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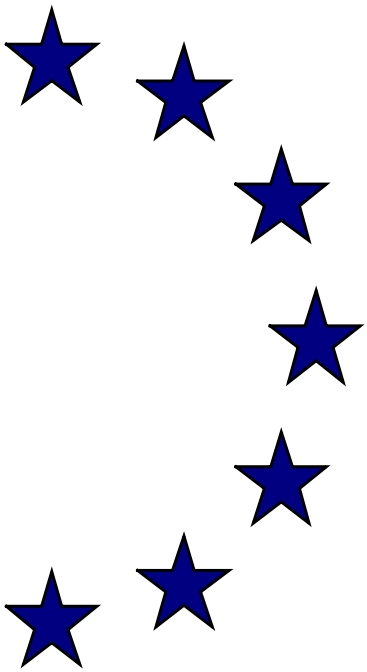

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Some selected simulation experiments with the European Commission's QUEST model

by
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1. Introduction

This paper presents a set of simulation experiments using the European Commission's QUEST model to evaluate the effects of policy impulses and permanent supply side shocks in the four major EU economies. The simulation analysis illustrates the transmission mechanisms of specific monetary and fiscal policy shocks as well as two examples of permanent supply shocks. The simulations presented here were performed for a model evaluation project, organised by the Center for European Integration Studies (Bonn) and the CEPR, for which standardised shocks were agreed to facilitate comparison among models.

The first section provides an overview of the model, its coverage and a brief description of its main features. This section also describes the monetary policy rule that was agreed for this exercise to allow comparability with the other models. The following sections presents the results for the specific monetary and fiscal shocks and the two permanent supply shocks.

2. The QUEST model

This section provides an overview of the QUEST model and its main features[1]. The focus of the model is on the transmission of the effects of economic policy both on the domestic and the international economy. The model was constructed to serve as a tool for policy simulation and is not used for forecasting. Its main purpose is to analyse how effects of policy actions are transmitted over the medium term.

The model can be characterised as a New Neoclassical-Keynesian synthesis model, which combines the rigours of dynamic general equilibrium models with features of Keynesian style rigidities. The behavioural equations in the model are based on principles of dynamic optimisation of private households and firms. Economic agents are assumed to maximise utility and profit functions subject to intertemporal budget constraints and consumption and investment decisions therefore incorporate forward looking behaviour. Economic theory not merely determines the long-run model properties, but also drives its short run dynamics. The dynamic responses of the model have a theoretical basis, like the presence of adjustment costs and overlapping contracts, and adding *ad hoc* dynamics has been avoided as much as possible.

The supply side of the economy is modelled explicitly via a neo-classical production function. This assures that the long run behaviour of the model resembles closely the standard neo-classical growth model and the model reaches a steady state growth path with a growth rate essentially determined by the rate of (exogenous) technical progress and the growth rate of the population.

[1] For a more detailed description, see Roeger and in't Veld (1997)
http://europa.eu.int/comm/economy_finance/publications/economic_papers/economicpapers123_en.htm

There are two major departures from the neo-classical model in the long run. Because firms are not perfectly competitive but can charge markups over marginal cost in the long run, the level of economic activity will be lower than that predicted from a model with perfect competition. Also, a bargaining framework along the lines of Pissarides (1990) is used to describe the interaction between firms and workers. Labour market rigidities and therefore involuntary unemployment persist even in the long run and the model economy will therefore not reach a steady state equilibrium with full employment. The short run behaviour of the model is influenced by standard Keynesian features since the model allows for imperfectly flexible wages and prices, liquidity constrained consumption, adjustment costs for investment and labour hoarding.

Description of model structure

Consumption specification

The specification of consumption and saving behaviour in the model is based on the concept of intertemporal utility maximisation of households, as formalised by Blanchard (1985) and Buiter (1988). It is a generalisation of the Permanent Income Hypothesis, since it allows for the analysis of consumption and saving behaviour of households under possibly only a finite planning horizon (positive probability of death). Consumers decide how much to consume and how much to save each period by maximising the present discounted expected utility from the consumption stream subject to their intertemporal budget constraint. Under the assumption of isoelastic or constant relative risk aversion (CRRA) utility, the consumption function, i.e. the optimal consumption rule for the household's optimisation problem, depends on human wealth *H* and financial wealth *F* and the marginal propensity to consume out of total wealth δ is a function of the rate of time preference θ, the probability of death p, the intertemporal elasticity of substitution σ and the real interest rate *r* at period t

$$C_t = \delta(\theta, p, \sigma, r_t)[H_t + F_t]P_t / PC_t \qquad (1)$$

Human wealth *H* is the present discounted value of the entire future stream of after-tax income (including benefits *U.ben*)

$$H_t = E_t \sum_{j=0}^{\infty} b_{tj}\left[(1-t_l)L_{t+j}w_{t+j} + U_{t+j}ben_{t+j}\right]$$

and financial wealth *F* equals the sum of the total equity wealth *V,* bonds and net foreign assets *NFA*

$$F_t = V + B + M + NFA$$

Equation (1) above assumes all consumers can freely substitute consumption today for consumption in the future at the going real interest rate. In reality, not all people may be

able to borrow against their future income due to capital market imperfections and as a result they will not be able to smooth their consumption over time. These 'liquidity constrained' consumers cannot achieve intertemporal optimisation and their consumption is better represented as a function of current real disposable income ('rule-of-thumb' consumers). In the model, total consumption is therefore represented as the aggregation of the responses of two groups of consumers, one forward looking group of consumers who follow the optimal consumption rule (1) and another group that does not obey the life cycle/permanent income hypothesis and whose consumption depends on current disposable income

$$C_t = (1-\lambda) * \delta(\theta, p, \sigma, r_t)[H_t + F_t] + \lambda * Ydis_t \qquad (1b)$$

where λ is the share of liquidity constrained consumption and *Ydis* current real disposable income.

Intertemporal substitution constitutes an important stabilising feedback, as a rise in interest rates can induce consumers to postpone consumption. When other components of aggregate demand rise, an increase in interest rates reduces consumption and the effect on total output is dampened. Consumption smoothing is an essential feature of this consumption specification. If households expect a temporary decline in their income they will according to this hypothesis mainly react via a reduction in their savings rate. Alternatively, if they expect an increase in their future net income, e.g. because of credibly announced tax reductions, the current savings rate may also fall, i.e. consumption may already increase in the present period in anticipation of higher future income.

Empirical studies using aggregate time series data have generally found evidence of "excess sensitivity" to income and concluded that a significant share of consumption is "liquidity constrained" (e.g. Campbell and Mankiw (1989,1991)). However, the range of estimates of the share of rule-of-thumb households vary widely and is sensitive to the assumed household utility function.[2] Studies using aggregate time series have also tend to find estimates of the elasticity of intertemporal substitution that are small (e.g. Hall (1988)). On the other hand, studies based on micro household survey data, have generally found much stronger support for the life cycle model, and often no evidence of liquidity constrained consumption. They also find higher estimates for the elasticity of substitution (e.g. Attanasio and Weber (1993,1995), DeJuan and Seater (1999)). The estimates used in the model lie within the range found in the empirical literature: the values for the share of consumption that is liquidity constrained is around 30%, while the elasticity of intertemporal substitution for that fraction of consumption that obeys the life cycle model is around 0.5.

Production

[2] E.g. Weber (2002) finds the share never to be statistically significant when allowing for intertemporal non-separability in the utility finction.

Firms operate in a monopolistically competitive environment. Private sector GDP Y_t is produced via a nested CES and Cobb Douglas production function with capital K_t, energy E_t and private sector employment L_t as inputs. The variable T_{Kt} represents an efficiency index for the fixed capital stock and the variable T_{Lt} represents labour augmenting technical progress. The following equation describes potential output $YPOT_t$ of the corporate sector under the assumption that all factors of production are fully utilised.

$$YPOT_t = \left(\left[aK_t^{-\rho} + (1-a)E_t^{-\rho} \right]^{-1/\rho} T_{Kt} \right)^{(1-\alpha)} \left(L_t T_{Lt} \right)^{\alpha} \qquad (2)$$

Labour augmenting technical progress grows with an exogenous rate and the efficiency index for capital T_{Kt} is a function of the mean age of capital and captures embodiment effects resulting from current and past investment. Firms may not always operate at full or optimal capacity, therefore actual output can differ from potential output. The objective of the firm is to maximise the present value of its cash flow (total revenue minus costs), subject to a capital accumulation constraint and costs of adjustment associated with capital and labour. The solution of the maximisation problem gives the behavioural equations for investment, employment and energy.

Investment

Firms maximise profits by buying labour services from households and renting capital to produce output. The investment demand equation is the optimal rule for the firms' optimisation problem. The model specification is based on a framework that extends the neo-classical model of investment by incorporating adjustment costs [3]. The neo-classical model of investment can be linked to Tobin's Q-model, which couples investment decisions to forward-looking stock market valuations of the firm. According to this hypothesis, investment is determined by the gap between the market value of a firm and the replacement value of its capital. The ratio between these two variables is referred to as Tobin's-Q. This model can be derived from the neo-classical theory if it is assumed that investment is subject to adjustment costs, which are a convex function of the rate of change of the firm's capital stock. Firms face such adjustment costs when changing their capital stock, as there are disruptions to the existing production process: installation of new capital can be costly, workers may have to be retrained, etc. Convexity implies that these installation costs increase at an increasing rate and a too rapid accumulation of capital is more costly.

[3] The standard neo-classical model is an essentially static framework, with firms equating current marginal product of capital to current cost of capital. The underlying assumption is that firms can adjust their capital stock instantaneously and without costs. Even though dynamics is often added to reflect delays in decision making, production and deliveries, such added lags are purely *ad hoc*. Moreover, the standard model ignores the forward looking nature of capital accumulation. Estimated dynamic coefficients derived from the neo-classical model can not be linked explicitly to underlying technology and expectation parameters and are therefore vulnerable to the Lucas Critique.

Total real investment expenditures are equal to investment purchases J_t plus the costs of installation. The unit installation costs are assumed to be a linear function of the investment to capital ratio. Total investment expenditure I_t can be written as

$$I_t = J_t\left(1+(\phi/2)\left(\frac{J_t}{K_t}\right)\right)\frac{PI_t}{P_t} \qquad (3)$$

where ϕ is the adjustment cost parameter, K the capital stock and PI_t/P_t denotes the relative price of investment goods relative to the GDP deflator.
The optimisation problem yields the following investment rule

$$I_t = \frac{1}{\phi}\left(\frac{q_t}{(PI_t/P_t)}-1\right)K_t \qquad (4)$$

The shadow price of capital q is equal to the marginal product of capital plus any anticipated future events which are expected to influence the marginal product after period t. It is a function of current and discounted future expected profitability, including adjustment costs, and adjusted for profit taxes tc and monopoly rents. This representation of q allows us to interpret it as reflecting the present discounted value of the marginal revenue from current investment and illustrates the forward looking nature of capital accumulation. Central to investment decisions are expectations about future demand conditions and costs.

The adjustment cost parameter ϕ has a crucial effect on the volatility of investment. Estimates show some variation between countries, with the lowest estimate found for the United States. They imply that adjustment costs amount to about 10 per cent of total investment expenditure. This is consistent with estimates found in other studies based on aggregate and firm-level data (e.g. Eberly (1997), Cummins et al. (1997)).

Labour Market:

The labour market specification is based on theoretical search models of the labour market as developed e.g. by Pissarides (1990). The basic incentive for search activities in the labour market by both workers and firms are the profit opportunities in present value terms which are associated with a successful job match for both parties. Wages are determined by an implicit bargain at the individual level, *i.e.* the firm engages in Nash bargains with each individual worker by taking the wage of all other employees as given. Thus, wage contracts are set such as to maximise the product of their respective profit opportunities. In the case of households, this is given by the difference between the present value of labour income a household can earn in the case of a successful current job match (net wages), versus the net present value of labour income in case of a failure (the reservation wage, *i.e.* unemployment benefits and/or the value of leisure). Arbitrage equations for the returns from their respective human capitals incorporate the expected capital loss from a job separation, and the expected capital gain from finding a job, depending on labour market tightness. For the firm, the return from a successful job

match is given by the real pure profit of a firm per employee, the difference between the return of an occupied position and the costs of a vacant position. The wage rule is then the outcome of the maximisation of the product of both parties' profit opportunities and how much of the total return of a successful job match goes to each party depends on their relative bargaining position.

$$W_t = \frac{(1-\beta)}{(1-tl)} Z_t + \beta \left\{ (\alpha + \eta(1-\alpha)) \frac{Y_t}{L_t} + \frac{prob(.)vc_t}{q(.)} \right\} \qquad (5)$$

where β is the relative bargaining strength of workers, *tl* the labour income tax rate and *Z* the reservation wage (unemployment benefits). The last term in brackets reflects the probability of finding and quitting a job for an unemployed/employed person and the vacancy costs incurred by the firm, and this is assumed to depend on labour market tightness (unemployment rate).

Nominal rigidities are introduced into the wage setting process through the assumption of wage staggering, as suggested by Taylor (1980). Contracts last for 4 periods (quarters) and at each date, exactly one quarter of all workers signs a new contract with firms. At each date *t* firms bargain with one quarter of the work force over a nominal wage contract, which will remain fixed for one year. Wage contracts in the current period are thus indexed to an average of the current price level and expected price levels for three consecutive periods. They are further determined by labour productivity *Y/L* , the reservation wage *Z*, vacancy costs *VC* and labour market tightness in the current and three consecutive periods.

This wage rule exhibits the feature that the importance by which the marginal product of labour and labour market tightness influence the level of current wage contracts, depends positively on the bargaining power of workers. As the bargaining strength of workers diminishes, firms can tie wages more narrowly to the reservation wage. The average nominal wage rate in period *t* is thus given by the average value of all wage contracts signed in the current and the previous three periods

Pricing behaviour

The version used in this paper has a hybrid version of forward and backward looking pricing behaviour (Gali, Gertler 1999). It derives price setting behaviour as the product of optimisation by monopolistically competitive firms subject to constraints on the frequency of price adjustment. It allows for a "cost-push" effect influenced by expected inflation, which makes inflation a forward looking phenomenon. However, it is assumed that a fraction of firms uses a backward looking rule of thumb (Gali, Gertler, Lopez-Salido, 2001).

Government:

Governments follow exogenously given spending patterns. Government expenditure is divided into unemployment benefits, purchases of goods and services, government wages, investment expenditure, transfers to households and interest payments on government debt. Revenues are divided into labour income taxes (including social security contributions), corporate profit taxes, value added taxes, energy taxes and other receipts (lump sum tax)

A debt rule is imposed in order to make the evolution of the government budget sustainable. In default setting, it is lump sum taxes that adjust proportionally to the gap between the debt to GDP ratio and its target level b_0 according to

$$\Delta T_t = \varphi_1 (b_0 - B_t / Y_t) - \psi_2 \Delta (B_t / Y_t). \qquad (6)$$

Financial markets

Asset markets are assumed to be fully integrated across all the industrialised regions covered in the model, i.e. there is full capital mobility. Exchange rates between European currencies, US dollar and the yen are fully flexible. The exchange rate *e* , expressed as the amount of domestic currency per unit of foreign currency, is determined endogenously according to the following (uncovered) interest arbitrage relation with respect to the dollar

$$i_t^j = i_t^{us} + E_t \left[\frac{\Delta e_{t+1}}{e_t} \right] + risk_t \qquad (7)$$

The second term on the right hand side denotes the expected depreciation of the currency vis-à-vis the US dollar. The risk premium *risk* is assumed to be exogenous and reflects, among other factors, the markets' perception of the risk differential between assets denominated in the two currencies.

The impact of shocks in the model depends to a large extent on the response of the monetary authorities and the expected future monetary stance. The model can be simulated under alternative monetary policy assumptions, and short term interest rates can be set to target the money stock, an inflation target, or in accordance to some formulation of a Taylor rule. The standard setting in the simulations for this paper is based on an agreed policy rule which assumes that the monetary authorities adhere to an inflation forecast based rule

$$rs_t = rr^{eq} + \inf_{t+1} + a(\inf_{t+1} - \inf^{target}) + bGAP \qquad (8)$$

where the equilibrium real rate is taken from the steady state model solution (here shocks were designed in such a way that the ss real interest rate was unchanged). The weight given to expected inflation (*a=1*) is much larger than that to the output gap (*b=0.25*). It is assumed that of the three EU member states not participating in EMU, Denmark

follows the ECB and keeps the interest rate differential vis-à-vis the euro-area constant, while Sweden and the UK have an independent monetary policy and floating currencies against the euro.

International trade

The model consists of structural models for each of the EU member states, the United States and Japan, while the rest of the world is modelled through smaller trade feedback models, determining imports, exports and the evolution of net foreign assets (see Box 1). It is assumed that each country or region produces a product which is an imperfect substitute for the products of other regions. Trade volumes are simple functions of demand and relative prices. Competitors prices for each country are constructed as a weighted average of import prices, where the weights denote the share of the individual exporting country in total imports of the importing region. World demand for an individual country is defined as a weighted average of total imports with the weights representing the share of the exporting country in total imports of the importing country or region.

Box 1: Countries and Zones in the Quest II model

Complete country models

1.	**BE**	Belgium-Luxembourg Economic Union (BLEU)
2.	**DK**	Denmark
3.	**DE**	FR of Germany
4.	**GR**	Greece
5.	**ES**	Spain
6.	**FR**	France
7.	**IR**	Ireland
8.	**IT**	Italy
9.	**NL**	Netherlands
10.	**OS**	Austria
11.	**PO**	Portugal
12.	**SF**	Finland
13.	**SW**	Sweden
14.	**UK**	United Kingdom
15.	**US**	United States of America
16.	**JA**	Japan

Country trade-feedback models

17.	**CA**	Canada
18.	**AU**	Australia
19.	**NO**	Norway
20.	**CH**	Switzerland

Zone trade-feedback models

21.	**RO**	The rest of the OECD countries (ex PL):	Korea, Iceland, Mexico, New Zealand, Turkey
22.	**OP**	OPEC:	Algeria, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates, Venezuela
23.	**CE**	Central and Eastern European Countries:	Bulgaria, Czech Republic, Slovakia, Hungary, Poland, Romania, Slovenia, Estonia, Latvia, Lithuania
24.	**SU**	Former Soviet Union	Russia, Ukraine, Rest of FSU-10
25.	**DA**	Dynamic Asian Economies	Hong Kong, Malaysia, Singapore, Taiwan, Thailand
26.	**OA**	Other Asia	Bahrain, Bangladesh, China, Fiji, India, Israel, Jordan, Nepal, Oman, Pakistan, Papua New Guinea, Philippines, Sri Lanka, Syria
27.	**LA**	Other Latin America and Africa	All countries of Latin America and Africa not listed elsewhere

3. Policy Simulations

This section presents the simulation experiments that were agreed for the model comparison project. The shocks were standardised to facilitate comparison between the models participating in the exercise. Although the shocks are of a very specific design, the experiments presented here show the transmission mechanisms of these types of shocks and illustrate the dynamic properties of the model.

In models which embed a high degree of forward looking behaviour by economic agents, the outcome of shocks depends to a large extent on the specific design of the experiment. For instance, the monetary policy assumption matters greatly, not only in the short run, or while the impulse lasts, but also in the long run. The effects of a shock can be very different depending on whether the monetary authorities are pursuing a policy stabilising inflation, the price level, or some combination of an output gap and inflation (backward or forward looking) and expectations of the monetary policy stance in the future affect the outcome in the short run. Concerning fiscal policy, results differ depending on which policy instrument adjusts to stabilise the debt to GDP ratio. The standard assumption in the model, and applied here, uses non-distortionary lump-sum taxes, but this is merely for illustrational purposes, and in reality an adjustment to distortionary tax rates may be more likely (or a change in an expenditure component), with potentially very different results. On the whole, results are also conditional on the duration and persistence of shocks, and expectational effects are crucial. Hence, it would be misleading to suggest that the results of the scenarios presented below can be used to calculate general "multipliers" and that these could be applied as "ready reckoners". Such standard general model multipliers do not exist and the effects under slightly differently designed shocks may be very different.

Monetary policy shock

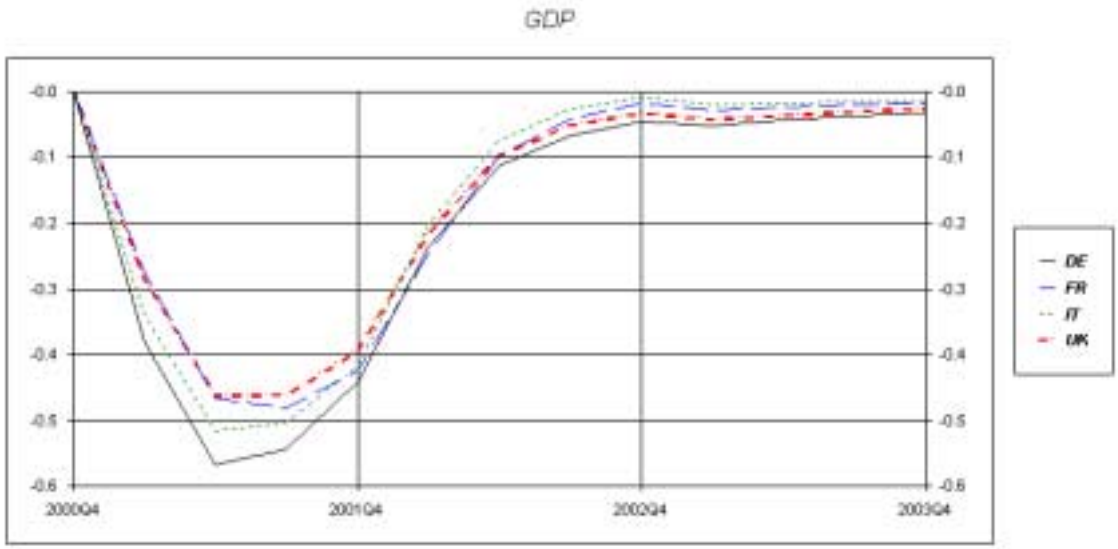
The specific monetary policy shock considered here is a temporary increase in short term interest rates by one percentage points for a period of one year. After that year, monetary policy returns to its normal setting, targetting expected inflation and the output gap, as specified by the rule described above. Two different scenarios are considered. In the first the shock is applied to all countries in the model ("world-wide" shock), while in the second (EMU shock) interest rates are increased in the euro area only.

Table 1 reports the effects of a shock of 100 basispoints to interest rates in all countries in the model, *i.e.* the euro area, Denmark, Sweden and the UK, as well as the US and Japan. Technically, in this simulation the interest rate rule is switched off for the duration of one year and a residual, equivalent to 100 basispoints, is added to the equation. In the second year, monetary policy responds by lowering interest rates slightly below base to counteract lower inflation and output, which persists partially in the second and following years after the shock. Although the reduction in interest rates in the second year is

modest, only 0.16 percentage points, it is anticipated by households and firms as it influences their expectations in the first year.[4]

The effects of this temporary hike in interest rates are fairly similar for all countries. In this scenario, GDP falls by between 0.4 and 0.5 per cent below base in the first year. Households reduce their consumer spending as the increase in interest rates reduces human and financial wealth. Liquidity-constrained consumers also cut back their expenditure as disposable income falls. Firms respond to the hike in interest rates by reducing their investment spending. In terms of contributions to GDP, the decline in investment is stronger than that in consumption. The decline in investment spending weighs strongest in Germany, which has a relatively high share of private investment in GDP. While the differences in the overall GDP effects between countries are small, output is least affected in the UK where the smaller effect on investment spending more than offsets the higher sensitivity of consumers' expenditure. There is a small positive contribution of net exports to GDP as the euro depreciates slightly in effective terms in this scenario. But the simulations reported here assume no changes in the rest of the world, and fixed exchange rates vis-à-vis the US dollar, hence this scenario takes only the direct trade feedback into account.

Graph 1 Effects of a temporary 1%-point increase in interest rates



Note: GDP % differences from base (solid line DE, dashed line FR, dotted line IT, dash-dotted UK). Shock is a 100bp increase in interest rates 2001Q1-Q4, endogenous interest rates afterwards.

[4] Note also that the long term rate (10 years), modelled as the forward convolution of short term interest rates for 10 years ahead, increases by less than 0.1 per cent.

Note that with this particular interest rate rule, the temporary hike in interest rates implies a *permanent* monetary contraction in the long run, as it is followed by a regime in which (expected) inflation is targetted. For the euro area, the scenario implies a permanent monetary contraction of 0.21 per cent. Hence, the price level does not return to base but ends up 0.21 per cent lower in the long run. The increase in interest rates leads to a higher debt servicing cost for governments, which is reflected in higher deficits and higher debt-to GDP ratios. However, this effect fades away gradually as the interest rate hike lasts only one year. The increase in the deficit is largest in Italy, which has a larger public debt stock.

The simulation results for an interest rate shock in the euro area alone are presented in Table 2. Interest rates in the euro area countries are raised by 100 basispoints for the duration of one year. This is followed in the second year by a small reduction of 16 points below base. The impact of this shock on GDP is larger, on average 0.57 for the euro area as a whole. Like in the first scenario, consumption and investment both fall, while there is now also a small negative contribution from net exports as the euro appreciates by 0.70 per cent against the dollar. The interest rate assumption of targeting expected inflation in following years implies the price level is stabilised roughly at the level reached after the second year. This temporary increase in interest rates therefore corresponds to a permanent monetary contraction of 0.3 per cent in the long run. The differences among largest 3 countries are negligible, with the possible exception of the larger rise in debt servicing costs in Italy. A temporary interest rate increase like this has no long run real effects in the model.

These results suggest that the effects of temporary interest rate changes can be significant, and that monetary policy can be an effective stabilisation tool in the model. But these simulations show experiments in which the central banks deviate from their "normal" practice of targeting a combination of (expected) inflation and output and in effect raise rates by a full percentage point more than justified on the basis of these fundamentals. It is not directly possible to compare the outcomes of artificial model scenarios like these to the findings from empirical studies. The evidence from studies using VARs is not conclusive as they are subject to identification problems. It has proved hard to interpret the interest rate response to unforecastable movements in money, while when interest rate innovations are used directly the price response has been hard to interpret. But several studies have found substantial effects of monetary innovations.[5]

[5] For example, Canova and De Nicolo (2000), using an identification approach based on cross correlations, find a significant role of monetary shocks with an immediate impact on GDP and inflation (with a peak after 6 months).

Fiscal shock

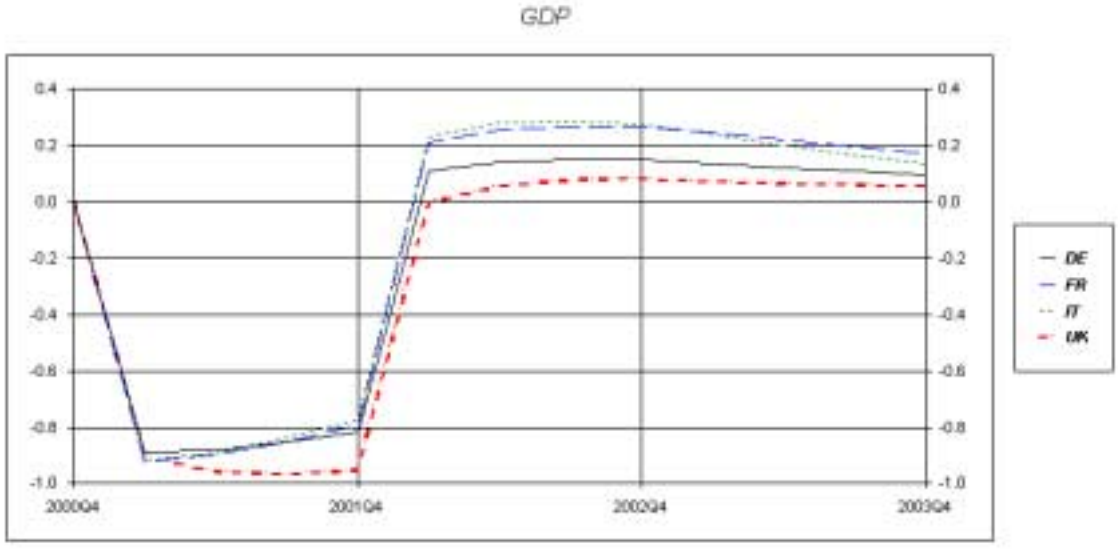
The fiscal policy shocks described in this section are temporary reductions in government consumption of 1 per cent of GDP for the duration of one year in each of the four major EU economies, one country at the time. Tax and interest rate reaction functions are switched off for the duration of one year, so that the deficit is allowed to decrease by 1 per cent of GDP *ex-ante*.

As discussed above, the model has a more detailed decomposition of government expenditure instruments (government purchases of goods and services, government wages, public transfers to households and firms, government investment). There are substantial differences in the impacts of these components on GDP. Box 2 describes the effects of each of these components on GDP. Although the underlying shocks are of a slightly different design, it shows the large differences in the fiscal multipliers of these expenditure components. The shocks to government consumption shown in Table 3.a to 6.a are combinations of two shocks, to government purchases and government employment, weighed by their shares in the baseline.

The effects of these temporary reductions in government consumption are fairly similar for each of the four major EU economies, with the multiplier ranging from 0.85 to 0.95. The reduction in government spending leads to a fall in private consumption. Permanent income consumers anticipate the temporary nature of the fiscal contraction, and, with permanent income not much affected, smooth their consumption. But liquidity constrained consumers reduce their consumption spending as they see their disposable income fall. There is a sharp rise in the unemployment rate, as government employment is cut back for a year, and this has a negative impact on private sector wages. While profitability is negatively affected by the fiscal contraction in the short run, the (expected) fall in future real interest rates offsets this partially and the net effect on private investment is generally small (positive or negative). The positive contribution to GDP, partially offsetting the negative impact of these shocks, comes from net exports, as the fall in domestic demand reduces imports and improves the trade balance.

With the assumption of no-monetary policy reaction in the first year, the temporary fiscal contraction implies a monetary contraction. In the second year this is followed by a regime in which (expected) inflation is targeted and the price level remains permanently below base. Hence, this temporary fiscal contraction implies a *permanent* monetary contraction and this also leads to an appreciation of the exchange rate. In the UK, which is assumed to pursue an independent monetary policy, the implied monetary tightening is much stronger than in the euro area countries, and the contractionary effects of this shock larger.

Graph 2 Effects of temporary 1% of GDP reductions in government consumption



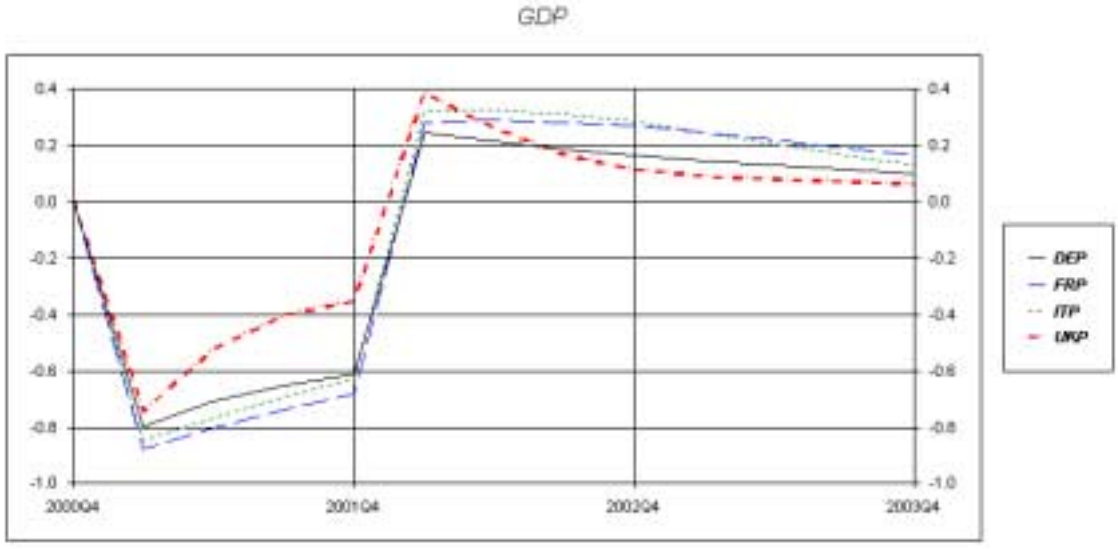
Note: GDP % differences from base (solid line DE, dashed line FR, dotted line IT, dash-dotted UK). Each shock is a 1% of GDP reduction in that country's government consumption for four quarters (2001Q1-Q4). Each simulation assumes fiscal policy unchanged in the rest of the euro area.

As illustration of the importance of the monetary policy assumption, Graph 3 below shows the effects of a similar one year decrease in government consumption under an alternative monetary assumption of price level targeting (Tables 3.b-6.b in the annex show detailed results for all countries). Under this assumption, monetary policy is less contractionary and the central bank responds to the fiscal contraction by lowering interest rates slightly. This dampens the impact of the shock and the negative GDP effect is significantly reduced , for the euro area countries to 0.69-0.77. For the UK the GDP effect falls to 0.51, as an independent monetary policy there is can partly offset the negative impact of this shock. In this scenario the fiscal contraction leads to a depreciation of the exchange rate and the price level returns to base in the long run.

Graph 4 shows another variant to the fiscal shock, in which the fiscal contraction is not limited to one country (in this case Germany) but occurs is all EU countries at the same time. Now negative trade spillovers from the fiscal contraction further reduce output and the overall GDP effect is larger than if the fiscal contraction takes place in one country alone[6]. For Germany, GDP falls by slightly more than 1 per cent below base in case of a EU wide fiscal contraction.

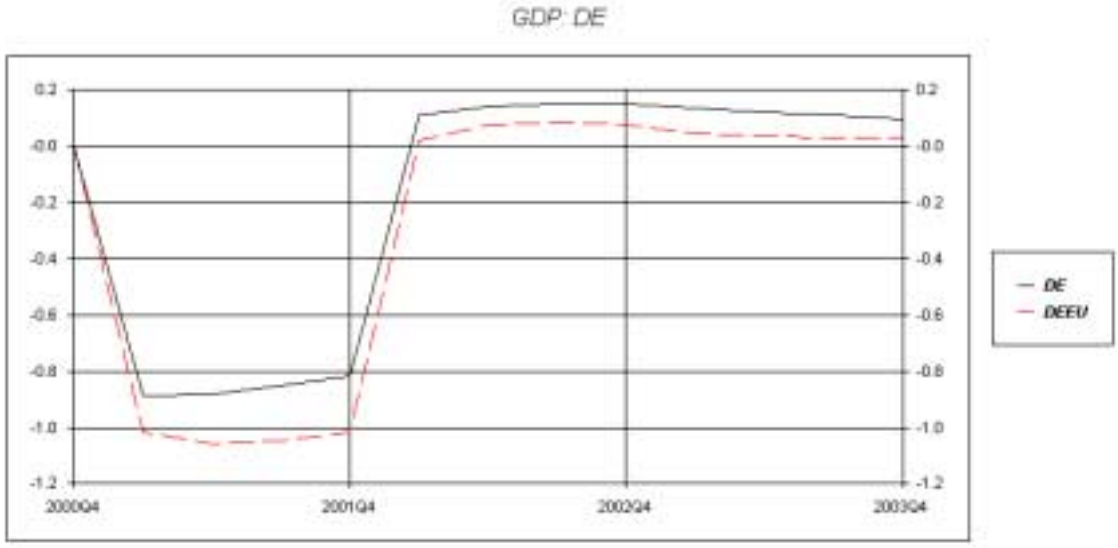
[6] In theory spillovers can be positive or negative, depending on whether the trade spillovers dominate the financial spillovers (interest rates, exchange rate). With unchanged interest rates in this scenario, the trade effects dominate.

Graph 3 Effects of temporary 1% of GDP reductions in government consumption (price level targeting)



Note: GDP % differences from base (solid line DE, dashed line FR, dotted line IT, dash-dotted UK). Each shock is a 1% of GDP reduction in that country's government consumption for four quarters (2001Q1-Q4). Each simulation assumes fiscal policy unchanged in the rest of the euro area.

Graph 4 Effects of temporary 1% of GDP reduction in German government consumption (single country vs. EU wide)



Note: German GDP % differences from base. Shock is a 1% of GDP reduction in government consumption for four quarters :2001Q1-Q4. (solid line fiscal contraction in Germany alone, dashed line EU wide).

Box Differences between expenditure component

The model distinguishes between different budgetary expenditure components and each of these has a different impact on aggregate demand and output. The chart below shows the short-term fiscal multipliers for some of the expenditure components separately: government purchases of goods and services, government investment, transfers to households and government employment. They are derived from separate shocks in which the government expenditure components are *increased* by one per cent of (baseline) GDP. The design of these shocks differs slightly from that in the scenarios in this paper, as the focus is on cyclical stabilisation, and the underlying assumption is that fiscal policy operates symmetrically over the cycle. The fiscal shocks shown in this graph are all temporary positive shocks lasting for two years, reversed in following years.[7] Another difference is that the interest rate reaction function is not switched off, but monetary policy is assumed to operate normally, and in the UK independently.

Despite these differences in simulation design, the graph shows the different impacts each expenditure component has on GDP. The overall effectiveness to stimulate economic activity by higher government expenditure is relatively modest, because a large part of the fiscal expansion is crowded out or leaks abroad through higher imports. This outcome is due to several effects. Higher real interest rates triggered by expansionary fiscal policy makes saving more attractive and induces forward-looking consumers to reduce consumption. A rise in interest rates has also negative wealth effects, as it increases the rate at which expected future income is discounted. However, in this case permanent income consumers anticipate the temporary nature of the fiscal expansion (which is later reversed), and permanent income is not much affected. Moreover, liquidity constrained consumers increase their consumption as they see their disposable income rise. The net effect on consumer spending is therefore small. The second channel through which a fiscal expansion can crowd-out private spending is private investment. While profitability is increased by the fiscal expansion in the short run, the rise in real interest rates offsets this positive effect and net effect on private investment is likely to be slightly negative. Furthermore, an increase in domestic demand raises imports and part of the demand boost leaks abroad.

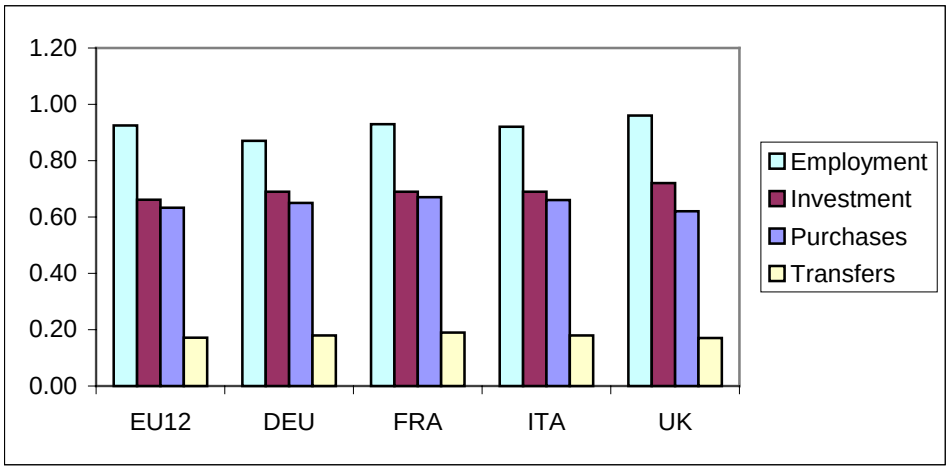
According to the simulations the impact of a 1 per cent of GDP increase in government outlays varies significantly across spending categories and over time, but the pattern is roughly the same in all countries. The first-year impact of all spending categories is positive. The largest effect is found for government employment, which has a multiplier close to unity in all countries[8]. However, the strong positive impact of higher government employment is only temporary and in case of more persistent or even permanent shocks,

[7] It is assumed that the fiscal expansion is followed in the medium term by a fiscal contraction, such that there is no autonomous increase in government indebtedness (and no increase in future tax liabilities).
[8] This is partly due to the way GDP is measured, with GDP defined as the sum of private GDP and the government wage bill. An increase in the latter raises potential GDP automatically.

it would be crowded out in the medium term through its effect on private sector wages (higher public employment reduces overall unemployment and leads to higher wage demands, which have a negative effect on private sector employment and output).

The short-term impact of government purchases of goods and services as well as government investment is somewhat smaller than that for employment, the multipliers being in the range of 0.6-0.7. In case of more persistent shocks, the expansionary effect of higher government purchases would fade away rapidly over the medium term, whereas that of government investment would have a more lasting impact by raising public capital stock and potential output. The smallest expansionary effect in all countries is achieved through a temporary increase in higher government transfer payments to households, most of which is saved.

Chart 1 GDP effects of temporary shocks to expenditure components



4. Supply shocks

This section describes two simulation experiments in which the supply side in the model is affected, a technology shock and a labour market shock. Both are permanent shocks that raise potential output above base, the first directly through an increase in total factor productivity, the second indirectly through its impact on wage setting and long term employment. Both shocks are EU wide shocks affecting all EU member states.

By design, these scenarios are somewhat artificial experiments, with the full effect coming in immediately. A more realistic scenario of supply shocks of this kind would allow for a gradual phasing in of the shock. The two scenarios presented here are merely intended to illustrate the long run properties of the model. For that reason the default policy rules are operating as normally, even in the short run, and monetary policy is set as specified by the rule described above.

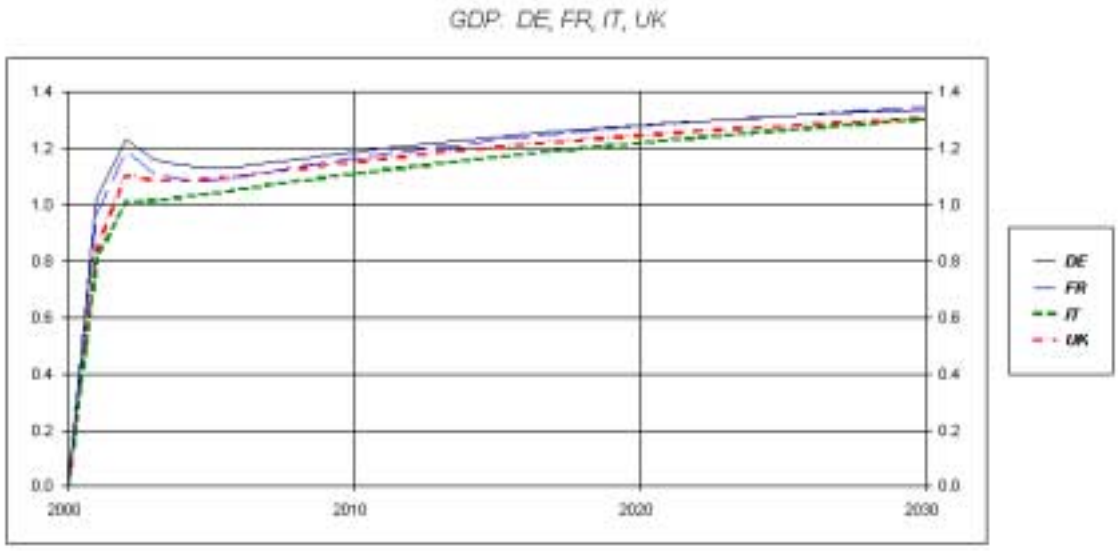
Graph 5 and Tables 7.a-e show the effects of an improvement in total factor productivity of 1 percentage point. This raises output in the long run by roughly 1.3-1.4 per cent. Following the immediate increase in productivity, potential output is shifted upwards. Permanent income consumers increase their spending as their human wealth and financial wealth increases, but liquidity constrained consumers base their spending on disposable income, which increases slower as real wages only gradually catch up with the productivity improvement. In the first year, GDP rises by less than potential output and the resulting negative output gap puts downward pressure on prices, which allows the central bank to reduce interest rates. Hence, monetary policy is accommodating, and prices do not change much. With the European Central Bank reacting to a weighted aggregate of (expected) inflation and output gap, interest rates are reduced by 0.25 percentage points in the first year. For Germany, this easing of monetary policy is sufficiently large for the additional boost to demand to offset the downward pressure on prices from the initial supply shock. Prices fall slightly more in Italy on impact and real rates decline by less than in Germany and France, and the initial boost to demand is smaller. In the second year demand in the euro area has risen by enough to close the output gap for the euro area on aggregate. In the third year the output gap becomes positive and with inflation back on base, interest rates increase.

Wages are indexed to productivity and increase, but employment falls slightly in the long run as the reservation wage is in this scenario indexed to consumer prices and rises more strongly due to the depreciation of the exchange rate. For similar reasons, the capital stock increases by slightly less than output as the depreciation raises the cost of capital.

The euro depreciates in real terms together with a worsening of the trade balance. The depreciation is required here in order to prevent foreign debt to explode. However one could imagine alternative technology shock scenarios where a European technology shock would be associated with either a temporary or a permanent real appreciation. The first case could in principle arise if the technology shock would be phased in slowly. In this case forward looking consumers would adjust consumption quickly to the increased

permanent income and forward looking investors would increase investment in order to avoid excessive adjustment costs. Thus current demand would exceed potential output and interest rates would be higher. But eventually Europe would nevertheless run a trade deficit because it would grow faster. In order to generate a permanent appreciation of the euro with a technology shock one would have to assume the technology shock shifts preferences in favour of European goods.

Graph 5 Effects of a permanent EU productivity improvement of 1%



Note: GDP % differences from base (solid line DE, dashed line FR, dotted line IT, dash-dotted UK). Shock is a 1% improvement in total factor productivity starting in 2001.

The second supply shock considered here is a shock that reduces the long term unemployment rate by 1 percentage point. This is achieved by reducing the reservation wage, through a decrease in the replacement rate, which lowers wage demands and raises employment. The shock is calibrated to generate a reduction in the long term unemployment rate of roughly 1 percentage point in each country, and is applied to all EU countries at the same time[9].

The reduction in the reservation wage puts downward pressure on wage demands, reduces real wage costs and boosts employment. The increase in employment occurs gradually, with an increase in the first year of 0.25 per cent, but then accelerates and in the second and third year rapidly converges to its new equilibrium level 1 per cent above base. It is assumed the permanent increase in the employment rate is fully anticipated and

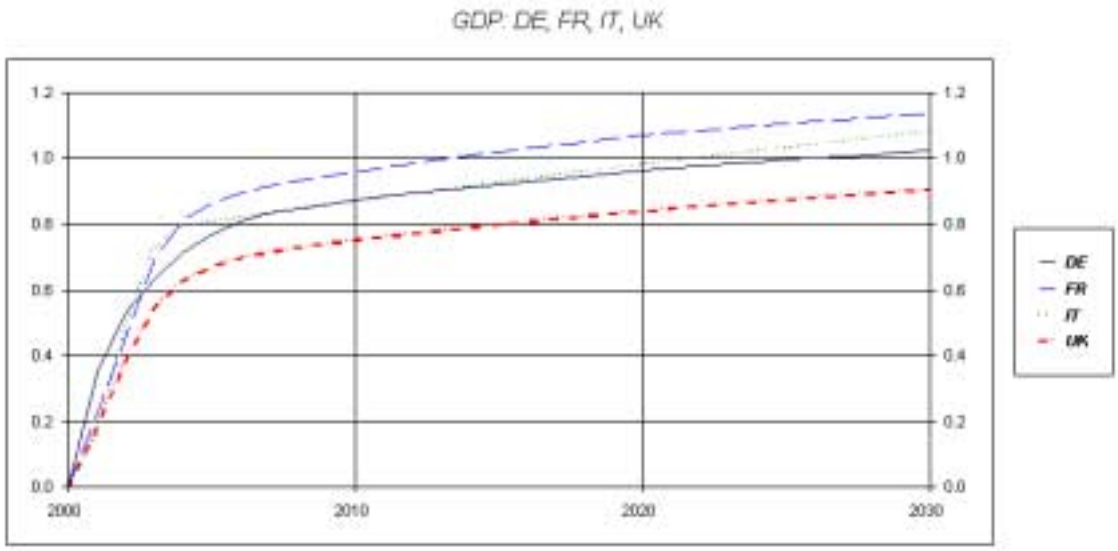
[9] The reduction in the benefits replacement rate varies between 1.4 and 2.0 percentage points (DE and IT respectively), and amounts 1.5 for the UK and 1.6 for FR (also EU average).

consumers respond immediately to the increase in human and financial wealth. Hence, the shock raises demand on impact, and this increase exceeds the expansion in potential output, which only gradually improves as employment is boosted.

The monetary authorities respond to the output gap and higher inflation by raising interest rates, by 18 points in the first year. Inflation is slightly higher in the first year, but as the output gap is rapidly closed, inflationary pressures do not persist.

In the long run employment and output are permanently higher, both around 1 per cent above base. Differences between countries can be explained by differences in the shares of the government sector in the economy[10]. The share of public employment is highest in France and lowest in Germany and the UK. For a similar improvement in the long term employment rate, the increase in private sector employment must be higher in countries with a larger share of government employment and this is also associated with a larger increase in the private sector capital stock. A larger depreciation reduces the latter effect further in the UK, and this explains why the GDP increase is smallest in the UK.

Graph 6 Effects of a permanent reduction reservation wages in EU



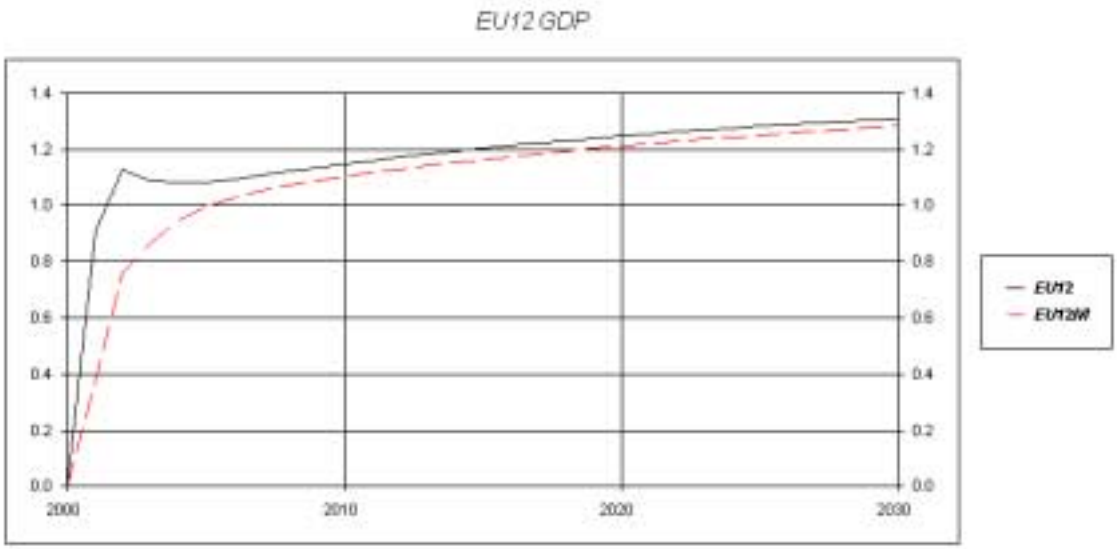
Note: GDP % differences from base (solid line DE, dashed line FR, dotted line IT, dash-dotted UK).
Shock is a permanent reduction in the reservation wage through a reduction in the benefit replacement rate, starting in 2001.

[10] Government employment is exogenous in the model.

Alternative monetary assumption

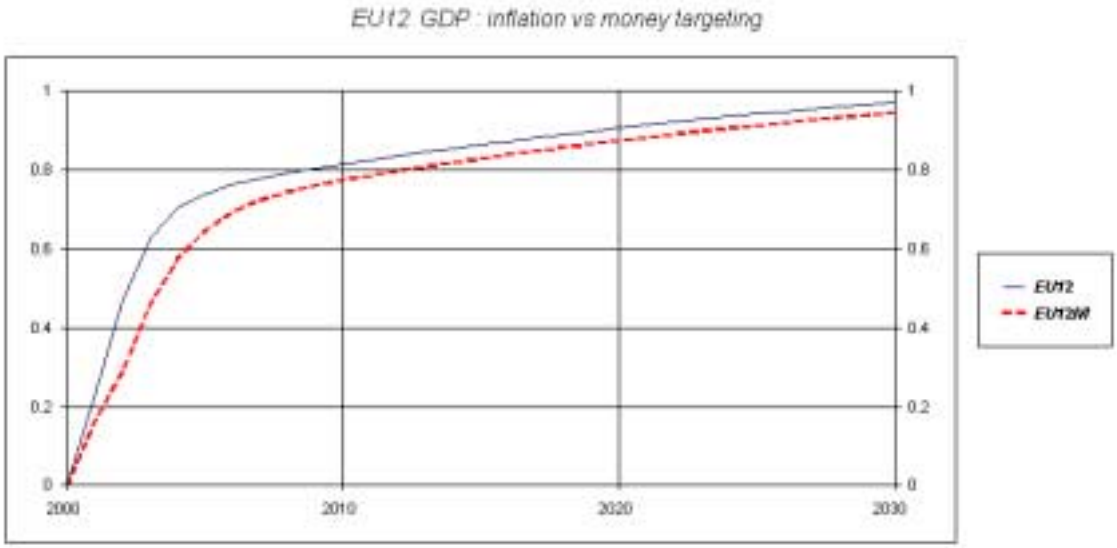
The two scenarios above assume an accommodating monetary policy, which boosts demand immediately and helps to bring forward the adjustment of GDP to its new higher long run level. The output gap is rapidly closed in these scenarios. Under an alternative monetary policy assumption, in which the central bank targets the money supply, monetary policy is less accommodating after a supply shock and demand is much slower to converge to the new higher level. Under such monetary assumptions, the output gap can persist for much longer. Graphs 7 and 8 illustrate this for the same two scenarios as above, a technology shock and a decrease in the reservation wage, but now with money targeting in place. The graphs show GDP for the euro area average, which under money targeting adjusts much more slowly to its new long run level. While the long run is not affected by the monetary assumption, the speed of adjustment to the new steady state is dependent on the monetary policy assumption and can be significantly slower under a less accommodating stance.

Graph 7 Effects of a permanent EU productivity improvement of 1%: money targeting



Note: Euro Area GDP % differences from base (solid line inflation targeting (eq.8), dashed line money targeting). Shock is a 1% improvement in total factor productivity starting in 2001.

Graph 8 Effects of a permanent reduction reservation wages in EU: money targeting



Note: Euro Area GDP % differences from base (solid line inflation targeting, dashed line money targeting). Shock is a permanent reduction in the reservation wage through a reduction in the benefit replacement rate, starting in 2001.

5. Conclusions

This paper has given a brief overview of the European Commission's QUEST model and a description of its simulation properties for some selected experiments. The model is characterised by strong theoretical foundations, and this drives its simulation properties not only in the long run, but also the short term dynamic responses. The simulations considered here were an interest rate shock, a fiscal contraction, a productivity improvement and a labour market shock. For each of these shocks, the specific monetary policy assumptions play a crucial role. In many cases, the particular interest rate rule implies a monetary shock at the same time and this influences the outcome. Hence, a sensitivity analysis under alternative monetary policy assumptions is essential.

On the whole the model does not display significant structural differences between countries. More important are differences in policy responses. The fact that countries outside the euro area pursue an independent monetary policy, can explain why, of the four countries considered in this paper, the responses in the UK can be slightly different. Similarly, the size of a country determines the weight a country carries in the ECB reaction function and this can influence the outcome. Composition effects can also play a role, and of course the openness of an economy. For demand shocks at least, results for the smaller open European economies would have displayed a larger range of outcomes. However, for the four major EU economies differences are relatively minor.

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Annex Detailed simulation tables

Table 1.a Effects of a temporary 1%-point increase in interest rates in EU, US, Japan

EU12

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
GDP_PCER	-0.45	-0.10	-0.03	-0.02	-0.02	-0.02	-0.02	-0.01	-0.01	-0.01	0.00
CONSUMPTION_PCER	-0.19	-0.06	-0.03	-0.05	-0.06	-0.05	-0.05	-0.04	-0.03	-0.02	0.01
INVESTMENT_PCER	-1.67	-0.12	0.00	0.06	0.08	0.09	0.08	0.07	0.06	0.05	0.02
EXPORTS_PCER	-0.37	-0.14	-0.03	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	0.00
IMPORTS_PCER	-0.52	-0.08	-0.02	-0.02	-0.02	-0.02	-0.01	-0.01	-0.00	-0.00	0.01
EMPLOYMENT_PCER	-0.09	-0.04	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
REAL.WAGE.COSTS_PCER	-0.27	-0.20	-0.04	-0.03	-0.02	-0.02	-0.02	-0.02	-0.02	-0.01	0.00
PRICE.LEVEL_PCER	-0.14	-0.21	-0.21	-0.20	-0.20	-0.20	-0.20	-0.20	-0.21	-0.21	-0.21
DOLLAR.EXCH.RATE_PCER	0.13	0.20	0.24	0.24	0.23	0.23	0.23	0.22	0.22	0.22	0.22
REAL.EFF.EXCH.RATE_PCER	0.03	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
NOM.EFF.EXCH.RATE_PCER	0.04	0.07	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
SHORT.RATE_ER	0.99	-0.16	0.02	0.01	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
LONG.RATE.10YRS_ER	0.08	-0.02	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	0.00
CONS.TO.GDP_ER	-0.11	-0.03	-0.02	-0.03	-0.03	-0.03	-0.03	-0.02	-0.02	-0.01	0.00
INV.TO.GDP_ER	-0.37	-0.03	0.00	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.00
GOV.CONS.TO.GDP_ER	-0.03	-0.02	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	0.00
NET.EXPORTS.TO.GDP_ER	0.06	-0.02	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.01	-0.01	-0.00
INFLATION.PGDP_ER	-0.14	-0.08	0.01	0.00	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
UNEMPLOYMENT.RATE_ER	0.08	0.03	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
DEBT.TO.GDP_ER	0.70	0.70	0.69	0.63	0.54	0.44	0.35	0.27	0.21	0.16	-0.00
DEFICIT.TO.GDP_ER	0.16	0.15	0.01	-0.06	-0.08	-0.08	-0.08	-0.07	-0.05	-0.04	0.00
TRADE.BAL.TO.GDP_ER	0.06	-0.01	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00

Note: _PCER Percentage difference from base
_ER Absolute difference from base

Table 1.b Effects of a temporary 1%-point increase in interest rates in EU, US, Japan

Germany:

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
GDP_PCER	-0.48	-0.11	-0.04	-0.03	-0.02	-0.02	-0.02	-0.02	-0.01	-0.01	0.00
CONSUMPTION_PCER	-0.18	-0.08	-0.05	-0.06	-0.06	-0.05	-0.05	-0.04	-0.03	-0.02	0.01
INVESTMENT_PCER	-1.71	-0.16	-0.02	0.05	0.07	0.08	0.08	0.07	0.06	0.05	0.02
EXPORTS_PCER	-0.40	-0.14	-0.04	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.02	-0.00
IMPORTS_PCER	-0.55	-0.09	-0.03	-0.02	-0.02	-0.01	-0.01	-0.01	-0.00	0.00	0.01
EMPLOYMENT_PCER	-0.11	-0.07	-0.02	-0.01	-0.00	0.00	0.00	0.00	0.00	0.00	0.00
REAL.WAGE.COSTS_PCER	-0.24	-0.20	-0.06	-0.04	-0.03	-0.03	-0.02	-0.02	-0.02	-0.02	0.00
PRICE.LEVEL_PCER	-0.13	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-0.21	-0.21
DOLLAR.EXCH.RATE_PCER	0.13	0.20	0.24	0.24	0.23	0.23	0.23	0.22	0.22	0.22	0.22
REAL.EFF.EXCH.RATE_PCER	0.03	-0.02	-0.02	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
NOM.EFF.EXCH.RATE_PCER	0.05	0.08	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
SHORT.RATE_ER	0.99	-0.16	0.02	0.01	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
LONG.RATE.10YRS_ER	0.08	-0.02	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	0.00
CONS.TO.GDP_ER	-0.10	-0.04	-0.03	-0.03	-0.03	-0.03	-0.03	-0.02	-0.02	-0.01	0.00
INV.TO.GDP_ER	-0.40	-0.04	-0.00	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.01
GOV.CONS.TO.GDP_ER	-0.02	-0.01	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	0.00
NET.EXPORTS.TO.GDP_ER	0.04	-0.02	-0.00	-0.00	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.00
INFLATION.PGDP_ER	-0.13	-0.07	0.00	0.00	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
UNEMPLOYMENT.RATE_ER	0.10	0.06	0.02	0.00	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
DEBT.TO.GDP_ER	0.63	0.65	0.64	0.58	0.49	0.40	0.32	0.25	0.19	0.14	-0.00
DEFICIT.TO.GDP_ER	0.18	0.14	0.00	-0.05	-0.08	-0.08	-0.07	-0.06	-0.05	-0.04	0.00
TRADE.BAL.TO.GDP_ER	0.05	-0.01	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00

Table 1.c Effects of a temporary 1%-point increase in interest rates in EU, US, Japan

France:

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
GDP_PCER	-0.41	-0.10	-0.02	-0.02	-0.02	-0.02	-0.02	-0.01	-0.01	-0.01	0.00
CONSUMPTION_PCER	-0.19	-0.06	-0.02	-0.04	-0.05	-0.04	-0.04	-0.03	-0.03	-0.02	0.00
INVESTMENT_PCER	-1.74	-0.12	0.01	0.07	0.09	0.09	0.09	0.08	0.07	0.06	0.02
EXPORTS_PCER	-0.43	-0.15	-0.03	-0.03	-0.03	-0.03	-0.03	-0.02	-0.02	-0.02	0.00
IMPORTS_PCER	-0.48	-0.08	-0.01	-0.01	-0.01	-0.01	-0.00	-0.00	0.00	0.01	0.02
EMPLOYMENT_PCER	-0.08	-0.04	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
REAL.WAGE.COSTS_PCER	-0.24	-0.19	-0.04	-0.03	-0.02	-0.02	-0.02	-0.02	-0.01	-0.01	0.00
PRICE.LEVEL_PCER	-0.14	-0.21	-0.20	-0.20	-0.19	-0.19	-0.20	-0.20	-0.20	-0.20	-0.21
DOLLAR.EXCH.RATE_PCER	0.13	0.20	0.24	0.24	0.23	0.23	0.23	0.22	0.22	0.22	0.22
REAL.EFF.EXCH.RATE_PCER	0.04	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.02	-0.02	-0.01
NOM.EFF.EXCH.RATE_PCER	0.04	0.07	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.07

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
SHORT.RATE_ER	0.99	-0.16	0.02	0.01	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
LONG.RATE.10YRS_ER	0.08	-0.02	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	0.00
CONS.TO.GDP_ER	-0.10	-0.03	-0.01	-0.02	-0.02	-0.02	-0.02	-0.02	-0.01	-0.01	0.00
INV.TO.GDP_ER	-0.28	-0.02	0.00	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.00
GOV.CONS.TO.GDP_ER	-0.04	-0.03	-0.01	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	0.00
NET.EXPORTS.TO.GDP_ER	0.00	-0.02	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.00
INFLATION.PGDP_ER	-0.14	-0.07	0.01	0.01	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
UNEMPLOYMENT.RATE_ER	0.07	0.04	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
DEBT.TO.GDP_ER	0.55	0.57	0.56	0.51	0.44	0.37	0.29	0.23	0.17	0.13	-0.00
DEFICIT.TO.GDP_ER	0.14	0.11	0.01	-0.04	-0.06	-0.07	-0.06	-0.05	-0.04	-0.04	-0.00
TRADE.BAL.TO.GDP_ER	0.01	-0.02	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00

Note: _PCER Percentage difference from base
_ER Absolute difference from base

Table 1.d Effects of a temporary 1%-point increase in interest rates in EU, US, Japan

Italy :

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
GDP_PCER	-0.44	-0.08	-0.02	-0.02	-0.02	-0.02	-0.01	-0.01	-0.01	-0.01	0.00
CONSUMPTION_PCER	-0.19	-0.01	-0.02	-0.06	-0.07	-0.07	-0.06	-0.05	-0.04	-0.03	0.01
INVESTMENT_PCER	-1.62	-0.11	0.01	0.07	0.09	0.10	0.10	0.09	0.07	0.06	0.02
EXPORTS_PCER	-0.28	-0.12	-0.02	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	0.00
IMPORTS_PCER	-0.51	-0.06	-0.02	-0.03	-0.03	-0.03	-0.03	-0.02	-0.01	-0.01	0.01
EMPLOYMENT_PCER	-0.08	-0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
REAL.WAGE.COSTS_PCER	-0.32	-0.20	-0.02	-0.02	-0.02	-0.02	-0.02	-0.01	-0.01	-0.01	0.00
PRICE.LEVEL_PCER	-0.14	-0.22	-0.22	-0.22	-0.22	-0.22	-0.22	-0.22	-0.22	-0.22	-0.21
DOLLAR.EXCH.RATE_PCER	0.13	0.20	0.24	0.24	0.23	0.23	0.23	0.22	0.22	0.22	0.22
REAL.EFF.EXCH.RATE_PCER	0.03	-0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	-0.01
NOM.EFF.EXCH.RATE_PCER	0.05	0.07	0.08	0.09	0.08	0.08	0.08	0.08	0.08	0.08	0.08

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
SHORT.RATE_ER	0.99	-0.16	0.02	0.01	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
LONG.RATE.10YRS_ER	0.08	-0.02	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	0.00
CONS.TO.GDP_ER	-0.11	-0.01	-0.01	-0.03	-0.04	-0.04	-0.04	-0.03	-0.02	-0.02	0.01
INV.TO.GDP_ER	-0.38	-0.03	0.00	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.00
GOV.CONS.TO.GDP_ER	-0.03	-0.02	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	0.00
NET.EXPORTS.TO.GDP_ER	0.07	-0.02	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	-0.00
INFLATION.PGDP_ER	-0.14	-0.08	0.00	0.00	0.00	-0.00	-0.00	-0.00	-0.00	0.00	-0.00
UNEMPLOYMENT.RATE_ER	0.08	0.01	-0.01	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
DEBT.TO.GDP_ER	1.03	0.98	1.00	0.92	0.80	0.66	0.52	0.41	0.31	0.24	-0.00
DEFICIT.TO.GDP_ER	0.18	0.21	0.02	-0.08	-0.12	-0.12	-0.11	-0.10	-0.08	-0.06	0.00
TRADE.BAL.TO.GDP_ER	0.08	-0.02	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	-0.00

Table 1.e Effects of a temporary 1%-point increase in interest rates in EU, US, Japan

UK:

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
GDP_PCER	-0.40	-0.10	-0.03	-0.02	-0.02	-0.02	-0.02	-0.02	-0.01	-0.01	0.00
CONSUMPTION_PCER	-0.20	-0.10	-0.05	-0.04	-0.04	-0.04	-0.03	-0.03	-0.02	-0.02	0.00
INVESTMENT_PCER	-1.62	-0.11	-0.01	0.04	0.06	0.06	0.06	0.06	0.05	0.04	0.02
EXPORTS_PCER	-0.33	-0.11	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.01	0.00
IMPORTS_PCER	-0.47	-0.10	-0.03	-0.02	-0.02	-0.01	-0.01	-0.01	-0.00	-0.00	0.01
EMPLOYMENT_PCER	-0.08	-0.05	-0.01	-0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00
REAL.WAGE.COSTS_PCER	-0.21	-0.17	-0.05	-0.03	-0.03	-0.02	-0.02	-0.02	-0.02	-0.01	0.00
PRICE.LEVEL_PCER	-0.13	-0.21	-0.21	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-0.21
DOLLAR.EXCH.RATE_PCER	0.15	0.21	0.24	0.24	0.23	0.23	0.23	0.22	0.22	0.22	0.23
REAL.EFF.EXCH.RATE_PCER	0.04	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
NOM.EFF.EXCH.RATE_PCER	0.07	0.09	0.10	0.10	0.09	0.09	0.09	0.09	0.09	0.10	0.10

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
SHORT.RATE_ER	0.99	-0.18	0.01	0.01	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
LONG.RATE.10YRS_ER	0.08	-0.02	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	0.00
CONS.TO.GDP_ER	-0.13	-0.07	-0.03	-0.03	-0.03	-0.03	-0.02	-0.02	-0.02	-0.01	0.00
INV.TO.GDP_ER	-0.33	-0.02	-0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00
GOV.CONS.TO.GDP_ER	-0.02	-0.01	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	0.00
NET.EXPORTS.TO.GDP_ER	0.07	0.00	0.01	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
INFLATION.PGDP_ER	-0.13	-0.08	0.00	0.00	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
UNEMPLOYMENT.RATE_ER	0.08	0.05	0.01	0.00	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
DEBT.TO.GDP_ER	0.40	0.44	0.43	0.38	0.32	0.26	0.21	0.16	0.12	0.09	-0.00
DEFICIT.TO.GDP_ER	0.13	0.07	-0.01	-0.04	-0.05	-0.05	-0.05	-0.04	-0.03	-0.03	0.00
TRADE.BAL.TO.GDP_ER	0.05	0.00	0.01	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00

Note: _PCER Percentage difference from base
_ER Absolute difference from base

Table 2.a Effects of a temporary 1%-point increase in interest rates in euro area

EU12:

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
GDP_PCER	-0.57	-0.10	-0.03	-0.02	-0.02	-0.02	-0.02	-0.02	-0.01	-0.01	-0.00
CONSUMPTION_PCER	-0.15	-0.04	-0.04	-0.07	-0.08	-0.08	-0.07	-0.06	-0.05	-0.04	-0.00
INVESTMENT_PCER	-1.62	-0.17	-0.00	0.06	0.08	0.08	0.07	0.06	0.05	0.04	0.00
EXPORTS_PCER	-0.64	-0.07	-0.02	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	0.00
IMPORTS_PCER	-0.37	-0.03	-0.02	-0.04	-0.04	-0.04	-0.04	-0.04	-0.03	-0.03	-0.01
EMPLOYMENT_PCER	-0.10	-0.04	-0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.00
REAL.WAGE.COSTS_PCER	-0.35	-0.24	-0.04	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.01	-0.00
PRICE.LEVEL_PCER	-0.18	-0.29	-0.28	-0.28	-0.28	-0.28	-0.28	-0.28	-0.28	-0.28	-0.29
DOLLAR.EXCH.RATE_PCER	-0.70	-0.26	-0.24	-0.23	-0.22	-0.22	-0.23	-0.23	-0.24	-0.24	-0.25
REAL.EFF.EXCH.RATE_PCER	-0.29	-0.00	0.00	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.01
NOM.EFF.EXCH.RATE_PCER	-0.33	-0.12	-0.12	-0.11	-0.11	-0.11	-0.11	-0.11	-0.11	-0.11	-0.12

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
SHORT.RATE_ER	0.99	-0.16	0.01	0.01	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	0.00
LONG.RATE.10YRS_ER	0.08	-0.02	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	0.00
CONS.TO.GDP_ER	-0.09	-0.02	-0.02	-0.04	-0.04	-0.04	-0.04	-0.04	-0.03	-0.02	-0.00
INV.TO.GDP_ER	-0.36	-0.04	-0.00	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.00
GOV.CONS.TO.GDP_ER	-0.04	-0.02	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
NET.EXPORTS.TO.GDP_ER	-0.08	-0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00
INFLATION.PGDP_ER	-0.18	-0.11	0.01	0.01	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	0.00
UNEMPLOYMENT.RATE_ER	0.09	0.04	0.00	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	0.00
DEBT.TO.GDP_ER	0.83	0.82	0.85	0.79	0.68	0.56	0.45	0.35	0.27	0.20	-0.00
DEFICIT.TO.GDP_ER	0.19	0.22	0.03	-0.06	-0.09	-0.10	-0.10	-0.08	-0.07	-0.05	-0.00
TRADE.BAL.TO.GDP_ER	-0.02	-0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00

Note: _PCER Percentage difference from base
_ER Absolute difference from base

Table 2.b Effects of a temporary 1%-point increase in interest rates in euro area

Germany:

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
GDP_PCER	-0.59	-0.13	-0.04	-0.03	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.00
CONSUMPTION_PCER	-0.14	-0.07	-0.06	-0.07	-0.08	-0.08	-0.07	-0.06	-0.05	-0.04	-0.01
INVESTMENT_PCER	-1.67	-0.21	-0.02	0.04	0.07	0.07	0.07	0.06	0.05	0.04	0.00
EXPORTS_PCER	-0.70	-0.09	-0.03	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	0.00
IMPORTS_PCER	-0.36	-0.05	-0.03	-0.04	-0.04	-0.04	-0.04	-0.03	-0.03	-0.03	-0.01
EMPLOYMENT_PCER	-0.11	-0.08	-0.02	-0.01	-0.00	-0.00	0.00	0.00	0.00	0.00	-0.00
REAL.WAGE.COSTS_PCER	-0.31	-0.24	-0.06	-0.04	-0.03	-0.03	-0.02	-0.02	-0.02	-0.02	-0.00
PRICE.LEVEL_PCER	-0.17	-0.28	-0.27	-0.27	-0.27	-0.27	-0.27	-0.27	-0.28	-0.28	-0.29
DOLLAR.EXCH.RATE_PCER	-0.70	-0.26	-0.24	-0.23	-0.22	-0.22	-0.23	-0.23	-0.24	-0.24	-0.25
REAL.EFF.EXCH.RATE_PCER	-0.33	-0.02	-0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
NOM.EFF.EXCH.RATE_PCER	-0.37	-0.14	-0.13	-0.12	-0.12	-0.12	-0.12	-0.12	-0.13	-0.13	-0.13

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
SHORT.RATE_ER	0.99	-0.16	0.01	0.01	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	0.00
LONG.RATE.10YRS_ER	0.08	-0.02	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	0.00
CONS.TO.GDP_ER	-0.08	-0.04	-0.03	-0.04	-0.05	-0.04	-0.04	-0.04	-0.03	-0.03	-0.00
INV.TO.GDP_ER	-0.40	-0.05	-0.01	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.00
GOV.CONS.TO.GDP_ER	-0.02	-0.02	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
NET.EXPORTS.TO.GDP_ER	-0.12	-0.02	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00
INFLATION.PGDP_ER	-0.17	-0.10	0.00	0.00	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
UNEMPLOYMENT.RATE_ER	0.10	0.07	0.02	0.01	0.00	0.00	-0.00	-0.00	-0.00	-0.00	0.00
DEBT.TO.GDP_ER	0.73	0.76	0.78	0.71	0.61	0.51	0.40	0.31	0.24	0.18	-0.00
DEFICIT.TO.GDP_ER	0.20	0.20	0.02	-0.06	-0.09	-0.09	-0.09	-0.08	-0.06	-0.05	0.00
TRADE.BAL.TO.GDP_ER	-0.03	-0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00

Note: _PCER Percentage difference from base
_ER Absolute difference from base

Table 2.c Effects of a temporary 1%-point increase in interest rates in euro area

France :

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
GDP_PCER	-0.52	-0.11	-0.03	-0.02	-0.02	-0.02	-0.02	-0.02	-0.01	-0.01	-0.00
CONSUMPTION_PCER	-0.17	-0.06	-0.03	-0.06	-0.07	-0.07	-0.06	-0.06	-0.05	-0.04	-0.01
INVESTMENT_PCER	-1.74	-0.19	0.00	0.06	0.08	0.09	0.08	0.07	0.06	0.05	0.00
EXPORTS_PCER	-0.73	-0.07	-0.03	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	0.00
IMPORTS_PCER	-0.33	-0.04	-0.02	-0.03	-0.04	-0.04	-0.04	-0.03	-0.03	-0.02	-0.01
EMPLOYMENT_PCER	-0.09	-0.04	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.00
REAL.WAGE.COSTS_PCER	-0.32	-0.23	-0.04	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.01	-0.00
PRICE.LEVEL_PCER	-0.18	-0.29	-0.28	-0.27	-0.27	-0.27	-0.28	-0.28	-0.28	-0.28	-0.29
DOLLAR.EXCH.RATE_PCER	-0.70	-0.26	-0.24	-0.23	-0.22	-0.22	-0.23	-0.23	-0.24	-0.24	-0.25
REAL.EFF.EXCH.RATE_PCER	-0.28	-0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
NOM.EFF.EXCH.RATE_PCER	-0.32	-0.12	-0.11	-0.11	-0.10	-0.10	-0.11	-0.11	-0.11	-0.11	-0.11

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
SHORT.RATE_ER	0.99	-0.16	0.01	0.01	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	0.00
LONG.RATE.10YRS_ER	0.08	-0.02	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	0.00
CONS.TO.GDP_ER	-0.09	-0.03	-0.02	-0.03	-0.04	-0.04	-0.03	-0.03	-0.03	-0.02	-0.01
INV.TO.GDP_ER	-0.28	-0.03	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00
GOV.CONS.TO.GDP_ER	-0.05	-0.03	-0.01	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
NET.EXPORTS.TO.GDP_ER	-0.12	-0.01	-0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00
INFLATION.PGDP_ER	-0.18	-0.11	0.01	0.01	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
UNEMPLOYMENT.RATE_ER	0.08	0.04	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	0.00
DEBT.TO.GDP_ER	0.65	0.67	0.69	0.64	0.55	0.46	0.37	0.29	0.22	0.17	-0.00
DEFICIT.TO.GDP_ER	0.16	0.17	0.03	-0.05	-0.08	-0.08	-0.08	-0.07	-0.06	-0.05	-0.00
TRADE.BAL.TO.GDP_ER	-0.06	-0.01	-0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00

Table 2.d Effects of a temporary 1%-point increase in interest rates in euro area

Italy :

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
GDP_PCER	-0.57	-0.07	-0.02	-0.02	-0.02	-0.02	-0.02	-0.01	-0.01	-0.01	-0.00
CONSUMPTION_PCER	-0.16	0.03	-0.02	-0.08	-0.10	-0.10	-0.09	-0.08	-0.06	-0.05	-0.00
INVESTMENT_PCER	-1.61	-0.18	-0.01	0.06	0.10	0.10	0.10	0.09	0.07	0.06	0.00
EXPORTS_PCER	-0.51	-0.03	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IMPORTS_PCER	-0.39	0.01	-0.02	-0.05	-0.06	-0.06	-0.06	-0.05	-0.04	-0.04	-0.01
EMPLOYMENT_PCER	-0.10	-0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.00
REAL.WAGE.COSTS_PCER	-0.42	-0.24	-0.01	-0.02	-0.02	-0.02	-0.02	-0.02	-0.01	-0.01	-0.00
PRICE.LEVEL_PCER	-0.19	-0.29	-0.29	-0.29	-0.29	-0.30	-0.30	-0.30	-0.30	-0.30	-0.29
DOLLAR.EXCH.RATE_PCER	-0.70	-0.26	-0.24	-0.23	-0.22	-0.22	-0.23	-0.23	-0.24	-0.24	-0.25
REAL.EFF.EXCH.RATE_PCER	-0.27	0.00	0.02	0.03	0.03	0.04	0.03	0.03	0.03	0.02	0.01
NOM.EFF.EXCH.RATE_PCER	-0.32	-0.12	-0.11	-0.11	-0.10	-0.10	-0.10	-0.11	-0.11	-0.11	-0.11

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
SHORT.RATE_ER	0.99	-0.16	0.01	0.01	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	0.00
LONG.RATE.10YRS_ER	0.08	-0.02	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	0.00
CONS.TO.GDP_ER	-0.10	0.02	-0.01	-0.05	-0.06	-0.06	-0.05	-0.05	-0.04	-0.03	-0.00
INV.TO.GDP_ER	-0.38	-0.04	-0.00	0.02	0.02	0.03	0.02	0.02	0.02	0.01	0.00
GOV.CONS.TO.GDP_ER	-0.04	-0.02	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
NET.EXPORTS.TO.GDP_ER	-0.04	-0.01	0.00	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.00
INFLATION.PGDP_ER	-0.19	-0.11	0.00	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	0.00	0.00
UNEMPLOYMENT.RATE_ER	0.09	0.01	-0.01	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	0.00
DEBT.TO.GDP_ER	1.24	1.16	1.24	1.17	1.01	0.84	0.67	0.52	0.40	0.30	0.00
DEFICIT.TO.GDP_ER	0.22	0.34	0.05	-0.09	-0.14	-0.15	-0.14	-0.12	-0.10	-0.08	0.00
TRADE.BAL.TO.GDP_ER	-0.01	-0.02	0.00	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.00

Note: _PCER Percentage difference from base
_ER Absolute difference from base

Table 3.a Effects of a temporary decrease in German government consumption of 1% of GDP

Germany :

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
GDP_PCER	-0.86	0.14	0.11	0.07	0.04	0.03	0.02	0.02	0.02	0.01	0.01
CONSUMPTION_PCER	-0.12	0.03	0.11	0.10	0.08	0.06	0.05	0.04	0.03	0.03	0.00
INVESTMENT_PCER	0.18	0.39	0.20	0.07	0.00	-0.02	-0.03	-0.03	-0.02	-0.02	-0.00
EXPORTS_PCER	-0.02	0.09	0.05	0.02	0.00	-0.00	-0.00	-0.00	-0.00	0.00	0.00
IMPORTS_PCER	-0.52	0.03	0.06	0.05	0.03	0.03	0.02	0.01	0.01	0.01	-0.00
EMPLOYMENT_PCER	-0.82	0.14	0.08	0.03	0.01	0.00	0.00	-0.00	-0.00	-0.00	-0.00
REAL.WAGE.COSTS_PCER	-0.63	-0.13	0.15	0.09	0.04	0.02	0.02	0.01	0.01	0.01	0.00
PRICE.LEVEL_PCER	-0.15	-0.20	-0.16	-0.14	-0.13	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12
DOLLAR.EXCH.RATE_PCER	-0.08	-0.09	-0.11	-0.11	-0.12	-0.12	-0.12	-0.12	-0.12	-0.11	-0.11
REAL.EFF.EXCH.RATE_PCER	0.08	0.11	0.06	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00
NOM.EFF.EXCH.RATE_PCER	-0.04	-0.05	-0.06	-0.06	-0.06	-0.06	-0.06	-0.06	-0.06	-0.06	-0.06

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
SHORT.RATE_ER	-0.00	-0.03	-0.01	-0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00
LONG.RATE.10YRS_ER	-0.00	-0.00	-0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CONS.TO.GDP_ER	-0.07	0.02	0.06	0.05	0.04	0.04	0.03	0.02	0.02	0.02	0.00
INV.TO.GDP_ER	0.04	0.09	0.05	0.02	0.00	-0.01	-0.01	-0.01	-0.01	-0.00	-0.00
GOV.CONS.TO.GDP_ER	-0.99	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
NET.EXPORTS.TO.GDP_ER	0.16	0.02	0.00	-0.01	-0.01	-0.01	-0.01	-0.01	-0.00	-0.00	0.00
INFLATION.PGDP_ER	-0.15	-0.05	0.04	0.02	0.01	0.00	0.00	-0.00	-0.00	-0.00	0.00
UNEMPLOYMENT.RATE_ER	0.74	-0.13	-0.08	-0.03	-0.01	-0.00	-0.00	0.00	0.00	0.00	0.00
DEBT.TO.GDP_ER	0.27	-0.53	-0.56	-0.49	-0.40	-0.31	-0.24	-0.18	-0.13	-0.10	0.00
DEFICIT.TO.GDP_ER	-0.51	-0.07	0.00	0.06	0.07	0.07	0.06	0.05	0.04	0.03	0.00
TRADE.BAL.TO.GDP_ER	0.16	-0.01	-0.02	-0.02	-0.01	-0.01	-0.01	-0.01	-0.01	-0.00	0.00

Table 3.b Effects of a temporary decrease in German government consumption of 1% of GDP (price level targeting)

Germany :

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
GDP_PCER	-0.69	0.20	0.12	0.07	0.04	0.02	0.02	0.01	0.01	0.01	0.00
CONSUMPTION_PCER	-0.09	0.09	0.13	0.12	0.10	0.09	0.07	0.06	0.05	0.04	0.01
INVESTMENT_PCER	0.73	0.50	0.21	0.06	-0.02	-0.04	-0.05	-0.04	-0.04	-0.03	-0.00
EXPORTS_PCER	0.19	0.17	0.07	0.03	0.01	0.00	-0.00	-0.00	0.00	0.00	0.00
IMPORTS_PCER	-0.41	0.07	0.07	0.06	0.05	0.04	0.03	0.03	0.02	0.02	0.00
EMPLOYMENT_PCER	-0.79	0.17	0.09	0.03	0.01	0.00	0.00	-0.00	-0.00	-0.00	-0.00
REAL.WAGE.COSTS_PCER	-0.52	-0.03	0.18	0.10	0.06	0.03	0.02	0.02	0.02	0.01	0.00
PRICE.LEVEL_PCER	-0.08	-0.08	-0.03	-0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
DOLLAR.EXCH.RATE_PCER	0.16	0.04	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
REAL.EFF.EXCH.RATE_PCER	0.19	0.12	0.06	0.02	0.01	-0.00	-0.00	-0.00	0.00	0.00	0.00
NOM.EFF.EXCH.RATE_PCER	0.09	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
SHORT.RATE_ER	-0.15	-0.03	-0.01	-0.00	-0.00	0.00	0.00	0.00	0.00	0.00	-0.00
LONG.RATE.10YRS_ER	-0.02	-0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.00
CONS.TO.GDP_ER	-0.05	0.05	0.07	0.07	0.06	0.05	0.04	0.03	0.03	0.02	0.00
INV.TO.GDP_ER	0.17	0.12	0.05	0.01	-0.00	-0.01	-0.01	-0.01	-0.01	-0.01	-0.00
GOV.CONS.TO.GDP_ER	-0.99	0.01	0.00	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
NET.EXPORTS.TO.GDP_ER	0.19	0.03	-0.00	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.00
INFLATION.PGDP_ER	-0.08	0.00	0.04	0.03	0.01	0.01	0.00	-0.00	-0.00	-0.00	0.00
UNEMPLOYMENT.RATE_ER	0.72	-0.15	-0.08	-0.03	-0.01	-0.00	-0.00	0.00	0.00	0.00	0.00
DEBT.TO.GDP_ER	0.08	-0.76	-0.77	-0.67	-0.55	-0.44	-0.34	-0.25	-0.19	-0.14	0.00
DEFICIT.TO.GDP_ER	-0.57	-0.12	0.00	0.08	0.10	0.10	0.08	0.07	0.05	0.04	-0.00
TRADE.BAL.TO.GDP_ER	0.16	0.00	-0.02	-0.02	-0.02	-0.01	-0.01	-0.01	-0.01	-0.01	-0.00

Note: _PCER Percentage difference from base
_ER Absolute difference from base

Table 4.a Effects of a temporary decrease in French government consumption of 1% of GDP

France:

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
GDP_PCER	-0.87	0.25	0.21	0.12	0.06	0.04	0.03	0.03	0.03	0.03	0.02
CONSUMPTION_PCER	-0.17	0.09	0.19	0.14	0.10	0.07	0.06	0.05	0.04	0.03	0.00
INVESTMENT_PCER	0.48	0.83	0.45	0.14	0.00	-0.05	-0.05	-0.05	-0.04	-0.03	-0.00
EXPORTS_PCER	0.02	0.13	0.08	0.03	0.01	0.00	0.00	0.00	0.01	0.01	0.00
IMPORTS_PCER	-0.46	0.05	0.09	0.06	0.04	0.03	0.02	0.01	0.01	0.01	-0.00
EMPLOYMENT_PCER	-1.00	0.30	0.13	0.04	0.01	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
REAL.WAGE.COSTS_PCER	-0.98	-0.07	0.34	0.18	0.08	0.04	0.03	0.02	0.02	0.02	0.00
PRICE.LEVEL_PCER	-0.19	-0.28	-0.21	-0.15	-0.12	-0.11	-0.11	-0.11	-0.11	-0.11	-0.11
DOLLAR.EXCH.RATE_PCER	-0.04	-0.06	-0.09	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10
REAL.EFF.EXCH.RATE_PCER	0.16	0.22	0.12	0.05	0.02	0.01	0.01	0.01	0.01	0.01	0.01
NOM.EFF.EXCH.RATE_PCER	-0.02	-0.03	-0.04	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
SHORT.RATE_ER	-0.00	-0.04	-0.01	-0.00	-0.00	0.00	0.00	0.00	0.00	0.00	-0.00
LONG.RATE.10YRS_ER	-0.01	-0.01	-0.00	-0.00	0.00	0.00	0.00	0.00	-0.00	-0.00	-0.00
CONS.TO.GDP_ER	-0.09	0.05	0.10	0.08	0.05	0.04	0.03	0.02	0.02	0.02	0.00
INV.TO.GDP_ER	0.08	0.14	0.08	0.02	0.00	-0.01	-0.01	-0.01	-0.01	-0.01	-0.00
GOV.CONS.TO.GDP_ER	-0.97	0.04	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
NET.EXPORTS.TO.GDP_ER	0.12	0.03	0.00	-0.01	-0.01	-0.01	-0.00	-0.00	-0.00	0.00	0.00
INFLATION.PGDP_ER	-0.19	-0.09	0.07	0.06	0.03	0.01	0.00	-0.00	-0.00	-0.00	0.00
UNEMPLOYMENT.RATE_ER	0.91	-0.28	-0.12	-0.03	-0.01	0.00	0.00	0.00	0.00	0.00	0.00
DEBT.TO.GDP_ER	0.33	-0.53	-0.60	-0.52	-0.41	-0.31	-0.23	-0.17	-0.13	-0.09	-0.00
DEFICIT.TO.GDP_ER	-0.43	-0.15	-0.01	0.07	0.08	0.08	0.06	0.05	0.04	0.03	0.00
TRADE.BAL.TO.GDP_ER	0.12	-0.01	-0.02	-0.02	-0.01	-0.01	-0.01	-0.00	-0.00	-0.00	0.00

Table 4.b Effects of a temporary decrease in French government consumption of 1% of GDP (price level targeting)

France :

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
GDP_PCER	-0.77	0.28	0.20	0.11	0.05	0.03	0.02	0.02	0.02	0.01	0.00
CONSUMPTION_PCER	-0.15	0.13	0.20	0.16	0.12	0.09	0.07	0.06	0.05	0.04	0.01
INVESTMENT_PCER	0.88	0.92	0.46	0.13	-0.02	-0.06	-0.07	-0.06	-0.05	-0.04	-0.00
EXPORTS_PCER	0.17	0.19	0.10	0.04	0.02	0.01	0.01	0.01	0.01	0.01	0.00
IMPORTS_PCER	-0.39	0.08	0.10	0.07	0.05	0.04	0.03	0.02	0.02	0.01	0.00
EMPLOYMENT_PCER	-0.99	0.31	0.13	0.04	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
REAL.WAGE.COSTS_PCER	-0.90	0.01	0.36	0.19	0.09	0.05	0.03	0.03	0.02	0.02	0.00
PRICE.LEVEL_PCER	-0.14	-0.18	-0.10	-0.04	-0.01	-0.00	-0.00	-0.00	-0.00	-0.00	0.00
DOLLAR.EXCH.RATE_PCER	0.12	0.04	0.02	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.01
REAL.EFF.EXCH.RATE_PCER	0.22	0.22	0.12	0.05	0.02	0.01	0.01	0.01	0.01	0.01	0.00
NOM.EFF.EXCH.RATE_PCER	0.06	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
SHORT.RATE_ER	-0.09	-0.04	-0.01	-0.00	-0.00	0.00	0.00	0.00	0.00	0.00	-0.00
LONG.RATE.10YRS_ER	-0.01	-0.01	-0.00	-0.00	0.00	0.00	0.00	0.00	-0.00	-0.00	-0.00
CONS.TO.GDP_ER	-0.08	0.07	0.11	0.09	0.06	0.05	0.04	0.03	0.03	0.02	0.00
INV.TO.GDP_ER	0.14	0.15	0.08	0.02	-0.00	-0.01	-0.01	-0.01	-0.01	-0.01	-0.00
GOV.CONS.TO.GDP_ER	-0.98	0.03	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	-0.00
NET.EXPORTS.TO.GDP_ER	0.15	0.03	0.00	-0.01	-0.01	-0.01	-0.01	-0.00	-0.00	-0.00	-0.00
INFLATION.PGDP_ER	-0.14	-0.04	0.08	0.06	0.03	0.01	0.00	-0.00	-0.00	-0.00	0.00
UNEMPLOYMENT.RATE_ER	0.89	-0.28	-0.12	-0.03	-0.00	0.00	0.00	0.00	0.00	0.00	0.00
DEBT.TO.GDP_ER	0.22	-0.67	-0.73	-0.63	-0.51	-0.39	-0.30	-0.22	-0.16	-0.12	0.00
DEFICIT.TO.GDP_ER	-0.47	-0.17	-0.01	0.08	0.10	0.09	0.08	0.06	0.05	0.04	0.00
TRADE.BAL.TO.GDP_ER	0.13	-0.01	-0.02	-0.02	-0.01	-0.01	-0.01	-0.01	-0.00	-0.00	-0.00

Note: _PCER Percentage difference from base
_ER Absolute difference from base

Table 5.a Effects of a temporary decrease in Italian government consumption of 1% of GDP

Italy:

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
GDP_PCER	-0.85	0.27	0.18	0.08	0.04	0.03	0.02	0.02	0.02	0.02	0.01
CONSUMPTION_PCER	-0.20	0.12	0.18	0.11	0.07	0.06	0.05	0.05	0.04	0.03	0.01
INVESTMENT_PCER	0.43	0.69	0.31	0.06	-0.02	-0.04	-0.04	-0.04	-0.03	-0.02	-0.00
EXPORTS_PCER	-0.01	0.04	0.02	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00
IMPORTS_PCER	-0.49	0.07	0.07	0.04	0.03	0.02	0.02	0.01	0.01	0.01	-0.00
EMPLOYMENT_PCER	-0.89	0.36	0.08	-0.00	-0.01	-0.01	-0.00	-0.00	-0.00	-0.00	-0.00
REAL.WAGE.COSTS_PCER	-1.17	0.14	0.42	0.13	0.04	0.02	0.02	0.02	0.01	0.01	0.00
PRICE.LEVEL_PCER	-0.20	-0.29	-0.20	-0.14	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12
DOLLAR.EXCH.RATE_PCER	-0.06	-0.08	-0.11	-0.11	-0.11	-0.11	-0.11	-0.11	-0.11	-0.11	-0.11
REAL.EFF.EXCH.RATE_PCER	0.16	0.22	0.10	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01
NOM.EFF.EXCH.RATE_PCER	-0.03	-0.04	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
SHORT.RATE_ER	-0.00	-0.05	-0.01	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LONG.RATE.10YRS_ER	-0.01	-0.01	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CONS.TO.GDP_ER	-0.12	0.07	0.11	0.06	0.04	0.04	0.03	0.03	0.02	0.02	0.00
INV.TO.GDP_ER	0.10	0.17	0.08	0.02	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.00
GOV.CONS.TO.GDP_ER	-0.98	0.03	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
NET.EXPORTS.TO.GDP_ER	0.14	-0.01	-0.02	-0.01	-0.01	-0.01	-0.01	-0.00	-0.00	-0.00	0.00
INFLATION.PGDP_ER	-0.20	-0.09	0.09	0.06	0.02	0.00	0.00	-0.00	-0.00	-0.00	0.00
UNEMPLOYMENT.RATE_ER	0.80	-0.33	-0.07	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
DEBT.TO.GDP_ER	0.80	-0.66	-0.72	-0.60	-0.48	-0.39	-0.31	-0.24	-0.18	-0.14	0.00
DEFICIT.TO.GDP_ER	-0.53	-0.17	-0.00	0.07	0.08	0.08	0.07	0.06	0.05	0.04	0.00
TRADE.BAL.TO.GDP_ER	0.14	-0.03	-0.03	-0.01	-0.01	-0.01	-0.01	-0.01	-0.00	-0.00	0.00

Table 5.b Effects of a temporary decrease in Italian government consumption of 1% of GDP (price level targeting)

Italy:

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
GDP_PCER	-0.73	0.31	0.18	0.07	0.03	0.02	0.02	0.01	0.01	0.01	0.00
CONSUMPTION_PCER	-0.17	0.16	0.20	0.12	0.09	0.08	0.07	0.06	0.05	0.04	0.01
INVESTMENT_PCER	0.83	0.78	0.30	0.04	-0.04	-0.06	-0.06	-0.05	-0.05	-0.04	-0.00
EXPORTS_PCER	0.11	0.09	0.02	0.01	0.00	-0.00	-0.00	0.00	0.00	0.00	0.00
IMPORTS_PCER	-0.39	0.11	0.09	0.05	0.04	0.04	0.03	0.03	0.02	0.02	0.00
EMPLOYMENT_PCER	-0.88	0.37	0.07	-0.01	-0.01	-0.01	-0.00	-0.00	-0.00	-0.00	-0.00
REAL.WAGE.COSTS_PCER	-1.06	0.24	0.43	0.13	0.04	0.03	0.02	0.02	0.02	0.02	0.00
PRICE.LEVEL_PCER	-0.15	-0.18	-0.08	-0.02	0.00	0.01	0.01	0.01	0.00	0.00	0.00
DOLLAR.EXCH.RATE_PCER	0.13	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
REAL.EFF.EXCH.RATE_PCER	0.23	0.22	0.09	0.03	0.00	-0.00	-0.00	0.00	0.00	0.00	0.00
NOM.EFF.EXCH.RATE_PCER	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
SHORT.RATE_ER	-0.10	-0.05	-0.01	-0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00
LONG.RATE.10YRS_ER	-0.02	-0.01	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CONS.TO.GDP_ER	-0.10	0.10	0.12	0.07	0.06	0.05	0.04	0.04	0.03	0.02	0.00
INV.TO.GDP_ER	0.20	0.19	0.08	0.01	-0.01	-0.02	-0.02	-0.01	-0.01	-0.01	-0.00
GOV.CONS.TO.GDP_ER	-0.99	0.02	0.01	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
NET.EXPORTS.TO.GDP_ER	0.15	-0.01	-0.02	-0.02	-0.01	-0.01	-0.01	-0.01	-0.01	-0.00	0.00
INFLATION.PGDP_ER	-0.15	-0.03	0.10	0.06	0.02	0.00	0.00	0.00	-0.00	-0.00	0.00
UNEMPLOYMENT.RATE_ER	0.78	-0.33	-0.07	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
DEBT.TO.GDP_ER	0.55	-0.93	-0.95	-0.80	-0.66	-0.53	-0.42	-0.32	-0.25	-0.19	0.00
DEFICIT.TO.GDP_ER	-0.58	-0.20	0.00	0.09	0.11	0.10	0.09	0.08	0.06	0.05	0.00
TRADE.BAL.TO.GDP_ER	0.14	-0.03	-0.03	-0.02	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.00

Note: _PCER Percentage difference from base
_ER Absolute difference from base

Table 6.a Effects of a temporary decrease in UK government consumption of 1% of GDP

UK:

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
GDP_PCER	-0.95	0.05	0.06	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03
CONSUMPTION_PCER	-0.19	-0.02	0.06	0.06	0.05	0.04	0.04	0.03	0.02	0.02	0.01
INVESTMENT_PCER	-0.16	0.16	0.05	-0.00	-0.02	-0.02	-0.02	-0.02	-0.01	-0.01	0.00
EXPORTS_PCER	-0.08	0.00	-0.00	-0.01	-0.01	-0.01	-0.01	-0.00	-0.00	-0.00	-0.00
IMPORTS_PCER	-0.55	-0.01	0.03	0.03	0.03	0.02	0.02	0.02	0.01	0.01	0.00
EMPLOYMENT_PCER	-0.72	0.10	0.06	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00
REAL.WAGE.COSTS_PCER	-0.66	-0.24	0.05	0.03	0.01	0.01	0.00	0.00	0.00	0.00	0.00
PRICE.LEVEL_PCER	-0.23	-0.38	-0.40	-0.40	-0.40	-0.40	-0.40	-0.40	-0.40	-0.40	-0.40
DOLLAR.EXCH.RATE_PCER	-0.29	-0.34	-0.39	-0.41	-0.41	-0.41	-0.41	-0.40	-0.40	-0.40	-0.39
REAL.EFF.EXCH.RATE_PCER	-0.06	0.04	0.00	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.00
NOM.EFF.EXCH.RATE_PCER	-0.29	-0.34	-0.39	-0.40	-0.41	-0.41	-0.40	-0.40	-0.40	-0.40	-0.39

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
SHORT.RATE_ER	-0.01	-0.09	-0.02	-0.01	-0.00	0.00	0.00	0.00	0.00	0.00	-0.00
LONG.RATE.10YRS_ER	-0.01	-0.01	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.00
CONS.TO.GDP_ER	-0.13	-0.01	0.04	0.04	0.03	0.03	0.02	0.02	0.02	0.01	0.01
INV.TO.GDP_ER	-0.03	0.03	0.01	-0.00	-0.00	-0.01	-0.00	-0.00	-0.00	-0.00	0.00
GOV.CONS.TO.GDP_ER	-0.98	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
NET.EXPORTS.TO.GDP_ER	0.19	0.00	-0.02	-0.02	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.00
INFLATION.PGDP_ER	-0.23	-0.15	-0.01	-0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00
UNEMPLOYMENT.RATE_ER	0.68	-0.09	-0.06	-0.02	-0.01	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
DEBT.TO.GDP_ER	0.09	-0.51	-0.51	-0.44	-0.36	-0.29	-0.22	-0.17	-0.13	-0.10	0.00
DEFICIT.TO.GDP_ER	-0.62	-0.04	0.02	0.06	0.07	0.06	0.06	0.05	0.04	0.03	0.00
TRADE.BAL.TO.GDP_ER	0.17	0.00	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.00	-0.00	-0.00

Table 6.b Effects of a temporary decrease in UK government consumption of 1% of GDP (price level targeting)

UK:

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
GDP_PCER	-0.51	0.23	0.07	0.04	0.03	0.02	0.02	0.01	0.01	0.01	0.00
CONSUMPTION_PCER	-0.13	0.18	0.12	0.12	0.11	0.09	0.08	0.07	0.06	0.05	0.01
INVESTMENT_PCER	1.57	0.49	0.09	-0.02	-0.06	-0.07	-0.06	-0.05	-0.04	-0.04	-0.00
EXPORTS_PCER	0.25	0.06	0.01	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	0.00
IMPORTS_PCER	-0.47	0.06	0.06	0.06	0.06	0.05	0.04	0.04	0.03	0.02	0.01
EMPLOYMENT_PCER	-0.65	0.15	0.07	0.03	0.01	0.00	0.00	0.00	0.00	-0.00	0.00
REAL.WAGE.COSTS_PCER	-0.35	0.07	0.13	0.07	0.04	0.03	0.03	0.02	0.02	0.02	0.00
PRICE.LEVEL_PCER	-0.02	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
DOLLAR.EXCH.RATE_PCER	0.54	0.12	0.06	0.04	0.03	0.03	0.03	0.04	0.04	0.04	0.04
REAL.EFF.EXCH.RATE_PCER	0.55	0.10	0.02	0.00	-0.01	-0.01	-0.01	-0.01	-0.00	-0.00	-0.00
NOM.EFF.EXCH.RATE_PCER	0.53	0.13	0.06	0.04	0.03	0.03	0.03	0.04	0.04	0.04	0.04

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
SHORT.RATE_ER	-0.53	-0.11	-0.03	-0.01	-0.00	0.00	0.00	0.00	0.00	0.00	-0.00
LONG.RATE.10YRS_ER	-0.07	-0.01	-0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.00
CONS.TO.GDP_ER	-0.08	0.12	0.08	0.08	0.07	0.06	0.05	0.04	0.04	0.03	0.01
INV.TO.GDP_ER	0.32	0.10	0.02	-0.00	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.00
GOV.CONS.TO.GDP_ER	-1.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
NET.EXPORTS.TO.GDP_ER	0.26	-0.00	-0.02	-0.03	-0.03	-0.02	-0.02	-0.02	-0.01	-0.01	-0.00
INFLATION.PGDP_ER	-0.02	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UNEMPLOYMENT.RATE_ER	0.62	-0.15	-0.07	-0.03	-0.01	-0.00	-0.00	-0.00	-0.00	0.00	0.00
DEBT.TO.GDP_ER	-0.31	-1.06	-1.02	-0.89	-0.74	-0.59	-0.46	-0.36	-0.27	-0.20	0.00
DEFICIT.TO.GDP_ER	-0.78	-0.14	0.04	0.11	0.13	0.13	0.11	0.09	0.07	0.06	0.00
TRADE.BAL.TO.GDP_ER	0.12	0.00	-0.02	-0.02	-0.02	-0.02	-0.02	-0.01	-0.01	-0.01	-0.00

Note: _PCER Percentage difference from base
_ER Absolute difference from base

Table 7.a Effects of a permanent increase in productivity in EU

EU12:

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
GDP_PCER	0.91	1.13	1.09	1.08	1.08	1.09	1.11	1.12	1.13	1.15	1.31
CONSUMPTION_PCER	1.05	1.41	1.33	1.29	1.27	1.28	1.29	1.30	1.30	1.31	1.41
INVESTMENT_PCER	1.27	1.19	1.14	1.12	1.11	1.10	1.10	1.09	1.09	1.09	1.08
EXPORTS_PCER	0.74	0.84	0.83	0.86	0.87	0.89	0.92	0.94	0.96	0.98	1.22
IMPORTS_PCER	0.92	1.10	1.04	1.00	0.98	0.98	0.98	0.98	0.98	0.98	0.94
EMPLOYMENT_PCER	0.08	0.01	-0.07	-0.10	-0.12	-0.12	-0.13	-0.13	-0.13	-0.13	-0.13
REAL.WAGE.COSTS_PCER	0.79	1.39	1.34	1.33	1.32	1.33	1.35	1.36	1.37	1.39	1.53
PRICE.LEVEL_PCER	-0.06	-0.06	-0.05	-0.03	-0.02	-0.00	0.01	0.03	0.04	0.05	0.28
DOLLAR.EXCH.RATE_PCER	0.27	0.21	0.26	0.30	0.34	0.38	0.42	0.46	0.49	0.53	1.07
REAL.EFF.EXCH.RATE_PCER	0.18	0.17	0.20	0.22	0.23	0.24	0.26	0.27	0.28	0.29	0.48
NOM.EFF.EXCH.RATE_PCER	0.09	0.06	0.08	0.10	0.12	0.13	0.15	0.16	0.18	0.19	0.40

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
SHORT.RATE_ER	-0.25	0.04	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03
LONG.RATE.10YRS_ER	0.01	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03
CONS.TO.GDP_ER	0.59	0.79	0.75	0.72	0.71	0.72	0.73	0.73	0.74	0.74	0.82
INV.TO.GDP_ER	0.28	0.27	0.26	0.26	0.26	0.26	0.25	0.25	0.25	0.25	0.21
GOV.CONS.TO.GDP_ER	0.08	0.14	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.16
NET.EXPORTS.TO.GDP_ER	-0.08	-0.11	-0.09	-0.07	-0.06	-0.05	-0.05	-0.04	-0.03	-0.02	0.07
INFLATION.PGDP_ER	-0.06	-0.00	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01
UNEMPLOYMENT.RATE_ER	-0.07	-0.01	0.06	0.09	0.11	0.12	0.12	0.12	0.12	0.12	0.12
DEBT.TO.GDP_ER	-0.52	-0.42	-0.23	-0.12	-0.07	-0.06	-0.04	-0.04	-0.03	-0.03	-0.01
DEFICIT.TO.GDP_ER	0.22	0.19	0.13	0.08	0.06	0.06	0.05	0.05	0.05	0.05	0.04
TRADE.BAL.TO.GDP_ER	-0.09	-0.12	-0.10	-0.08	-0.07	-0.07	-0.06	-0.06	-0.05	-0.05	0.01

Note: _PCER Percentage difference from base
_ER Absolute difference from base

Table 7.b Effects of a permanent increase in productivity in EU

Germany

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
GDP_PCER	1.02	1.23	1.16	1.14	1.13	1.14	1.15	1.16	1.17	1.19	1.34
CONSUMPTION_PCER	1.18	1.65	1.55	1.50	1.48	1.47	1.47	1.48	1.48	1.48	1.51
INVESTMENT_PCER	1.63	1.41	1.27	1.22	1.19	1.17	1.16	1.16	1.16	1.15	1.10
EXPORTS_PCER	0.78	0.86	0.84	0.87	0.89	0.92	0.94	0.97	1.00	1.02	1.35
IMPORTS_PCER	1.07	1.33	1.26	1.21	1.19	1.18	1.17	1.16	1.16	1.15	1.04
EMPLOYMENT_PCER	0.12	0.09	0.00	-0.04	-0.07	-0.08	-0.08	-0.09	-0.09	-0.09	-0.10
REAL.WAGE.COSTS_PCER	0.78	1.39	1.34	1.32	1.31	1.31	1.32	1.34	1.35	1.36	1.51
PRICE.LEVEL_PCER	0.01	0.08	0.12	0.14	0.15	0.17	0.18	0.19	0.20	0.22	0.41
DOLLAR.EXCH.RATE_PCER	0.27	0.21	0.26	0.30	0.34	0.38	0.42	0.46	0.49	0.53	1.07
REAL.EFF.EXCH.RATE_PCER	0.13	0.04	0.04	0.06	0.07	0.09	0.10	0.12	0.13	0.15	0.39
NOM.EFF.EXCH.RATE_PCER	0.11	0.08	0.11	0.13	0.15	0.16	0.18	0.20	0.21	0.23	0.48

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
SHORT.RATE_ER	-0.25	0.04	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03
LONG.RATE.10YRS_ER	0.01	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03
CONS.TO.GDP_ER	0.67	0.93	0.88	0.85	0.84	0.84	0.84	0.84	0.84	0.85	0.88
INV.TO.GDP_ER	0.39	0.34	0.31	0.30	0.29	0.29	0.28	0.28	0.28	0.28	0.23
GOV.CONS.TO.GDP_ER	0.06	0.10	0.10	0.10	0.09	0.09	0.10	0.10	0.10	0.10	0.12
NET.EXPORTS.TO.GDP_ER	-0.08	-0.14	-0.13	-0.11	-0.09	-0.08	-0.06	-0.05	-0.04	-0.03	0.13
INFLATION.PGDP_ER	0.01	0.07	0.04	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01
UNEMPLOYMENT.RATE_ER	-0.11	-0.08	-0.00	0.04	0.06	0.07	0.08	0.08	0.08	0.08	0.09
DEBT.TO.GDP_ER	-0.57	-0.53	-0.33	-0.20	-0.12	-0.08	-0.06	-0.04	-0.03	-0.03	-0.01
DEFICIT.TO.GDP_ER	-0.28	-0.20	-0.22	-0.24	-0.25	-0.26	-0.26	-0.27	-0.27	-0.27	-0.22
TRADE.BAL.TO.GDP_ER	-0.12	-0.17	-0.16	-0.14	-0.13	-0.12	-0.11	-0.10	-0.09	-0.09	0.01

Table 7.c Effects of a permanent increase in productivity in EU

France

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
GDP_PCER	0.97	1.19	1.11	1.09	1.08	1.10	1.11	1.13	1.15	1.16	1.34
CONSUMPTION_PCER	0.98	1.31	1.20	1.15	1.13	1.15	1.16	1.18	1.20	1.22	1.46
INVESTMENT_PCER	1.94	1.77	1.60	1.53	1.51	1.50	1.49	1.49	1.48	1.47	1.37
EXPORTS_PCER	0.90	1.01	1.00	1.03	1.04	1.06	1.09	1.11	1.13	1.15	1.33
IMPORTS_PCER	0.99	1.19	1.11	1.07	1.05	1.04	1.05	1.05	1.05	1.06	1.09
EMPLOYMENT_PCER	0.08	0.01	-0.07	-0.11	-0.13	-0.13	-0.13	-0.14	-0.14	-0.14	-0.13
REAL.WAGE.COSTS_PCER	0.83	1.44	1.35	1.31	1.30	1.31	1.33	1.35	1.36	1.38	1.54
PRICE.LEVEL_PCER	-0.01	0.05	0.08	0.11	0.12	0.13	0.14	0.15	0.17	0.18	0.44
DOLLAR.EXCH.RATE_PCER	0.27	0.21	0.26	0.30	0.34	0.38	0.42	0.46	0.49	0.53	1.07
REAL.EFF.EXCH.RATE_PCER	0.12	0.06	0.06	0.07	0.09	0.11	0.12	0.14	0.15	0.16	0.31
NOM.EFF.EXCH.RATE_PCER	0.08	0.06	0.07	0.09	0.11	0.12	0.14	0.15	0.16	0.18	0.38

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
SHORT.RATE_ER	-0.25	0.04	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03
LONG.RATE.10YRS_ER	0.01	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03
CONS.TO.GDP_ER	0.53	0.71	0.65	0.62	0.61	0.62	0.63	0.64	0.65	0.66	0.81
INV.TO.GDP_ER	0.31	0.29	0.27	0.26	0.26	0.25	0.25	0.25	0.25	0.25	0.21
GOV.CONS.TO.GDP_ER	0.12	0.21	0.19	0.19	0.18	0.19	0.19	0.19	0.19	0.20	0.22
NET.EXPORTS.TO.GDP_ER	0.00	-0.02	-0.00	0.02	0.03	0.04	0.04	0.05	0.05	0.06	0.10
INFLATION.PGDP_ER	-0.01	0.06	0.04	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01
UNEMPLOYMENT.RATE_ER	-0.08	-0.01	0.07	0.10	0.11	0.12	0.12	0.12	0.13	0.13	0.12
DEBT.TO.GDP_ER	-0.50	-0.41	-0.19	-0.08	-0.02	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
DEFICIT.TO.GDP_ER	-0.26	-0.14	-0.20	-0.24	-0.26	-0.26	-0.26	-0.26	-0.26	-0.26	-0.22
TRADE.BAL.TO.GDP_ER	-0.04	-0.06	-0.04	-0.02	-0.01	-0.01	-0.00	-0.00	0.00	0.00	0.02

Note: _PCER Percentage difference from base
_ER Absolute difference from base

Table 7.d Effects of a permanent increase in productivity in EU

Italy

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
GDP_PCER	0.81	1.01	1.01	1.03	1.04	1.05	1.07	1.08	1.10	1.11	1.30
CONSUMPTION_PCER	1.00	1.20	1.12	1.09	1.08	1.10	1.12	1.13	1.14	1.16	1.32
INVESTMENT_PCER	0.76	0.81	0.90	0.95	0.96	0.96	0.96	0.96	0.96	0.97	1.00
EXPORTS_PCER	0.58	0.67	0.70	0.72	0.73	0.75	0.76	0.77	0.79	0.80	0.95
IMPORTS_PCER	0.78	0.84	0.77	0.74	0.74	0.74	0.75	0.75	0.76	0.76	0.78
EMPLOYMENT_PCER	0.05	-0.07	-0.15	-0.17	-0.18	-0.19	-0.19	-0.19	-0.19	-0.19	-0.17
REAL.WAGE.COSTS_PCER	0.82	1.37	1.31	1.31	1.32	1.33	1.35	1.36	1.38	1.39	1.56
PRICE.LEVEL_PCER	-0.11	-0.18	-0.19	-0.18	-0.17	-0.15	-0.13	-0.12	-0.10	-0.09	0.14
DOLLAR.EXCH.RATE_PCER	0.27	0.21	0.26	0.30	0.34	0.38	0.42	0.46	0.49	0.53	1.07
REAL.EFF.EXCH.RATE_PCER	0.23	0.29	0.34	0.37	0.39	0.40	0.40	0.41	0.42	0.43	0.61
NOM.EFF.EXCH.RATE_PCER	0.09	0.06	0.08	0.10	0.12	0.13	0.15	0.16	0.17	0.19	0.40

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
SHORT.RATE_ER	-0.25	0.04	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03
LONG.RATE.10YRS_ER	0.01	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03
CONS.TO.GDP_ER	0.59	0.71	0.66	0.65	0.64	0.66	0.67	0.67	0.68	0.69	0.81
INV.TO.GDP_ER	0.18	0.20	0.22	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.21
GOV.CONS.TO.GDP_ER	0.07	0.12	0.11	0.11	0.11	0.11	0.11	0.11	0.12	0.12	0.15
NET.EXPORTS.TO.GDP_ER	-0.05	-0.04	-0.02	-0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.06
INFLATION.PGDP_ER	-0.11	-0.07	-0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.01
UNEMPLOYMENT.RATE_ER	-0.04	0.07	0.13	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.16
DEBT.TO.GDP_ER	-0.65	-0.43	-0.19	-0.07	-0.04	-0.04	-0.04	-0.03	-0.03	-0.03	-0.01
DEFICIT.TO.GDP_ER	-0.49	-0.41	-0.46	-0.50	-0.50	-0.49	-0.48	-0.47	-0.46	-0.46	-0.33
TRADE.BAL.TO.GDP_ER	-0.07	-0.07	-0.05	-0.04	-0.03	-0.03	-0.03	-0.02	-0.02	-0.02	0.02

Table 7.e Effects of a permanent increase in productivity in EU

UK

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
GDP_PCER	0.84	1.10	1.08	1.08	1.09	1.10	1.11	1.13	1.14	1.15	1.30
CONSUMPTION_PCER	0.68	1.00	0.97	0.95	0.95	0.97	0.98	0.99	1.01	1.02	1.18
INVESTMENT_PCER	1.38	1.30	1.24	1.21	1.20	1.19	1.19	1.19	1.19	1.19	1.20
EXPORTS_PCER	0.81	0.91	0.90	0.92	0.92	0.94	0.95	0.97	0.98	0.99	1.13
IMPORTS_PCER	0.53	0.62	0.59	0.58	0.57	0.57	0.58	0.58	0.58	0.58	0.59
EMPLOYMENT_PCER	0.07	0.03	-0.03	-0.06	-0.07	-0.07	-0.08	-0.08	-0.08	-0.08	-0.08
REAL.WAGE.COSTS_PCER	0.72	1.29	1.27	1.26	1.26	1.27	1.29	1.30	1.31	1.33	1.47
PRICE.LEVEL_PCER	-0.06	-0.07	-0.05	-0.04	-0.03	-0.02	-0.00	0.01	0.02	0.03	0.23
DOLLAR.EXCH.RATE_PCER	0.64	0.56	0.59	0.62	0.66	0.69	0.72	0.76	0.79	0.82	1.29
REAL.EFF.EXCH.RATE_PCER	0.60	0.57	0.58	0.59	0.60	0.61	0.62	0.63	0.64	0.65	0.81
NOM.EFF.EXCH.RATE_PCER	0.51	0.47	0.47	0.48	0.49	0.50	0.51	0.53	0.54	0.55	0.73

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
SHORT.RATE_ER	-0.28	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02
LONG.RATE.10YRS_ER	0.00	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02
CONS.TO.GDP_ER	0.45	0.66	0.63	0.62	0.63	0.63	0.64	0.65	0.66	0.67	0.77
INV.TO.GDP_ER	0.28	0.27	0.26	0.26	0.25	0.25	0.25	0.25	0.25	0.25	0.22
GOV.CONS.TO.GDP_ER	0.05	0.10	0.09	0.09	0.09	0.09	0.10	0.10	0.10	0.10	0.11
NET.EXPORTS.TO.GDP_ER	0.07	0.07	0.08	0.10	0.10	0.11	0.11	0.11	0.12	0.12	0.17
INFLATION.PGDP_ER	-0.06	-0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
UNEMPLOYMENT.RATE_ER	-0.06	-0.03	0.03	0.05	0.06	0.07	0.07	0.07	0.07	0.07	0.08
DEBT.TO.GDP_ER	-0.32	-0.31	-0.21	-0.14	-0.11	-0.10	-0.08	-0.07	-0.06	-0.05	-0.01
DEFICIT.TO.GDP_ER	0.13	0.17	0.11	0.00	-0.16	-0.15	-0.16	-0.16	-0.16	-0.16	-0.17
TRADE.BAL.TO.GDP_ER	-0.02	0.01	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.07

Note: _PCER Percentage difference from base
_ER Absolute difference from base

Table 8.a Effects of a permanent reduction in reservation wage in EU

EU12

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
GDP_PCER	0.23	0.47	0.63	0.70	0.74	0.76	0.78	0.79	0.80	0.81	0.97
CONSUMPTION_PCER	0.42	0.71	0.98	1.12	1.18	1.22	1.23	1.23	1.23	1.22	1.25
INVESTMENT_PCER	0.61	0.97	0.90	0.82	0.78	0.76	0.76	0.77	0.78	0.80	0.87
EXPORTS_PCER	0.16	0.35	0.47	0.55	0.60	0.63	0.66	0.69	0.71	0.73	1.02
IMPORTS_PCER	0.41	0.67	0.80	0.87	0.90	0.92	0.92	0.92	0.92	0.92	0.86
EMPLOYMENT_PCER	0.25	0.68	0.85	0.91	0.93	0.94	0.95	0.95	0.95	0.96	1.00
REAL.WAGE.COSTS_PCER	-0.60	-0.59	-0.28	-0.16	-0.11	-0.09	-0.07	-0.06	-0.05	-0.04	0.02
PRICE.LEVEL_PCER	0.03	0.05	0.04	0.05	0.06	0.08	0.09	0.11	0.12	0.14	0.37
DOLLAR.EXCH.RATE_PCER	-0.04	0.06	0.06	0.08	0.11	0.14	0.18	0.22	0.26	0.30	0.88
REAL.EFF.EXCH.RATE_PCER	-0.04	0.02	0.03	0.04	0.04	0.05	0.07	0.08	0.09	0.11	0.31
NOM.EFF.EXCH.RATE_PCER	-0.03	0.01	0.01	0.02	0.03	0.04	0.06	0.08	0.09	0.11	0.34

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
SHORT.RATE_ER	0.18	-0.00	0.01	0.02	0.03	0.04	0.04	0.04	0.04	0.04	0.03
LONG.RATE.10YRS_ER	0.04	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03
CONS.TO.GDP_ER	0.24	0.40	0.55	0.63	0.66	0.68	0.69	0.69	0.69	0.69	0.73
INV.TO.GDP_ER	0.13	0.22	0.21	0.19	0.18	0.18	0.18	0.18	0.18	0.18	0.17
GOV.CONS.TO.GDP_ER	-0.06	-0.06	-0.03	-0.02	-0.01	-0.01	-0.01	-0.01	-0.00	-0.00	0.00
NET.EXPORTS.TO.GDP_ER	-0.09	-0.12	-0.14	-0.14	-0.13	-0.13	-0.12	-0.11	-0.10	-0.09	0.04
INFLATION.PGDP_ER	0.03	0.01	-0.00	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.01
UNEMPLOYMENT.RATE_ER	-0.23	-0.63	-0.79	-0.84	-0.87	-0.88	-0.88	-0.89	-0.89	-0.89	-0.92
DEBT.TO.GDP_ER	-0.24	-0.73	-1.07	-1.10	-1.02	-0.89	-0.74	-0.60	-0.48	-0.38	-0.03
DEFICIT.TO.GDP_ER	-0.23	-0.40	-0.15	0.03	0.11	0.15	0.16	0.15	0.14	0.12	0.03
TRADE.BAL.TO.GDP_ER	-0.07	-0.10	-0.11	-0.12	-0.11	-0.11	-0.11	-0.10	-0.09	-0.09	-0.01

Note: _PCER Percentage difference from base
_ER Absolute difference from base

Table 8.b Effects of a permanent reduction in reservation wage in EU

Germany

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
GDP_PCER	0.35	0.53	0.63	0.71	0.77	0.81	0.83	0.85	0.86	0.87	1.02
CONSUMPTION_PCER	0.56	0.88	1.09	1.23	1.31	1.36	1.38	1.39	1.38	1.37	1.33
INVESTMENT_PCER	0.82	1.00	0.88	0.84	0.84	0.84	0.84	0.85	0.86	0.87	0.91
EXPORTS_PCER	0.14	0.31	0.42	0.51	0.56	0.61	0.64	0.67	0.70	0.73	1.10
IMPORTS_PCER	0.56	0.84	0.95	1.03	1.07	1.09	1.10	1.09	1.09	1.08	0.94
EMPLOYMENT_PCER	0.24	0.68	0.91	1.01	1.06	1.08	1.09	1.09	1.09	1.09	1.11
REAL.WAGE.COSTS_PCER	-0.46	-0.57	-0.41	-0.30	-0.23	-0.19	-0.16	-0.14	-0.13	-0.12	-0.03
PRICE.LEVEL_PCER	0.09	0.18	0.19	0.18	0.18	0.19	0.20	0.21	0.23	0.24	0.45
DOLLAR.EXCH.RATE_PCER	-0.04	0.06	0.06	0.08	0.11	0.14	0.18	0.22	0.26	0.30	0.88
REAL.EFF.EXCH.RATE_PCER	-0.11	-0.12	-0.12	-0.10	-0.08	-0.06	-0.04	-0.02	-0.00	0.01	0.27
NOM.EFF.EXCH.RATE_PCER	-0.02	0.02	0.02	0.03	0.04	0.06	0.08	0.10	0.12	0.13	0.40

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
SHORT.RATE_ER	0.18	-0.00	0.01	0.02	0.03	0.04	0.04	0.04	0.04	0.04	0.03
LONG.RATE.10YRS_ER	0.04	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03
CONS.TO.GDP_ER	0.31	0.50	0.61	0.70	0.74	0.77	0.78	0.79	0.79	0.78	0.78
INV.TO.GDP_ER	0.19	0.24	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.19
GOV.CONS.TO.GDP_ER	-0.03	-0.04	-0.03	-0.02	-0.02	-0.01	-0.01	-0.01	-0.01	-0.01	-0.00
NET.EXPORTS.TO.GDP_ER	-0.13	-0.17	-0.18	-0.18	-0.17	-0.16	-0.15	-0.14	-0.12	-0.11	0.07
INFLATION.PGDP_ER	0.09	0.09	0.01	-0.01	-0.00	0.01	0.01	0.01	0.01	0.01	0.01
UNEMPLOYMENT.RATE_ER	-0.22	-0.63	-0.84	-0.94	-0.99	-1.01	-1.02	-1.02	-1.02	-1.02	-1.04
DEBT.TO.GDP_ER	-0.34	-0.80	-1.11	-1.17	-1.11	-0.99	-0.84	-0.69	-0.55	-0.43	-0.02
DEFICIT.TO.GDP_ER	-0.55	-0.76	-0.54	-0.34	-0.22	-0.17	-0.15	-0.15	-0.16	-0.18	-0.23
TRADE.BAL.TO.GDP_ER	-0.11	-0.15	-0.15	-0.16	-0.16	-0.16	-0.15	-0.15	-0.14	-0.13	-0.01

Table 8.c Effects of a permanent reduction in reservation wage in EU

France

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
GDP_PCER	0.23	0.46	0.69	0.81	0.86	0.90	0.92	0.93	0.95	0.96	1.13
CONSUMPTION_PCER	0.42	0.68	1.01	1.20	1.29	1.34	1.36	1.37	1.37	1.37	1.49
INVESTMENT_PCER	0.99	1.54	1.54	1.46	1.39	1.35	1.34	1.34	1.35	1.36	1.34
EXPORTS_PCER	0.22	0.48	0.65	0.75	0.81	0.84	0.88	0.90	0.93	0.95	1.24
IMPORTS_PCER	0.48	0.74	0.93	1.04	1.08	1.10	1.10	1.10	1.09	1.08	1.01
EMPLOYMENT_PCER	0.26	0.74	0.95	1.03	1.06	1.07	1.07	1.07	1.07	1.07	1.10
REAL.WAGE.COSTS_PCER	-0.65	-0.72	-0.37	-0.19	-0.11	-0.07	-0.05	-0.04	-0.03	-0.01	0.09
PRICE.LEVEL_PCER	0.04	0.04	0.02	0.02	0.02	0.03	0.04	0.05	0.06	0.07	0.27
DOLLAR.EXCH.RATE_PCER	-0.04	0.06	0.06	0.08	0.11	0.14	0.18	0.22	0.26	0.30	0.88
REAL.EFF.EXCH.RATE_PCER	-0.05	0.03	0.06	0.07	0.08	0.10	0.11	0.14	0.16	0.18	0.42
NOM.EFF.EXCH.RATE_PCER	-0.03	0.01	0.01	0.01	0.02	0.04	0.05	0.07	0.08	0.10	0.32

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
SHORT.RATE_ER	0.18	-0.00	0.01	0.02	0.03	0.04	0.04	0.04	0.04	0.04	0.03
LONG.RATE.10YRS_ER	0.04	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03
CONS.TO.GDP_ER	0.23	0.37	0.54	0.65	0.70	0.72	0.74	0.74	0.74	0.74	0.82
INV.TO.GDP_ER	0.16	0.25	0.26	0.25	0.24	0.23	0.23	0.22	0.23	0.23	0.21
GOV.CONS.TO.GDP_ER	-0.09	-0.10	-0.05	-0.03	-0.02	-0.01	-0.01	-0.01	-0.00	-0.00	0.01
NET.EXPORTS.TO.GDP_ER	-0.06	-0.05	-0.06	-0.06	-0.05	-0.04	-0.04	-0.03	-0.02	-0.01	0.09
INFLATION.PGDP_ER	0.04	-0.00	-0.02	-0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01
UNEMPLOYMENT.RATE_ER	-0.24	-0.67	-0.87	-0.94	-0.97	-0.98	-0.98	-0.99	-0.99	-0.99	-1.01
DEBT.TO.GDP_ER	-0.27	-0.79	-1.20	-1.27	-1.19	-1.04	-0.87	-0.71	-0.56	-0.44	-0.03
DEFICIT.TO.GDP_ER	-0.63	-0.84	-0.54	-0.30	-0.18	-0.13	-0.11	-0.12	-0.14	-0.16	-0.22
TRADE.BAL.TO.GDP_ER	-0.06	-0.07	-0.08	-0.09	-0.09	-0.09	-0.08	-0.07	-0.07	-0.06	0.00

Note: _PCER Percentage difference from base
_ER Absolute difference from base

Table 8.d Effects of a permanent reduction in reservation wage in EU

Italy

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
GDP_PCER	0.16	0.48	0.72	0.79	0.81	0.82	0.83	0.84	0.85	0.87	1.08
CONSUMPTION_PCER	0.36	0.66	1.01	1.14	1.19	1.21	1.21	1.21	1.21	1.20	1.29
INVESTMENT_PCER	0.24	0.81	0.84	0.75	0.68	0.66	0.66	0.67	0.69	0.71	0.91
EXPORTS_PCER	0.14	0.34	0.43	0.49	0.52	0.54	0.56	0.58	0.60	0.61	0.82
IMPORTS_PCER	0.29	0.53	0.71	0.78	0.80	0.81	0.81	0.81	0.80	0.80	0.76
EMPLOYMENT_PCER	0.32	0.86	0.99	1.00	1.01	1.01	1.02	1.02	1.03	1.03	1.11
REAL.WAGE.COSTS_PCER	-0.81	-0.65	-0.13	0.00	0.02	0.03	0.03	0.04	0.04	0.05	0.12
PRICE.LEVEL_PCER	-0.04	-0.12	-0.14	-0.13	-0.11	-0.09	-0.08	-0.06	-0.05	-0.03	0.13
DOLLAR.EXCH.RATE_PCER	-0.04	0.06	0.06	0.08	0.11	0.14	0.18	0.22	0.26	0.30	0.88
REAL.EFF.EXCH.RATE_PCER	0.04	0.19	0.22	0.22	0.22	0.22	0.23	0.25	0.26	0.28	0.54
NOM.EFF.EXCH.RATE_PCER	-0.03	0.01	0.01	0.02	0.03	0.04	0.06	0.07	0.09	0.11	0.33

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
SHORT.RATE_ER	0.18	-0.00	0.01	0.02	0.03	0.04	0.04	0.04	0.04	0.04	0.03
LONG.RATE.10YRS_ER	0.04	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03
CONS.TO.GDP_ER	0.21	0.39	0.60	0.68	0.71	0.72	0.72	0.72	0.72	0.72	0.79
INV.TO.GDP_ER	0.06	0.20	0.21	0.19	0.17	0.17	0.16	0.17	0.17	0.17	0.19
GOV.CONS.TO.GDP_ER	-0.07	-0.06	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
NET.EXPORTS.TO.GDP_ER	-0.04	-0.06	-0.09	-0.09	-0.09	-0.08	-0.08	-0.07	-0.06	-0.06	0.03
INFLATION.PGDP_ER	-0.04	-0.08	-0.02	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.01
UNEMPLOYMENT.RATE_ER	-0.28	-0.77	-0.90	-0.91	-0.92	-0.92	-0.93	-0.93	-0.93	-0.94	-1.01
DEBT.TO.GDP_ER	-0.20	-0.83	-1.28	-1.28	-1.14	-0.98	-0.80	-0.65	-0.51	-0.40	-0.05
DEFICIT.TO.GDP_ER	-0.91	-1.16	-0.74	-0.49	-0.39	-0.34	-0.34	-0.35	-0.36	-0.38	-0.34
TRADE.BAL.TO.GDP_ER	-0.05	-0.08	-0.11	-0.12	-0.11	-0.11	-0.10	-0.10	-0.09	-0.08	-0.01

Table 8.e Effects of a permanent reduction in reservation wage in EU

UK

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
GDP_PCER	0.18	0.39	0.54	0.63	0.67	0.70	0.71	0.73	0.74	0.75	0.90
CONSUMPTION_PCER	0.14	0.28	0.51	0.65	0.72	0.76	0.78	0.79	0.80	0.80	0.94
INVESTMENT_PCER	0.45	0.82	0.83	0.80	0.79	0.78	0.78	0.79	0.81	0.82	0.89
EXPORTS_PCER	0.29	0.49	0.58	0.65	0.68	0.70	0.72	0.74	0.75	0.76	0.92
IMPORTS_PCER	0.11	0.21	0.35	0.44	0.48	0.50	0.51	0.51	0.52	0.52	0.53
EMPLOYMENT_PCER	0.21	0.63	0.84	0.94	0.98	1.00	1.01	1.01	1.01	1.02	1.06
REAL.WAGE.COSTS_PCER	-0.60	-0.76	-0.53	-0.40	-0.35	-0.31	-0.29	-0.28	-0.27	-0.26	-0.16
PRICE.LEVEL_PCER	0.04	0.06	0.07	0.08	0.09	0.10	0.11	0.13	0.14	0.15	0.35
DOLLAR.EXCH.RATE_PCER	0.22	0.34	0.36	0.38	0.41	0.44	0.47	0.51	0.54	0.57	1.04
REAL.EFF.EXCH.RATE_PCER	0.23	0.30	0.32	0.33	0.34	0.35	0.36	0.37	0.38	0.39	0.53
NOM.EFF.EXCH.RATE_PCER	0.26	0.33	0.35	0.36	0.37	0.38	0.40	0.41	0.42	0.43	0.59

	2001A	2002A	2003A	2004A	2005A	2006A	2007A	2008A	2009A	2010A	2030A
SHORT.RATE_ER	0.18	0.03	0.01	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.02
LONG.RATE.10YRS_ER	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02
CONS.TO.GDP_ER	0.09	0.19	0.34	0.43	0.47	0.50	0.51	0.52	0.52	0.52	0.62
INV.TO.GDP_ER	0.09	0.17	0.18	0.17	0.17	0.16	0.16	0.17	0.17	0.17	0.16
GOV.CONS.TO.GDP_ER	-0.04	-0.06	-0.04	-0.03	-0.03	-0.02	-0.02	-0.02	-0.02	-0.02	-0.01
NET.EXPORTS.TO.GDP_ER	0.05	0.08	0.06	0.06	0.05	0.05	0.05	0.06	0.06	0.07	0.11
INFLATION.PGDP_ER	0.04	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
UNEMPLOYMENT.RATE_ER	-0.20	-0.60	-0.80	-0.89	-0.93	-0.94	-0.95	-0.96	-0.96	-0.96	-1.00
DEBT.TO.GDP_ER	-0.17	-0.56	-0.85	-0.91	-0.85	-0.75	-0.63	-0.52	-0.41	-0.32	-0.02
DEFICIT.TO.GDP_ER	-0.06	-0.29	-0.13	-0.05	-0.12	-0.07	-0.06	-0.07	-0.09	-0.10	-0.17
TRADE.BAL.TO.GDP_ER	0.00	0.04	0.02	0.02	0.01	0.01	0.01	0.02	0.02	0.02	0.05

Note: _PCER Percentage difference from base
_ER Absolute difference from base