A comparison of structural reform scenarios across the EU member states - Simulation-based analysis using the QUEST model with endogenous growth

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Higher growth and employment fostered by the adoption of structural reforms are the key priorities of the Lisbon strategy. This paper uses the dynamic stochastic general equilibrium model (DSGE) described in Roeger, Varga and in 't Veld (2008) to analyse the effects of a series of structural reforms (in particular, R&D promoting policies, product market reforms and labour market reforms) in the individual EU member states.

DSGE models have been widely used in recent years for the assessment of the effects of policy measures. In these models, the behavioural equations are derived from intertemporal optimisation under technological, institutional and budgetary constraints subject to nominal, real and financial frictions. The model employed in this paper is an extension of the QUEST III model used by the Directorate-General for Economic and Financial Affairs of the European Commission to include semi-endogenous technological change, which is modelled following the Jones (1995) product-variety framework, where investment in R&D is the result of the intertemporal optimisation decisions of economic agents.

The model allows to explicitly analyse the effects of the reforms in terms of concrete and quantifiable policy measures, in particular fiscal policy instruments such as taxes, benefits,

subsidies and education expenditures, administrative costs faced by firms and regulatory indices. This makes the model a useful tool for analysing the costs and benefits of structural reforms at the member state level.

In this paper, the model is calibrated for each individual EU member state. The model is then used to analyse the following reform scenarios (as discussed in Roeger, Varga and in 't Veld, 2008): increasing knowledge investment through tax credits and wage subsidies, increasing competition in product markets, addressing financial market imperfections and therefore reducing capital costs, reducing entry barriers in certain markets, adopting labour market reforms which translate into a reduction of wage mark-ups, tax shifts, variations in unemployment benefits generosity and changes in the skill composition of the labour force.

In our simulations, the effects of structural reforms show large variations across the member states. We carry out a multiple regression analysis to explore the most important factors driving the differences in the country-specific simulation results. We find that less R&D intensive countries benefit the most from R&D promoting and skill-upgrading policies. We also confirm the finding of Roeger, Varga and in 't Veld (2008) that the effect of reducing price mark-ups is not unambiguous and depends on the sector in which it occurs. In Jones (1995) semi-endogenous framework the mark-ups in the intermediate goods sector cover the costs associated with acquiring a patent when entering the market. Therefore, a reduction in mark-ups can have a negative impact on growth and employment if it reduces the entry rate of new firms. We also find that shifting from labour to consumption taxes, reducing the benefit replacement rate and relieving administrative entry barriers are most effective in countries facing high labour taxes, low employment rates and high entry barriers.