The Economic and Social Review, Vol. 29, No. 1, January, 1998, pp. 99-102

Comment on "Dangers for Ireland of an EMU without the UK: Some Calibration Results" by Frank Barry

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In the October 1997 issue of this journal Barry set out a simple model of the Irish economy. The model was designed to quantify the possible effects on Ireland of sterling weakness, where Ireland is a member of the EMU and the UK remains outside. In calibrating this model Barry made extensive use of a range of research on the supply side of the economy undertaken over the past decade in the ESRI. Within his model he examined the possible effects on the economy of EMU membership where wages are slower to adjust to exchange rate shocks in a downward direction than in an upward direction. As he points out in his article, in a period of low inflation this possibility, if realised, would increase the cost of a major fall in sterling.

Barry's model is designed to measure the cost of the likely slow adjustment of domestic prices and wages to an external shock to the value of sterling. He uses the results presented in Baker, Fitz Gerald and Honohan, 1996, on the speed of adjustment of prices to exchange rate shocks, and he considers the effects on the adjustment process for wages of varying these results. While Baker *et al.*, found no evidence of Barry's hypothesised asymmetric response of wages to price shocks, such a response cannot be ruled out in the future and, as a result, the analysis is potentially interesting.

However, Barry's conclusions are faulty for three main reasons: he uses the wrong figures from the cited research to estimate the response of employment to a shock in real wages; he uses too high a weight on German prices in determining Irish consumer prices; and he oversimplifies the

conversion of the estimated cost of a specific shock into the option value of an independent exchange rate.

First, in using the results from previous research to calibrate his model he assumes that employment and output fully adjust to any competitiveness shock within one year; he has taken an *a la carte* approach to choosing individual coefficients from a series of different models. In doing so he is, by implication, imposing restrictions on the relevant models used to estimate the coefficients, restrictions which were rejected by the data in estimation.[1]

The research findings on the response of employment and output to changes in factor prices, which Barry used, were derived from models where firms' decisions on investment and future output capacity are forward looking; they form expectations about the future behaviour of wages and prices and, because of the high costs of adjustment, they move their capital stock slowly towards their long-term objective. Successive studies of the behaviour of the tradable sector of the economy have found that models which assume forward looking behaviour by firms provide the best fit to the available data (Bradley and Fitz Gerald, 1988, and Bradley, Fitz Gerald and Kearney, 1993). Specifically, Bradley, Fitz Gerald and Kearney, 1993, tried a model where capital adjusted instantaneously without success, whereas the model which assumed a slow response of the capital stock to shocks provided a satisfactory fit of the data. A similar approach was taken in Bradley, Fitz Gerald and Kearney, 1991, in estimating the elasticities for the services sector, which are also used by Barry.

In modelling the tradable sector the research, on which Barry relies, assumed that firms formed their expectations about future prices using an adaptive process. The model of factor demands was estimated using a temporary equilibrium formulation; in the short run firms cannot vary their capital stock or productive capacity but can vary their use of other inputs, including employment. This approach allowed the estimation of both the short-run and the long-run elasticity of demand for labour and output in the tradable sector. The model results showed a zero short-run own elasticity for labour in the tradable sector and a long-run net (output variable) own elasticity of -1, as used by Barry in his calibration. The results also indicated that firms closed around 10 per cent of the gap between their desired and their actual productive capacity (through investment or disinvestment) each year.

The logic behind such behaviour by firms is that they know that PPP holds in the long run and shocks to the real exchange rate, unless there are special reasons for believing them to be permanent, will tend to be discounted.

1. Bradley, Fitz Gerald and Kearney, 1993, footnote 13.

Because wages and prices, albeit adjusting slowly, will adjust much more rapidly than firms can adjust their capital stock and their productive capacity, the effects of which are seen to be essentially temporary shocks to the real exchange rate may be small. Under such circumstances it would be more appropriate to use the "short-run elasticities of demand" from Bradley, Fitz Gerald and Kearney (1993) rather than the long-run elasticities, which take at least 10 years to work themselves out. For the traditional manufacturing sector, which is most dependent on the UK market, the short-run elasticity of demand for labour is not significantly different from zero.

However, if some firms are already operating at a loss and are only continuing to operate because the cost of the capital stock is fully discounted, a shock could bring about their early demise (early scrapping of the capital stock). Alternatively, if the shock is large enough, firms, while believing themselves to be potentially profitable in the long run, may be unable or unwilling to finance a period of losses while wages and prices fully adjust. These possibilities are recognised on p. 119 of Baker, Fitz Gerald and Honohan (1996).

In Baker, Fitz Gerald and Honohan (1996), by contrast, full account is taken of the way firms form their expectations and of the slow speed of adjustment of the capital stock.

A second, less serious problem with Barry's calibration is the relatively high weight he applies to German prices in his equation for Irish consumer prices. The results in Baker, Fitz Gerald and Honohan (1996) suggest that Irish consumer prices are primarily driven by UK prices and the bilateral exchange rate. As a result, consumer prices in Ireland are likely to adjust more fully to a sterling shock than Barry suggests, with a consequential fuller adjustment of wage rates.

The third problem with Barry's article is his transition from calibrating the costs of a sterling shock to his conclusion about the implications for the Baker *et al.* (1996) quantification of the possible costs and benefits of EMU entry for Ireland. Appendix 6 of that report sets out a methodology (based on Gerlach (1995)) for estimating the value of an independent exchange rate. This takes account of the fact that shocks are of their nature uncertain, both in magnitude and in direction. Even if Barry were right in his quantification of the costs of a sterling shock, the difference between his estimate and the Baker *et al.*, estimate of the cost of such a shock cannot just be added to quantification of the costs and benefits of EMU entry. These costs and benefits represent the expected value (or cost) of losing an independent exchange rate where the potential shocks which face the economy in the future are uncertain. Under such circumstances, even if Barry were correct in quantifying the cost of a 20 per cent sterling depreciation, he would still be

incorrect in his conclusion "that employment losses could be more than twice as large as the ESRI study predicts" (Barry, 1997, p. 344).

Finally, while Barry's implementation of his model of how Ireland might be affected by an asymmetric response of wages to exchange rate shocks is flawed, he is correct to highlight the problems which such an eventuality would pose. If such an exchange rate shock were to occur in the context of a very low ambient level of inflation, there might well be significant adverse effects on the economy. However, in the light of the quantification in Baker *et al.*, 1996, it is clear that it would not greatly alter the conclusion that, faced with EMU, Irish entry, even without the UK, is likely to provide a small long-term benefit to the Irish economy.

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