

Modelling the transition to EMU

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EXECUTIVE SUMMARY

Aim of the study 1 This study is intended to inform discussion of the possible transition costs that would be incurred in the event of the UK economy entering EMU. More generally, the study aims to provide a conceptual framework for thinking about this type of regime change. It is based on two complementary modelling exercises, one stylised, another empirically based but still inevitably adopting a simplified version of the real world. These are designed to capture the key elements of the analysis of transition. And they are intended to inform the choices of policymakers in assessing the case for UK membership. This study is not concerned with microeconomic costs associated with the changeover to using euro notes and coins. And it does not examine the change in the ability of the UK economy to respond to ongoing shocks inside EMU compared to outside.

Defining transition costs 2 Transition costs are defined as those macroeconomic costs that arise for the UK economy in the process of moving from the current monetary regime of inflation targeting to a different regime where the UK is a member of EMU. They arise for two main reasons. Either it may be costly for the UK economy to adjust to the new medium-term equilibrium that EMU may imply. Or, even if EMU entry does not imply a changed equilibrium, the UK may already be in the process of responding to a shock and it may be more costly to adjust inside EMU.

Transition costs in the overall cost-benefit analysis of EMU 3 The study explains how ‘transition costs’ to the economy fit into the wider cost-benefit analysis of EMU. The key points are as follows:

- transition costs potentially form an important element of the overall cost-benefit calculus, and so should have a bearing on any decision about whether and when to join EMU;
- the neutral assumption would be that these costs are relatively short-lived, since in the long run it is typically assumed that the real configuration of the economy, and in particular the real exchange rate, will be determined by fundamental factors, in or out of EMU. But transitional influences would tend to get larger if the economy were subject to ‘hysteresis effects’, whereby large movements away from disequilibrium would have long-lasting or even permanent effects on the economy; and
- unlike most ongoing factors affecting the cost-benefit calculation, transition costs could be influenced by policy decisions regarding both the terms of entry and the timing.

4 If the UK were to enter EMU, the aim of policymakers would be to minimise the transition costs. The set of policy choices that would need to be taken to achieve this is referred to here as the ‘transition strategy’. The choice of euro-sterling conversion rate on entry is an important element of this, though not the only one.

Modelling a transition strategy 5 From the perspective of trying to model the process, this study provides a checklist of the decisions that would need to be taken in order to manage a possible transition into EMU most effectively for the UK economy. For the purpose of this study, the main choices defining the ‘transition strategy’ are as follows:

- an entry date;
- a nominal entry rate; and
- for cases involving a delay between announcing a decision to enter EMU and the intended date of entry, a well defined monetary policy strategy for the transition phase, possibly supplemented by a tailored approach to fiscal policy which would help to minimise the transition costs.

A two-pronged modelling approach 6 In analysing the transition problem, the study adopts a modelling approach that has two main stages:

- first, a stylised model is used to explain the conceptual considerations necessary in designing a transition strategy, and the analytics of EMU entry under alternative assumptions. The analysis begins with the simplest possible case, and then gradually builds on this through successive steps of making the problem more realistic and complicated; and
- second, the principles examined in the context of the stylised model are applied to an empirically based macroeconometric model. This allows an explicit ‘what if’ analysis under different assumptions regarding the terms and timing of any entry to EMU. And it shows how the predicted outcomes of different strategies are affected by different assumptions about the evolution of the fundamentals of the economy.

Lessons of stylised modelling approach 7 The stylised modelling exercise suggests that three considerations would be important in managing the transition were the UK to join EMU:

- the extent to which the UK’s prevailing inflation target was consistent with the ECB’s price stability strategy;
- the extent to which the *ex-ante* bilateral UK-euro area real exchange rate might deviate from medium-term equilibrium at the time of entry (where crucially *ex-ante* means the exchange rate that would have prevailed in the case where the UK stays outside EMU); and
- the extent to which wage and price stickiness would prevent the UK economy from immediately adjusting fully (and costlessly) to the new monetary regime.

8 In terms of the analytics of this study, it is shown that if there were complete cyclical convergence between the UK and euro area, if the real exchange rate were at its equilibrium level, and if target inflation were the same inside or outside EMU, then the transition to EMU would be costless. Neither inflation nor output would need to adjust as a direct consequence of locking the nominal exchange rate.

Implications of differing inflation targets **9** If the implicit inflation target inside EMU were for some reasons expected to be lower than outside, then the transition would only be costless under conditions of complete wage and price flexibility. In more realistic situations where inflation displays inertia, the transition to EMU membership would involve short-term inflation and output costs. The analysis suggests that it would probably be less costly in terms of inflation and output volatility to bring about the required disinflation *in advance* of entering EMU.

Implications of ex-ante disequilibrium in exchange rate **10** The implications of EMU entry when the *ex-ante* exchange rate is away from long-run equilibrium are more complicated. In principle, it would be possible to choose the entry rate so as to relocate the exchange rate back at its long-run equilibrium. But the analysis suggests that this may not necessarily be appropriate. Instead, the optimal choice of entry rate would significantly depend on why the exchange rate was away from its equilibrium in the first place:

- if the disequilibrium were caused by a financial market bubble or risk premium shock associated with sterling, this would by definition disappear on EMU entry. This would point to a strategy of choosing a rate at or near the long-run equilibrium rate; but
- if the disequilibrium were caused by a real demand or supply shock temporarily driving the real exchange rate away from its long-run equilibrium over the short to medium term, then a choice of entry rate that attempted to override this might not be successful. The warranted short-run real exchange rate would tend to reassert itself via changes in UK inflation relative to the euro area.

11 One policy implication from this part of the analysis is that there is not a straightforward mapping between empirical estimates of the long-run equilibrium exchange rate (as described in the EMU study by Professor Simon Wren-Lewis *Estimates of equilibrium exchange rates for sterling against the euro*) and the ideal entry rate. Moreover in practice, quite apart from the problems of forming a reliable judgement on the extent of disequilibrium in the real exchange rate, it may be hard to distinguish between the contribution of real and financial shocks. This adds to the risks surrounding the development of a transition strategy.

An empirically-based modelling approach **12** The practical problem facing policymakers designing a transition strategy is how to apply the principles underpinning the stylised analysis. This is facilitated in this study by using an empirically estimated macroeconometric model, the National Institute Global Econometric Model (NiGEM). This is designed to capture how the UK economy interacts with the euro area economy and the rest of the world in response to various shocks. It can be used to construct alternative scenarios under different assumptions about the terms and timing of any UK entry into EMU. And these scenarios can be compared with the baseline case of maintaining an independent monetary policy.

Empirical prerequisites **13** Following on from the stylised analysis, two sets of simplifying assumptions in the empirically based modelling analysis are important in influencing the results.

14 The long-run level of short-term interest rates is assumed to be equal in the UK and the euro area whether the UK is in EMU or not. This relies on two assumptions. First, that the UK's RPIX inflation target of 2.5 per cent is roughly equivalent to 2 per cent on the HICP definition, which is in line with the outturns seen in the euro area since the start of EMU. And second, that real interest rates in the UK and the euro area will be equal in capital markets where capital is highly mobile.

15 Regarding the expected equilibrium level of the euro-sterling real exchange rate, two alternative baseline scenarios are considered:

- first, it is assumed that the real exchange rate is sustainable around levels prevailing at the assumed time of EMU entry on the model; and
- second, an alternative assumption is adopted where the medium-term equilibrium exchange rate is assumed to be much lower than prevailing levels.

16 No attempt is made to evaluate these alternative assumptions in this study. This is left to the assessment of the five tests itself. But the judgment is important because, as this study demonstrates, different assumptions about the expected behaviour of the real exchange rate outside EMU have an important bearing on the predicted implications of any given transition strategy.

Scenario analysis 17 Within this empirical framework, a range of alternative scenarios is examined. In doing so, the study deliberately abstracts from the details of the Government's actual policy on EMU, for example relating to the requirement that a Government decision to join is affirmed by Parliament and by the British people in a referendum. This is consistent with the explicit focus of this study on modelling various transition scenarios rather than trying to replicate the real world circumstances of policy.

18 The stylised assumption is made that any decision to enter EMU would take place in 2003Q3. EMU entry itself would take place as soon as practically feasible thereafter, here assumed to be in 2005Q1, although the implications of considering a later entry date are also drawn out.

19 Two alternative entry rates are considered:

- 1.50 €-£, a nominal rate consistent with that expected to prevail on the first baseline scenario at the time when EMU entry would be envisaged, i.e. in 2005Q1; and
- 1.37 €-£, a rate consistent with the estimate of the medium-term equilibrium exchange rate underpinning the second baseline scenario, as put forward in the EMU study *Estimates of equilibrium exchange rates for sterling against the euro* by Professor Simon Wren-Lewis.

20 Under these modelling assumptions, a range of monetary-fiscal transition strategies is described:

- one option involves immediate convergence of the nominal exchange rate to the required entry rate. This implies that UK interest rates should also immediately move to euro area levels, given the maintained assumption of uncovered interest parity (UIP) in financial markets, whereby the exchange rate moves to compensate for any interest rate differential; and
- an alternative option involves a gradual convergence to the required entry rate. Given UIP, this would allow UK interest rates to be held higher than ECB rates until the point of entry.

21 The **fiscal policy** element of the transition strategy is assumed to entail:

- either simply allowing the automatic stabilisers to operate ‘passively’; or
- alternatively, allowing fiscal policy to be set in a ‘discretionary’ manner to mitigate any inflationary or deflationary aspects of the transition. Active fiscal policy is assumed to involve either changes in government spending on goods and services or changes in personal income tax rates. The analysis sets to one side the practical problems of operating discretionary fiscal policy. Such issues are considered in the EMU study *Fiscal stabilisation and EMU* by HM Treasury.

Conclusions... **22** Inevitably, the predictions from any empirically estimated model are subject to considerable uncertainty, so the precise results need to be treated with caution. Nevertheless, to the extent that the scenario analysis provides a particular illustration of the more general principles explained in the stylised analysis, a number of potentially important policy implications seem to emerge which are for the assessment of the five tests to address.

...under assumption that real exchange rate level is sustainable... **23** Under the assumption that the current strength of the real exchange rate is broadly sustainable:

- entry into EMU at a level close to prevailing levels would appear to be comparatively costless relative to the baseline case where the UK stays out. Even if interest rates were cut to euro area levels immediately, and if the exchange rate were assumed to fall to its entry rate immediately, then the predicted effect on inflation and output would be rather moderate;
- if, instead, a low entry rate is mistakenly chosen, the transition path would be likely to imply higher inflation and greater output volatility. This is because this rate would be considerably below the equilibrium rate. This could be partly moderated by having either tighter monetary policy during the pre-entry period or a significant fiscal tightening over the transition. But for all such cases, the analysis points to outcomes that would be considerably worse than either the option of staying out or of joining EMU at prevailing rates.

...or that real exchange rate depreciates over transition **24** Under the alternative assumption that the real exchange rate is expected to depreciate outside EMU towards a medium-to-long term value of the equilibrium rate:

- under this set of assumptions, entry at an exchange rate close to prevailing rates would now imply deflationary pressure in the UK relative to the case outside EMU where the real exchange rate was expected to depreciate. With nominal exchange rate adjustment ruled out, the required depreciation of the real exchange rate would need to come about solely through lower inflation in the UK than in the euro area. And to achieve this, given that wages and prices are typically slow to adjust, this would require a period where UK output would need to operate below potential. This would need to be sustained for as long as would be necessary to bring down the UK price level to levels consistent with the lower required real exchange rate; but

- importantly, immediate entry at the long-run equilibrium rate would not necessarily be costless either. Provided the forces underpinning the prevailing exchange rate were set to persist beyond the near term, the immediate effect of a lower entry rate would be inflationary just as before. As before, fiscal or monetary policy can be used to dampen this effect. And because the real bilateral exchange rate is expected to depreciate anyway, the scale of this tightening does not need to be as large as in the earlier case;
- even so, when the real and nominal exchange rate is expected to depreciate to its medium term equilibrium value outside EMU, there may be a less costly transition strategy. This would be where entry to EMU is delayed until the required depreciation of the real exchange rate has taken place.

25 Although the model-based scenarios of this study have been carried out under particular assumptions about the assumed baseline path outside EMU, and under different transition strategies, the analysis of this paper is of more general use. It is intended to provide a toolkit for policymakers to allow them to apply the underlying economic principles to the transition problem, however the economy looks at that time and whenever it is carried out. The key insight is that entry conditions should be chosen to be as appropriate as possible to limit the transition costs. It has shown that consideration of monetary and fiscal policy strategies may facilitate adjustment but these will not eradicate costs arising from poor initial conditions. The trade-offs arising from these different options are for the assessment to consider.

26 This study informs the assessment of the convergence test, the first of the Government's five economic tests for EMU entry; the flexibility test, the second test; and the growth, stability and jobs test, the fifth test.