectation formation. Are these expectations better described by adaptive/extrapolative expectations, adaptive learning (Evans and Honkapohja, 2001), sticky information (Mankiw and Reis, 2002), or rational inattention (Sims, 2003)? Of these, the sticky information model of Mankiw and Reis (2002) is particularly interesting since it is founded on a model in which there are heterogeneous agents possessing heterogeneous information.

The second issue that the paper investigates is whether there are spillovers of inflation from one economy to another. This question is interesting in light of ongoing concerns over whether easy monetary policies in the United States and Europe may trigger rises in inflation that spill over and push up inflation in other economies. For this exercise, economies are grouped together. One group collected together the inflation targeting economies (Australia, Korea, the Philippines, New Zealand, Thailand, and Indonesia). Another group collected together the economies with managed exchange rates (Hong Kong SAR, Malaysia, Singapore, and India). The large economies (China, Japan, and the US) were allowed to enter separately (the euro zone was omitted for this exercise). Averaging the inflation rates within each group and using a SUR-estimator, the paper found statistically significant spillovers from the large economies to the smaller economies in the sample. Delving deeper, the following interesting result emerges: while there is very little evidence of spillovers from the large economies to the group of inflation targeting economies, there is statistical evidence suggesting spillovers from the large economies to the group of managed exchange rate economies.

Whether an economy experiences spillovers, or inherits inflation from abroad, looks to be related to whether the economy has a floating or a managed exchange rate. Thus, much as economic theory would suggest, this paper finds that economies with floating exchange rates are better able to insulate themselves against external shocks, such as terms-of-trade shocks, as the exchange rate adjusts to compensate.

The third major issue that the paper looks into is inflation forecast disagreement and how this disagreement varies across economies and across time. Precisely how forecast disagreement for a given economy should be measured is not clear. One could, for example, use the inter-quartile range (Mankiw, et al 2003), but Siklos chooses to use a measure based on squared-deviations from a mean. While an inter-quartile range measure of disagreement can be problematic when the number of forecasts is small, a volatility-based measure can similarly be problematic when there are outliers. But using his volatility-based measure of forecast disagreement, Siklos obtains several interesting stylized facts. First, there is considerable forecast disagreement about one-year-ahead inflation for all economies. Second, inflation forecast disagreement looks to rise during recessions. Third, changing the benchmark from the mean forecast to the central bank's

forecast reveals that inflation forecast disagreement rises considerably during recessions, at least in most economies.

While the first two facts are perhaps to be expected, this third point is striking for a couple of reasons. First, it indicates that, contrary to Morris and Shin (2002), the central bank's forecasts do not appear to coordinate the forecasts of the private sector, at least in recession periods. Second, it suggests that central banks may have an even harder time managing inflation expectations during recessions than they do during ordinary times. Of course, the fact that there appears to be greater disagreement about the central bank's forecast during recessions leads to the obvious questions: whose forecasts prove to be more accurate and how can central banks usefully employ information on inflation forecast disagreement when conducting policy?

Why should we care about inflation forecast disagreement?

While the paper makes a compelling case that there is considerable disagreement about inflation forecasts in each economy, on the related issues of why we should care about this disagreement and whether policymakers can feasibly make use of this disagreement when conducting policy the paper is largely silent. This is unfortunate as these are important issues. One reason that we might care about inflation forecast disagreement is if the disagreement arises due to forecasters having private information. If private information is the source of the disagreement, then one wonders whether pooling the inflation forecasts might to some extent proxy for pooling the private information. Alternatively, prediction markets might usefully serve to pool the information.

Another reason that policymakers may care about inflation forecast disagreement is if the distribution of inflation expectations itself matters for economic outcomes. Managing inflation expectations through policy statements and forward guidance – challenging as it already is – is likely to become an even more difficult task when there is considerable inflation forecast disagreement, partly because the forecast disagreement could well signal that inflation expectations are not well anchored. This raises the obvious question of whether there is a connection in the data between inflation forecast disagreement and central bank credibility. To explore these issues, and whether they have implications for central bank credibility/communication, it seems important to understand the underlying sources of the inflation forecast disagreement (model disagreement, heterogeneous information, etc). A difficult task, to be sure.

Wrapping up

This paper gathers together an impressive amount of data on inflation and inflation expectations for economies in the Asia-Pacific region and provides an initial analysis of these data, focusing on three interesting and important questions. Where the finding that the inflation forecasts do not appear to be formed rationally is not surprising (in light of the large literature that finds similarly), the results relating inflation spillovers to exchange rate regimes and forecast disagreement to the

business cycle are very interesting and raise a lot of important issues for policymakers.

References

Evans, G., and S. Honkapohja, (2001), *Learning and Expectations in Macroeconomics*, Princeton University Press, Princeton.

Mankiw, N. G., and R. Reis, (2002), "Sticky Information Versus Sticky Prices: A Proposal to Replace the New Keynesian Phillips Curve," *The Quarterly Journal of Economics*, 117 (4), pp. 1295–1328.

Mankiw, N. G., Reis, R., and J. Wolfers, (2003), "Disagreement about Inflation Expectations," in: NBER Macroeconomics Annual, Volume 18, pp. 209–270, National Bureau of Economic Research, Inc.

Morris, S., and H. Shin, (2002), "The Social Value of Public Information," *American Economic Review*, 92 (5), pp. 1521–1534.

Sims, C., (2003), "Implications of Rational Inattention," *Journal of Monetary Economics*, 50, pp. 665–690.