MAGYAR NEMZETI BANK

The Central Bank of Hungary

The Hungarian Quarterly Projection Model (N.E.M.)

Non-technical summary[1]

Abstract

This document describes the main features of the Hungarian Quarterly Projection Model (N.E.M.) currently used at the Central Bank of Hungary (Magyar Nemzeti Bank – henceforth MNB). The Model was developed at the Conjunctural Assessment and Projections Division of the Economics Department, in alignment with the practice of other national banks. This material is written in non-technical manner to provide a general overview about the model and displays its main characteristics. The entire documentation of N.E.M. containing technical details such as equations, estimations, etc. will be available soon.

Keywords: Econometric Modelling, Simulation Results

JEL classification: C50; E17

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Table of Contents

I. Introduction

The Quarterly Projection Model (N.E.M.) follows the standard setup: it is supply-determined in the long run, while in the short term changes in demand due to sluggish adjustment mechanisms determines most of the variables. The N.E.M. model is a medium-scaled structural model, comprising of 174 variables (of which 23 variables are exogenous). There are 206 equations in the model with 24 behavioural equations. The model is coded in WinSolve.

The different components of national accounts are modelled with estimated behavioural equations containing theoretical restrictions and at the same time, the consistency of stocks and flows are achieved via accounting identities. An interesting feature of the model is that it treats private and public capital, labour demand and prices differently.

The model works at quarterly frequency, and most of the behavioural equations are estimated on the sample for the period between 1995 and 2003. Behavioural equations were estimated by Generalised Method of Moments (GMM) or OLS. Some coefficients are borrowed from microeconometric research (e.g. elasticity of substitution between capital and labour, elasticity of unemployment to nominal private wages). Most of the data are based on the SNA definition, while some (e.g. capital stock, government, housing and corporate investment) are calculated by the Economics Department of the MNB.[2]

The model currently runs on backward-looking mode, but the planned revised version of the model will also incorporate forward-looking elements, namely model consistent expectations and forward-looking policy-rules.

N.E.M. contains policy rules for monetary and fiscal policy, each helping in stabilising budget deficit and inflation.

[2] On the calculation of capital stock see Pula (2003).

II. Uses of the model

The origins of the N.E.M. date back to 1999, when the MNB, together with the National Institute for Economic and Social Research (NIESR), started to include Hungary in the NIGEM global model.[3] This project resulted in the Hungarian block of the NIGEM. This was primarily used for simulations, scenario analyses; and projections on some world variables were also gained from NIGEM (e.g. foreign import demand).

The first version of the N.E.M. model was developed in 2003. Part of the work was carried out with the assistance of the ECB. Currently, the model is both used for policy simulations and forecasting. The MNB's projections are generally performed at the Conjunctural Assessment and Projections Division of the Economics Department. N.E.M. is handled by the Model Development Unit of this division.

The MNB publishes its comprehensive macroeconomic projections in its *Quarterly Report on Inflation*. These forecasts are prepared by using the N.E.M. and relying on information handled by experts. It is worth noting that the projections published quarterly are based on both model runs and other forecasting methods. The latter comprises of expert forecasting systems using partial econometric equations[4], pure expert judgements, time-series techniques[5] and indicator models.[6] The model-based and expert forecasts are then harmonised by adjusting the *implied residuals* of N.E.M.. Hence, the final projection is a consensus of model-based and expert level (mostly sectoral) information. N.E.M. was first applied during the forecasting process of the February 2004 issue of *Quarterly Report on Inflation*.[7]

As mentioned earlier, N.E.M. is also used for simulations and scenario analyses. On the one hand, these can take the form of updating the projections with changing some of the exogenous assumptions. On the other, N.E.M. is also applied for carrying out more complex policy and macroeconomic simulations. During these simulations, though currently only in a backward-looking fashion, policy rules are switched on. Monetary policy can follow a Taylor-rule type, a fixed nominal interest rate, a fixed real interest rate and more importantly an inflation targeting rule. At the same time, fiscal policy's behaviour can be modelled by stabilising the deficit-to-GDP

[3] For more details on the Hungarian block of NIGEM see Jakab-Kovács (2002).
[4] See, for example, Várpalotai (2003) on inflation, Jakab-Kovács-Lőrincz (2000) on exports, Jakab-Vadas (2001) on households' consumption, and Hornok-Jakab (2003) on an estimated New-Keynesian Phillips Curve (NKPC).
[5] See e.g. Reppa (2003).
[6] See Pula-Reiff (2002) and Vadas (2001). On a general discussion of forecasting methods used at the Czech, Hungarian, Polish, Slovakian and Slovenian central banks see Hornok et al. (2002).

ratio by adjusting personal income taxes, government expenditures or both. For some simulation exercises the wage equation can also be easily modified: nominal wages may be determined by the GDP deflator, core inflation or consumer prices. Hence, the wage-bargaining mechanism can also take different forms.

III. An outline of the theoretical underpinnings of the model

The N.E.M. model has the features of neokeynesian models, with vertical Phillips curve in the long run, and nominal rigidities in the short run. Short-run sluggish adjustments are captured by the fact that most of the equations are written in error-correction forms (ECM).

In the long run the model is determined by the *supply block*, where the production function has two inputs of capital and labour. The stocks of labour and capital are divided into private and public sectors. Technological progress is modelled as labour augmenting. As our microeconometric empirical findings suggest, capital and labour are not perfect substitutes: the functional form of the production is a Constant Elasticity of Substitution (CES) function. The long-run path of the model is then determined by an assumed rate of labour augmenting technological progress, a demographically given labour force, an assumption on the Non Accelerating Inflation Rate of Unemployment (NAIRU), and finally, by foreign interest rates and risk premium.

When establishing the long-run baseline path of the model, one should take into account several specialities arising from the transitional nature of the Hungarian economy. Labour force in the long run is determined by a demographic projection and an activity projection. Due to several institutional and demographic reasons, the activity rate is lower in Hungary than in other European countries. In the long run, however, the activity rate converges to the average of European Union countries. As Hungary is a transition (converging) country, the capital-to-output ratio cannot be treated constantly on the average. The variable of labour augmenting technological progress has been calibrated in a way that, given our assumption on labour force, the capital-to-output ratio reaches European levels in the long run. One would argue that due to large structural changes in Hungary, NAIRU should not be treated as constant. In fact, NAIRU was constructed by HP-filtering unemployment in the past. In the longer run we assume a constant level of this variable.

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[7] See www.mnb.hu.

The demand side of the model is relatively standard, as consumption is a function of income and (financial and housing) wealth. Private labour and capital demand (and hence investment) is determined by profit maximisation conditions. Public employment and capital, however, is modelled exogenously. Exports and imports depend on relative export- and import prices, respectively. In the long-run, the Hungarian export market share is assumed to be constant; however, an integrational effect is also estimated to tackle the increasing market share, which characterized the past and is expected to hold out over the medium term in the future. This integration effect is captured by a special integration variable, equal to our labour augmenting technological progress measure for the past. For projections, however, a smooth slowdown of integration compared to the labour augmenting technological progress is assumed.

A special feature of the model is that, apart from relative price effects, import demand depends not on aggregate demand, but on a (import content) weighted sum of demand components, with the highest import-content share for exports.[8]

The *price-wage block* is set up in a way that, for a given potential output, the output gap and the unemployment gap (the difference between actual unemployment and NAIRU) forces actual GDP to be equal to the potential in the long run. As usual, the output gap changes domestic inflation, and thus, at a given exchange rate level, the real exchange rate. The difference between actual employment and potential changes real private wages, influencing in turn the real exchange rate through the price equation. In the long run, private nominal wages depend on the marginal value of labour derived from the production function. In the long-run, the GDP deflator is determined by unit labour costs. Public wages are also modelled by an error-correction to private wages, although in forecasts they are usually treated as exogenous. For some simulation exercises, however, there is an option to use consumer prices or core inflation in the (private) wage bargaining mechanism. The key consumer price item is the core inflation depending both on import prices and domestic prices (GDP deflator),as well as on indirect taxes. The consumer price index (CPI) is then a weighted average of core inflation and exogenous regulated, fuel and food prices. House prices are also modelled as a function of private wages.

Stock adjustment is also incorporated in the model, although not to a full extent. The sum of changes in wealth in the whole system adds up to zero. Not all income accounts, however, are channelled explicitly in wealth changes. Due to the lack of reliable data, the corporate income account is not presented in the model, while the change in corporate wealth comes as the residual from changes in the three other wealth components (households', government and foreign

[8] The import content figures were calculated from the input-output matrix of 1998.

wealth). In other words, the current account balance, a change in government debt and a change in households' financial and housing wealth jointly determine the change in the corporate sector's wealth, not feeding back into the other variables in the model.

Currently, the model is *backward-looking*, and as such, there is no role for expectations. *Monetary policy* might follow a standard Taylor-rule policy, an inflation targeting rule, a fixed nominal and a backward-looking fixed real short-term interest rate policy. In the baseline, the nominal exchange rate set-up is treated as exogenous, and as an alternative, backward-looking uncovered interest rate parity (UIP) can also be analysed in the model.

Fiscal policy is relatively detailed in the model with seven revenue items and six expenditure items. Fiscal data are based on (augmented) SNA figures, which show the fiscal stance including off-budget activities and excludes temporary items. Mostly for long-run simulation purposes, fiscal policy might follow a solvency rule, with most of the adjustment taking place with changes either in personal income taxes or government (non-labour) expenditures.

IV. A detailed description of the structure of the model

In this section we describe the equations of the model in more detail. We will follow the block structure of the model, with six main blocks: supply, demand, prices, trade, fiscal and monetary block. One feature of the model worth mentioning in advance is the careful separation of the government from the private sector.

IV. 1 Production function and factor demands

The *production function* is a CES function with two factors, capital and labour, with labour augmenting technological progress. Both capital and labour are divided into private and government sector.

When the model is used for forecasting, *government capital* evolves by adding the exogenously determined government investment to the depreciated previous stock, while in the long-run simulations we assume that the growth rate of government capital is equal to that of private capital. *Corporate investment* is given by the first order condition of profit maximisation with the use of the production function.

User cost of capital is calculated using the deflators of GDP and private investments, together with long-term rates, the interest rate premium and an effective corporate tax rate.[9]

Total employment is the sum of the self-employed and the number of employees in employment. This latter is further divided into private sector and government employees. The number of government employees is treated similarly to government capital[10], while the number of private sector employees is determined by profit maximisation in the long run, while lagged values and nominal private sector wages also play a role in the short run. The trend rate of unemployment (NAIRU) is set to constant.

IV. 2 Components of aggregate demand

Real GDP is the sum of real government and households' consumption, investments, changes in inventories and net exports.

Households' consumption expenditure is determined by real disposable income and households' financial and housing wealth in the long run, and lagged changes in consumption and contemporaneous changes in real disposable income in the short run. Thus, households' total consumption is the sum of consumption expenditure and government transfers in kind. Transfers in kind can be treated as exogenous, fixed, or to grow in line with government consumption. At the same time, the other major transfers item – financial transfers – are endogenously determined and a part of disposable income.

Government consumption can be treated in two different ways. In forecasting, total government consumption is exogenous. In simulation, government consumption attributable to wages and social security contribution is calculated by the model, while other government consumption can be derived from fiscal solvency, can be fixed, or it can grow in line with growth in potential output.

As for *investment*, corporate investment is derived from the first order conditions of the production function. Again, there are several switches for government investment: to grow in line with potential GDP, to be derived from the exogenous government capital path, or to be given exogenously (in value). Households' investment – consisting of housing investment exclusively -

[9] See Kátay (2003) and Hayashi (1982) for the justification of this specification.
[10] Public employment may be exogenous or may grow with private employment.

is the product of households' savings and a multiplier given by the excess return of housing investment over the short-term interest rate.[11]

Change in inventories is the product of its lagged value by the average growth of GDP over the past four quarters.

IV. 3 Prices and costs

Manufacturing export and import prices depend on foreign export prices and the nominal effective exchange rate (NEER), while manufacturing import prices are affected by the GDP deflator as well. Import and export prices are a weighted average of the respective manufacturing prices and world oil and commodity prices.

GDP deflator moves in line with the trend of unit labour costs in the long run, with a pronounced effect of the output gap in the short run. *Core inflation* is a weighted average of the GDP deflator, import prices and indirect taxes. To calculate *total CPI*, we use the exogenously given (gross) prices of unprocessed foodstuffs, motor vehicle fuels and the administered prices. *Households' consumption deflator* grows with the total CPI. Since households invest mainly on the housing market, a special feature of the model is an equation modelling housing price movements. There are two alternatives: an estimated equation where housing prices grow in the long run with disposable income, and a rule that the growth in these prices is equal to that of the consumption deflator (and hence to the growth of total CPI).

There are three equations for *private sector wages*, representing various forms of wage bargaining. The long-term components come from the inverse of the labour demand function, either using the GDP deflator, core inflation or the total CPI. The deviation of the actual unemployment rate from the NAIRU has a role in the short run.

IV. 4 Fiscal policy and the government sector

There are seven revenue items and six expenditure items. Consequently, the fiscal block of the N.E.M. is quite detailed, although many of these variables are exogenous – given by experts –

[11] See Vadas (2003).

when the model is run for forecasting, or simple rules are assumed for simulations. The development of the fiscal block is a subject for further research.

On the *revenue side*, corporate taxes are proportional to net profits, where the effective tax rate is fixed for simulations. When forecasting, the effective tax rate is given by experts, in order to incorporate possible future changes in the taxation system. *Personal taxes* (income taxes and social security contribution) can be given by fiscal solvency, or by assuming a growth rate equalling average wage growth during the past four quarters. *VAT* and *excise duties* are proportional to the nominal value of households' total consumption. As a rule-of-thumb assumption, other taxes including *other indirect taxes* (other than taxes on alcoholic drinks and tobacco), *miscellaneous other taxes* and *revenues from customs duties* grow in line with nominal GDP. Thus, these revenue items do not directly depend on the structure of GDP growth in the baseline set-up of the model. There is a fixed and exogenously determined amount of EU transfers as well.

On the *expenditure side,* transfers in cash are determined by indexation (pensions), and by unemployment (unemployment benefits). Government interest payments depend on the evolution of debt and long-term rates. The determinants of public investment, employment, public wages, government consumption and non-financial transfers have already been discussed earlier. Again, as a rule-of-thumb assumption, corporate subsidies and government housing transfers move together with nominal GDP and do not capture pro- or counter-cyclical fiscal policy measures.

IV. 5 Trade

Foreign trade is divided into the export and import of goods and services. Import depends on domestic demand for import and real effective exchange rates (REER) in the long run. The REER for goods is calculated using foreign import prices and domestic core inflation, while in the case of services it is based on the CPI. These long-term determinants appear in the short run as well, together with autoregressive terms.

Exports are given in the long run by external demand, the REER and a special variable capturing integration effects (equal to the variable of labour augmenting technological progress in the past). The difference between the equations for goods and services is again in the definition of the real effective exchange rate: for goods, it is based on relative export prices, while for services we again use the CPI based REER.. These variables also enter in the short run.

IV. 6 Monetary and financial sector

Monetary policy is currently modelled with backward-looking policy rules described earlier. One might choose between a standard Taylor-rule policy, an inflation targeting rule, a fixed nominal and a backward-looking fixed real short-term interest rate policy. The banking sector is not explicitly modelled in the N.E.M. model.

V. An outline of the key characteristics of the model

The properties of the N.E.M. are illustrated by five simulation experiments; the results are presented in Tables 1-5. We first analyse the responses of a monetary tightening (together with a corresponding appreciation of the currency). Then the effects of a fiscal shock are described. Thirdly, we examine the question of how the Hungarian economy reacts to increased foreign demand and the effects of nominal exchange rate appreciation. Finally, we also seek to understand the effects of a world cost-shock (a temporary increase in world oil prices). Figures for medium-run effects are reported in detail, while the impacts for 10 years after the shocks are included in a single column. Some remarks should be made before interpreting the results.

First, as it is well known, policy feedback mechanisms are essential for the long-run stability of a model. Since all of these policy rules had been turned off for these simulations, although reported, caution should be taken when interpreting long-run effects. Furthermore, simulations of shocks that would typically trigger some sort of policy reaction (growing deficit due to increased government spending, appreciation of the currency) are not realistic in the sense that such reactions are not allowed for.

Second, in the N.E.M. world economy is exogenously given by projections of foreign demand and prices, in order to capture the notion of a small open economy. Consequently, the model does not take account of any change in trade with foreign countries induced by the (second round) effect on import of a shock to world demand.

Finally, all foreign prices are denominated in euro in the model. Appreciation of the currency is therefore a fall in the forint/euro exchange rate. Accordingly, a 10 per cent increase in the dollar price of oil was translated into the same increase in the euro price as well.

V. 1 Simulation of a 2-year short-term interest rate shock of 100 b.p.[12]

As mentioned above, all monetary policy feedback rules were switched off in the simulation. Consequently, long-term interest rates were determined in a backward-looking fashion, while at the same time, an instantaneous 2 per cent appreciation of the currency was asserted, according to the uncovered interest parity (UIP) condition (shocks can be found in Chart 1). Long-term interest rates were set to follow a (forward-looking) expectation hypothesis: i.e. they are calculated as averages of future short-term rates. As in Hungary the exchange rate is the most forceful transmission channel, exports immediately and considerably fall back in response to the shock. The effect on the GDP wanes relatively fast, together with a high pass-trough to prices. These responses could be caused by the somewhat higher-than-usual output-gap coefficient in the estimated GDP deflator equation. This parameter captures a special feature of the Hungarian economy. A less rigid labour market and a high inflation history leads to more frequent price and wage setting behaviour, which in turn gives rise to a higher pass-through and renders any nominal shock, such as the appreciation of the currency, less effective on the real economy.

In the first two years, household consumption increases. This can be explained by the fact, that the response of nominal private wages to the appreciation of the currency is slower than that of the prices. Thus, as an immediate effect, real wages increase. This is again the consequence of a relatively fast pass-through of nominal exchange rate shocks on consumer prices. The same reasoning applies for residential investments; sluggish wage adjustment gives rise to somewhat higher real disposable income implying a rise in households' investment activity in the first three quarters. This in turn leads to a positive total investment-response in the first two quarters after the shock.

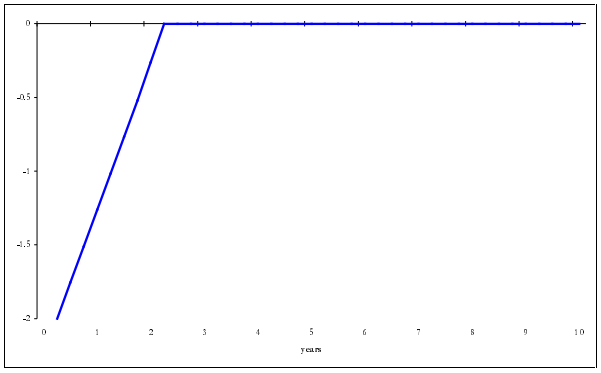
In summary, the maximum drop of consumer prices is around 0.5 per cent reached in around one year. This, however, dies out, and reaches zero again in the sixth year. The response of GDP is somewhat sharp, the maximum decrease is around two thirds of a per cent in the second quarter, but after the third quarter, this negative effect continuously disappears, and diminishes to around one tenth of a per cent in five years (see Chart 2).

[12] See Table 1 on page 22.

Chart 1 Assumptions of a 2-year short-term interest rate shock of 100 b.p.

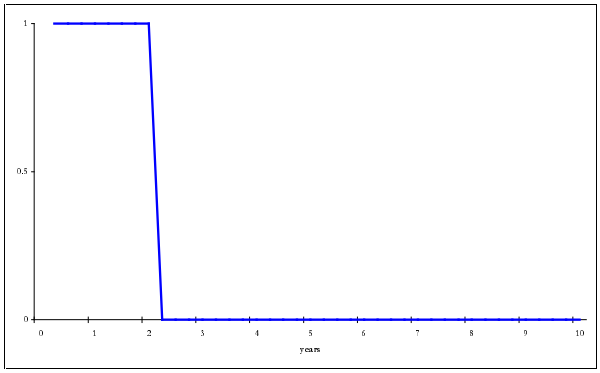
Nominal exchange rate

(percentage deviation from baseline)



Short-term interest rate

(percentage point deviation from baseline)



Long-term interest rate

(percentage point deviation from baseline)

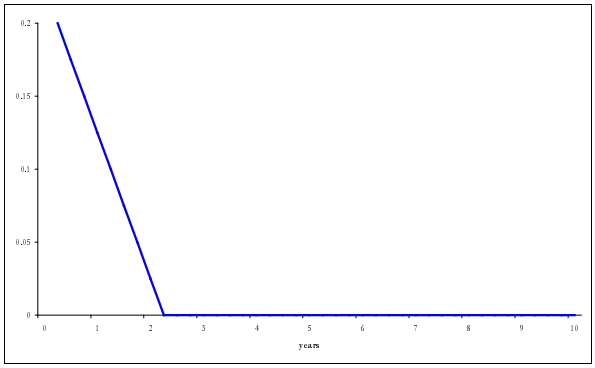
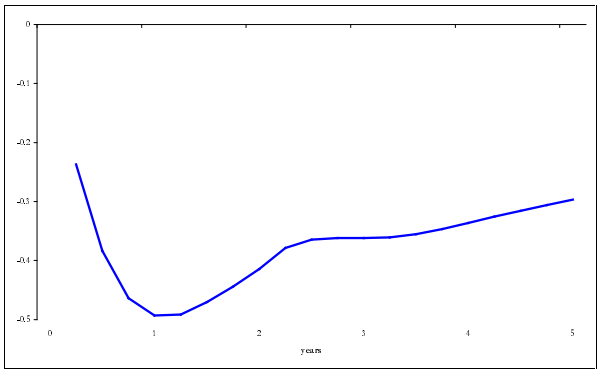


Chart 2 Impulse responses to a 2-year short-term interest rate shock of 100 b.p.

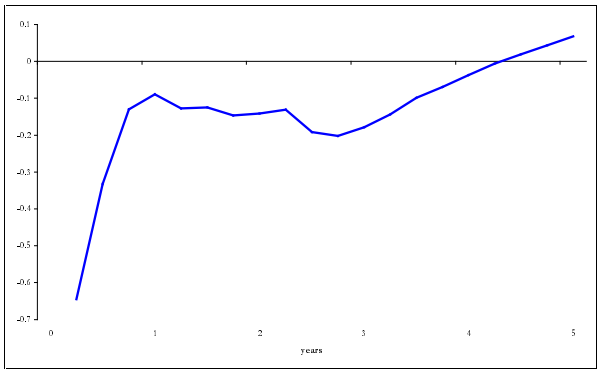
Consumer prices

(percentage deviation from baseline)



GDP

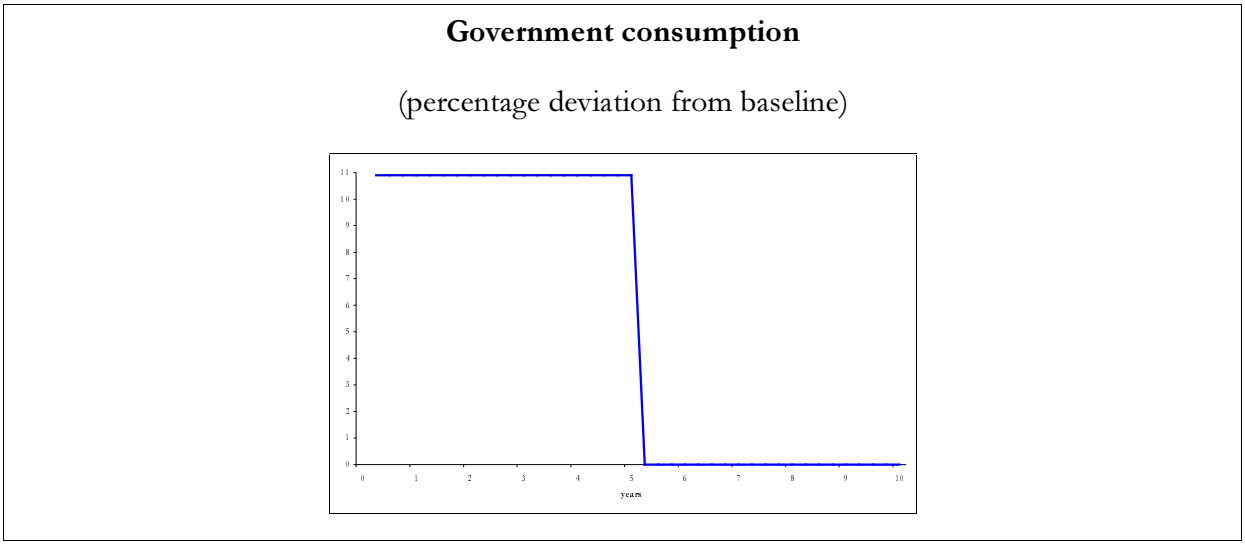
(percentage deviation from baseline)



V. 2 Simulation of a 5-year shock to real government consumption[13]

In response to an approx. 10 per cent increase in government consumption for five years, leading to a 1 per cent increase in GDP in the first quarter (see Chart 3), there is a gradual but pronounced rise in prices (see Chart 4). In absence of any policy counteraction, the budget deficit and government debt both increase sharply. This is also reflected in the fact that GDP and price responses are relatively large, especially in the first two years. Since imports are presented by the weighted sum of demand components such as government consumption, there is substantial import leakage as well. Initially, in the first few quarters, disposable income and investment (mainly housing investment) experience a slight drop because of the crowding-out effect of government spending. Nevertheless, increased economic activity eventually leads to a rise in private consumption and capital investment through a fall in unemployment. The relatively large response of total investments can be explained by residential investments, relatively sensitive to this shock. This is due to income, wealth and substitution effects implied by the increase in house prices.[14] The shock was calibrated in such a way, that the initial GDP-response is 1 per cent. As the shock lasts only for five years, GDP starts to decline after the fifth year, while the consumer price index only follows it with some lag (see Table 2).

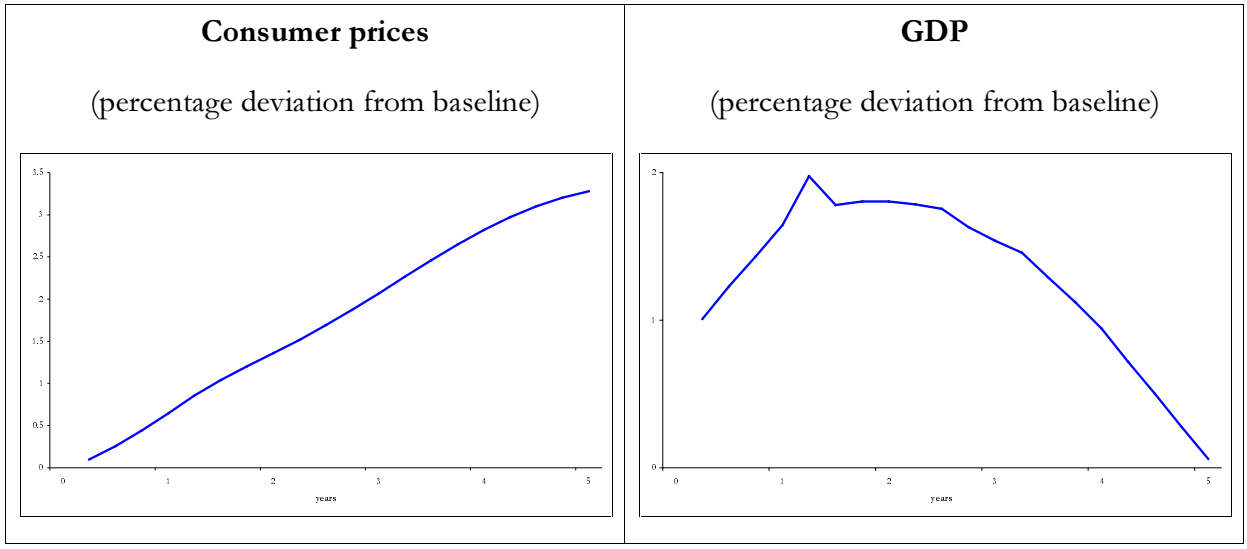
Chart 3 Assumption of a 5-year shock to real government consumption



[13] See Table 2 on page 23.

[14] House prices depend on nominal wages. A fiscal expansion has three effects: a wealth, a substitution and an income effect, all working in the same direction. The income effect of higher wages induced by increased economic activity is magnified by a corresponding shift from financial to housing assets in the household portfolio and a rise in housing wealth.

Chart 4 Impulse responses to a 5-year shock to real government consumption



V. 3 Simulation of a 5-year foreign demand shock of 1 per cent[15]

In this exercise we simulate a demand shock arising form a 1 per cent rise in world demand (see Chart 5). Since two-thirds of exports necessitate some kind of imported goods or services as input, the effect of the positive foreign demand shock is strongly mitigated in the model. The trade balance returns to the baseline value after about a year and worsens as domestic prices slowly wash away the initial shock. Furthermore, due to the wealth and substitution effects resulting from changes in house prices, residential investments respond somewhat sharply. Again, simulations were carried out by allowing no room for any policy action to tackle the rise in prices.

Naturally, a positive demand shock has a positive effect on growth, with a maximum effect of around 0.6 per cent in the first few quarters, fading away relatively rapidly. After the fifth year, as the shock is only temporary, the impulse response function changes its sign. As this shock is a demand shock, price effects are generally positive in the first five years, with a maximum of 0.5 per cent in the fifth year. Afterwards, the price effect also vanishes. (see Chart 6 and Table 3)

[15] See Table 3 on page 24.

Chart 5 Assumption of a 5-year foreign demand shock of 1 per cent

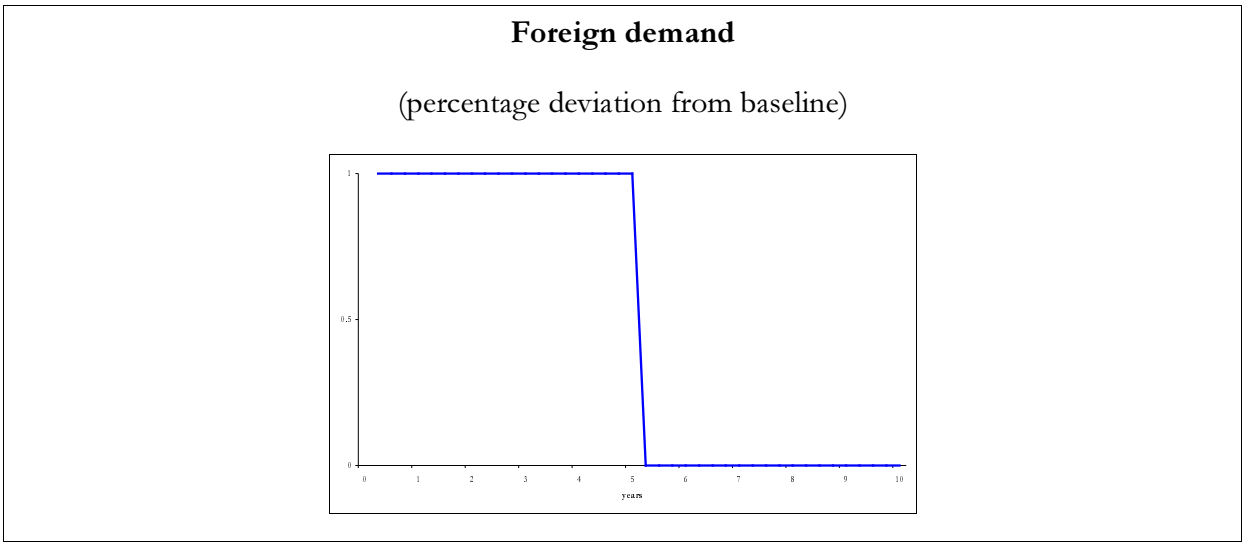
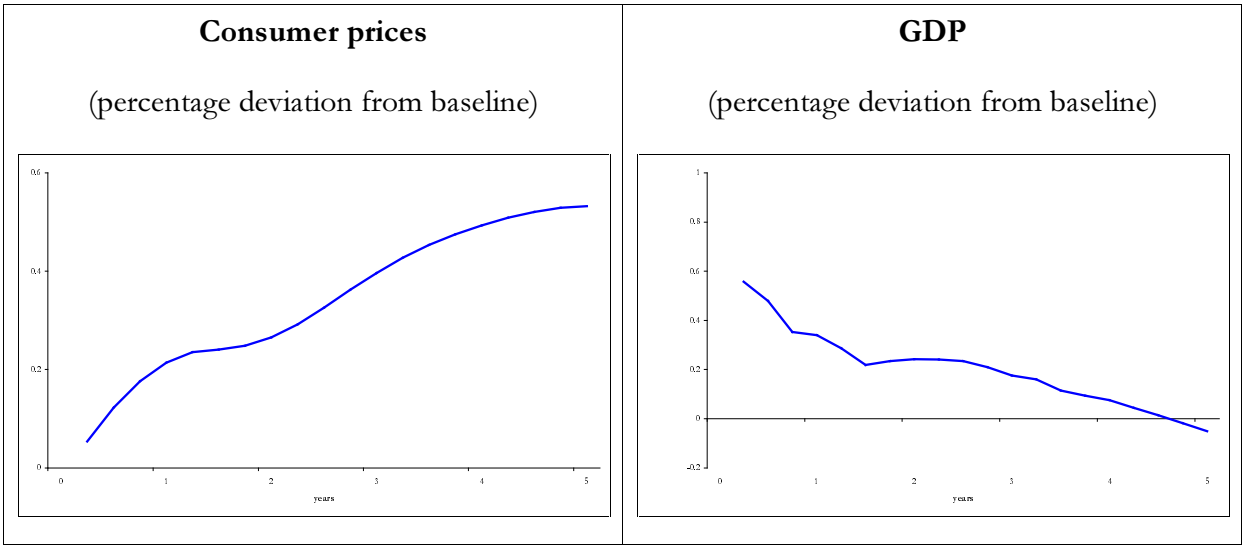


Chart 6 Impulse responses to a 5-year foreign demand shock of 1 per cent



V. 4 Simulation of a 5-year appreciation shock of 1 per cent[16]

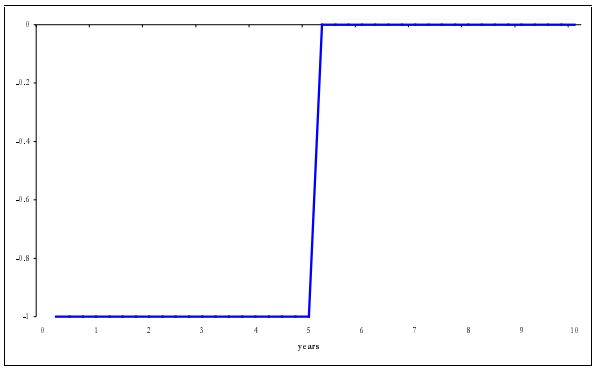
In this simulation, we show the effects of an appreciation of the nominal exchange rate (see Chart 7). As mentioned previously, all policy responses were switched off. Exports react immediately to the fall in competitiveness, initially reducing inward trade as well, through the high import content of exports. A long-lasting appreciation of the currency leads to a fade-away

of inflation compared with the baseline path accompanied by a decline in GDP. Despite the setback in production, real disposable income rises due to the higher pass-through to prices compared to that of nominal wages. Therefore, consumption (and residential investments[17]) moderately rise before the effect of recession (relative to baseline) can fully unfold (resulting in a moderation of initial decline in GDP after the first year). In five years, consumer prices drop by almost the same magnitude as the nominal exchange rate. Thus, the real appreciation of the currency vanishes in the long run (see Chart 8).

Chart 7 Assumption of a 5-year appreciation of 1 per cent

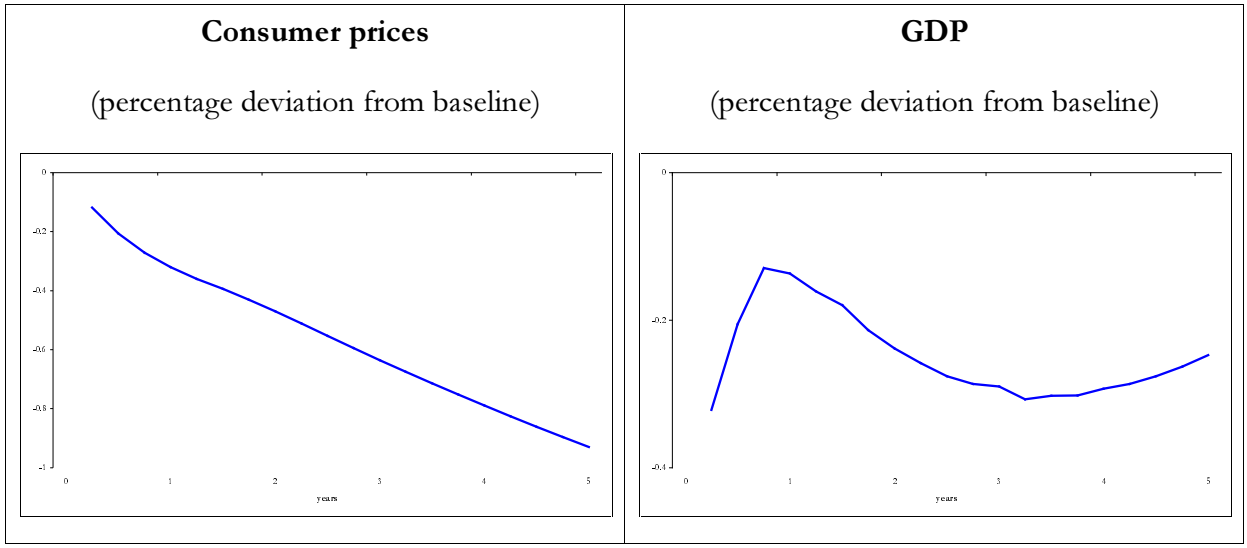
Nominal exchange rate

(percentage deviation from baseline)



[16] See Table 4 on page 25.
[17] The response of housing investments is again magnified by substitution and wealth effects.

Chart 8 Impulse responses to a 5-year appreciation of 1 per cent



V. 5 Simulation of a 5-year oil price shock of 10 per cent[18]

Since all foreign prices are denominated in euro in the model, a constant euro/dollar exchange rate was presumed when simulating the 10 per cent increase in the dollar-price of oil (see Chart 9).

As the consumer price index is constructed from a weighted average of core inflation, food, fuel and regulated prices, the shock is instantly transmitted into the consumption deflator. Thus, high cost-push price inflation leads to a shrinkage in households' disposable income and consequently in consumption purchases. The decline in private consumption and GDP is reinforced by the evaporating financial wealth of households. Narrowing domestic demand leads to a delayed improvement of the trade balance, proving slim in fighting against the drop in GDP (see Chart 10).

[18] See Table 5 on page 26.

Chart 9 Assumption of a 5-year oil price shock of 10 per cent

World price of oil

(percentage deviation from baseline)

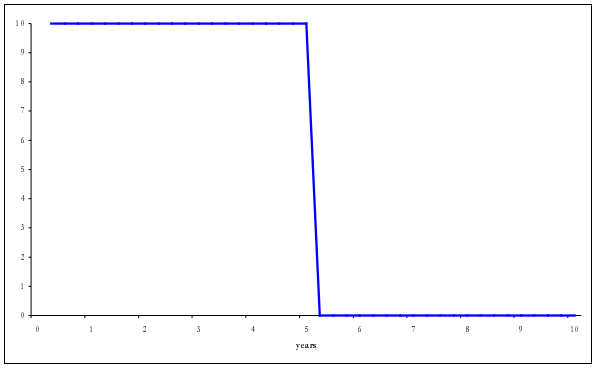
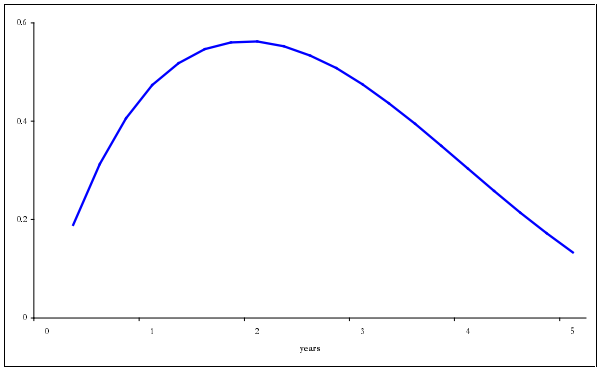


Chart 10 Impulse responses to a 5-year oil price shock of 10 per cent

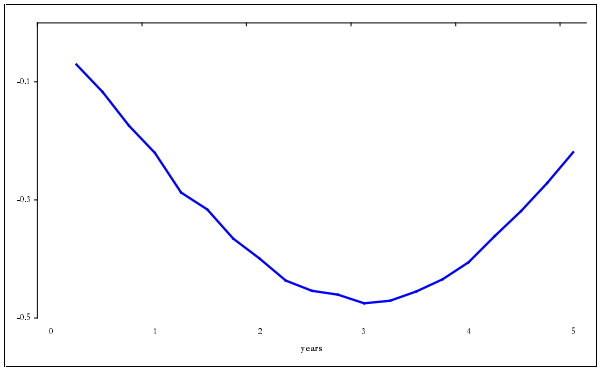
Consumer prices

(percentage deviation from baseline)



GDP

(percentage deviation from baseline)



VI. Conclusions and future works

As mentioned above, the model was first deployed as a forecasting device in producing the projections published in the February 2004 *Quarterly Report on Inflation*. The results of expert forecasting systems and model-based projections were harmonised by adjusting the *implied residuals* of the model. Thus, the final forecast encompasses the theoretical consistency created by the model and the more detailed, sectoral pieces of information collected in the expert-forecasting methods.

The model was also used for simulation exercises (i.e. for predicting the effects of monetary and fiscal policy, as well as of some structural policy changes).[19] In the future, however, it is to be revised: incorporating forward-looking elements in the model (e.g. forward-looking policy rules and model consistent – rational – expectations) would be the main area for development in the medium term. At the same time, as new results on the transmission mechanism of monetary policy in Hungary become available, some parts of the model would also be updated. The fiscal block might also be enriched in order to analyse policy actions in a more detailed manner.

[19] A good example for structural policy simulations is an analysis on the macroeconomic effects of changes in housing subsidy regulation published in the February 2004 issue of the *Quarterly Report on Inflation,* Chapter 5.3.

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Tables

Table 1 Simulation of a 2-year short-term interest rate shock of 100 b.p.

	Y1	Y2	Y3	Y4	Y5	Y10	Y1Q1	Y1Q2	Y1Q3	Y1Q4	Y2Q1	Y2Q2	Y2Q3	Y2Q4	Y3Q1	Y3Q2	Y3Q3	Y3Q4	Y4Q1	Y4Q2	Y4Q3	Y4Q4	Y5Q1	Y5Q2	Y5Q3	Y5Q4
Prices	*Levels, percentage deviations from baseline*																									
HICP*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Consumption Deflator	-0,39	-0,46	-0,37	-0,35	-0,31	0,09	-0,24	-0,38	-0,46	-0,49	-0,49	-0,47	-0,44	-0,41	-0,38	-0,36	-0,36	-0,36	-0,36	-0,36	-0,35	-0,34	-0,33	-0,32	-0,31	-0,30
GDP Deflator	-0.39	-0.25	-0.45	-0.55	-0.46	0.27	-0.28	-0.46	-0.46	-0.37	-0.28	-0.22	-0.23	-0.28	-0.33	-0.41	-0.49	-0.55	-0.57	-0.56	-0.54	-0.51	-0.48	-0.46	-0.45	-0.43
ULC	0.11	-0.38	-0.43	-0.67	-0.78	0.28	0.65	0.21	-0.13	-0.29	-0.32	-0.38	-0.39	-0.41	-0.44	-0.39	-0.42	-0.48	-0.57	-0.65	-0.71	-0.76	-0.79	-0.79	-0.78	-0.77
Compensation per employee	-0.09	-0.36	-0.49	-0.63	-0.70	0.13	0.00	-0.04	-0.11	-0.20	-0.28	-0.35	-0.40	-0.42	-0.45	-0.48	-0.50	-0.53	-0.57	-0.61	-0.65	-0.68	-0.70	-0.71	-0.71	-0.69
Productivity	-0,21	-0,05	-0,13	-0,04	0,02	-0,05	-0,64	-0,26	0,00	0,04	-0,01	-0,03	-0,08	-0,09	-0,09	-0,16	-0,16	-0,13	-0,09	-0,04	-0,02	-0,01	0,01	0,01	0,02	0,03
Export Deflator	-0,94	-1,03	-0,28	-0,03	-0,01	0,00	-0,21	-0,94	-1,26	-1,34	-1,28	-1,14	-0,96	-0,75	-0,52	-0,30	-0,18	-0,10	-0,06	-0,04	-0,02	-0,01	-0,01	-0,01	-0,01	0,00
Import Deflator	-1.45	-0.59	-0.04	-0.06	-0.06	0.02	-1.76	-1.55	-1.35	-1.14	-0.92	-0.70	-0.48	-0.26	-0.03	-0.03	-0.04	-0.04	-0.05	-0.06	-0.06	-0.06	-0.06	-0.06	-0.06	-0.06
GDP and Components	*Levels, percentage deviations from baseline*																									
GDP	-0.30	-0.14	-0.18	-0.09	0.03	0.01	-0.64	-0.33	-0.13	-0.09	-0.13	-0.12	-0.15	-0.14	-0.13	-0.19	-0.20	-0.18	-0.14	-0.10	-0.07	-0.04	-0.01	0.02	0.04	0.07
Consumption	0.11	0.11	0.03	-0.12	-0.20	0.12	0.05	0.10	0.14	0.15	0.13	0.12	0.11	0.09	0.07	0.05	0.02	-0.02	-0.06	-0.10	-0.14	-0.17	-0.19	-0.20	-0.20	-0.20
Investment	-0,04	-0,50	-0,51	-0,52	-0,34	0,01	0,19	0,07	-0,12	-0,31	-0,56	-0,51	-0,48	-0,46	-0,50	-0,51	-0,50	-0,52	-0,56	-0,53	-0,51	-0,47	-0,41	-0,36	-0,32	-0,28
Of which: Residential Inv.	0.52	-0.82	-1.29	-1.51	-0.88	0.04	1.04	0.79	0.38	-0.12	-0.92	-0.69	-0.75	-0.93	-1.11	-1.30	-1.37	-1.40	-1.72	-1.58	-1.44	-1.29	-1.14	-0.94	-0.78	-0.65
Gov. Consumption	0,00	-0,01	-0,01	-0,01	-0,01	-0,01	0,00	0,00	0,00	0,00	0,00	0,00	-0,01	-0,01	-0,01	-0,01	-0,01	0,00	-0,01	-0,01	-0,01	-0,01	-0,01	-0,01	-0,01	-0,01
Exports	-0,54	0,32	0,17	-0,03	0,01	0,00	-0,93	-0,81	-0,40	-0,02	0,22	0,34	0,36	0,36	0,36	0,22	0,09	0,00	-0,04	-0,04	-0,04	-0,02	-0,01	0,00	0,01	0,02
Imports	-0,06	0,41	0,24	-0,18	-0,27	0,07	0,10	-0,25	-0,16	0,08	0,29	0,41	0,47	0,46	0,40	0,33	0,18	0,04	-0,08	-0,16	-0,21	-0,25	-0,27	-0,27	-0,28	-0,28
Contributions to Shock	*Percentage of GDP, absolute deviations from baseline*																									
Domestic Demand	0.06	-0.04	-0.09	-0.20	-0.22	0.08	0.07	0.08	0.06	0.02	-0.04	-0.03	-0.03	-0.04	-0.06	-0.08	-0.10	-0.13	-0.16	-0.19	-0.21	-0.22	-0.23	-0.22	-0.21	-0.20
Inventories	-0,02	-0,02	-0,02	-0,02	-0,01	0,00	0,00	-0,02	-0,03	-0,03	-0,03	-0,02	-0,02	-0,02	-0,02	-0,02	-0,02	-0,02	-0,02	-0,02	-0,02	-0,02	-0,01	-0,01	-0,01	-0,01
Trade Balance	-0,34	-0,08	-0,06	0,13	0,26	-0,07	-0,72	-0,39	-0,16	-0,08	-0,06	-0,07	-0,09	-0,08	-0,05	-0,09	-0,08	-0,03	0,04	0,11	0,16	0,20	0,23	0,25	0,27	0,28
Labour Market	*Levels, percentage deviations from baseline, except unemployment: percentage points, absolute deviations from baseline*																									
Total employment	-0,08	-0,08	-0,04	-0,05	0,01	0,05	0,00	-0,08	-0,13	-0,13	-0,11	-0,09	-0,07	-0,05	-0,04	-0,04	-0,04	-0,05	-0,06	-0,06	-0,05	-0,03	-0,01	0,01	0,02	0,04
Employees in employment	-0,08	-0,08	-0,04	-0,05	0,01	0,05	0,00	-0,08	-0,13	-0,13	-0,11	-0,09	-0,07	-0,05	-0,04	-0,04	-0,04	-0,05	-0,06	-0,06	-0,05	-0,03	-0,01	0,01	0,02	0,04
Unemployment rate	0,08	0,08	0,04	0,04	-0,01	-0,05	0,00	0,07	0,12	0,12	0,11	0,09	0,06	0,05	0,04	0,03	0,04	0,05	0,05	0,05	0,04	0,03	0,01	-0,01	-0,02	-0,04
Household Accounts	*Levels, percentage deviations from baseline, except the savings rate: percentage points, absolute deviations from baseline*																									
Disposable income	0,19	0,01	-0,11	-0,28	-0,30	0,12	0,21	0,24	0,20	0,12	0,03	0,02	0,01	-0,01	-0,06	-0,09	-0,13	-0,17	-0,23	-0,27	-0,30	-0,32	-0,32	-0,31	-0,29	-0,27
Saving rate	0,00	-0,10	-0,04	-0,04	-0,04	-0,02	0,07	0,02	-0,03	-0,08	-0,14	-0,10	-0,08	-0,08	-0,06	-0,04	-0,03	-0,02	-0,02	-0,01	-0,06	-0,06	-0,05	-0,04	-0,03	-0,03
Fiscal Ratios	*Percentage of GDP, absolute deviations from baseline*																									
Total Receipts	0.20	-0,01	0.09	0.01	-0,08	-0,02	0.37	0.26	0.14	0.05	0,00	-0,03	-0,01	0,01	0,03	0,09	0,11	0,14	0,07	0,02	0,00	-0,03	-0,06	-0,07	-0,08	-0,08
Total Expenditure	0,27	0,09	0,21	0,18	0,00	-0,14	0,42	0,33	0,21	0,13	0,10	0,07	0,08	0,10	0,11	0,18	0,21	0,32	0,25	0,20	0,16	0,10	0,06	0,02	-0,01	-0,05
Budget deficit	-0,07	-0,09	-0,11	-0,16	-0,08	0,12	-0,05	-0,07	-0,08	-0,09	-0,10	-0,09	-0,08	-0,08	-0,08	-0,09	-0,10	-0,19	-0,19	-0,17	-0,16	-0,13	-0,12	-0,09	-0,07	-0,04
Government debt	0.41	0.28	0.44	0.57	0.53	-0.37	0.54	0.46	0.34	0.29	0.28	0.26	0.28	0.31	0.34	0.42	0.48	0.54	0.57	0.57	0.57	0.56	0.55	0.53	0.52	0.50
Financial Variables	*Percentage points, absolute deviations from baseline*																									
Short-term Int. Rates	1,00	1,00	0,00	0,00	0,00	0,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Long-term Int. Rates	0,16	0,06	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Foreign Demand	*Levels, percentage deviations from baseline*																									
World Demand	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Foreign Prices	*Levels, percentage deviations from baseline*																									
Effective Exchange Rate	-1.63	-0.64	0.00	0.00	0.00	0.00	-2.00	-1.75	-1.51	-1.26	-1.02	-0.77	-0.52	-0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foreign Prices (euro)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Commodity Prices (euro)	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00

Table 2 Simulation of a 5-year shock to real government consumption

	Y1	Y2	Y3	Y4	Y5	Y10	Y1Q1	Y1Q2	Y1Q3	Y1Q4	Y2Q1	Y2Q2	Y2Q3	Y2Q4	Y3Q1	Y3Q2	Y3Q3	Y3Q4	Y4Q1	Y4Q2	Y4Q3	Y4Q4	Y5Q1	Y5Q2	Y5Q3	Y5Q4
Prices	*Levels, percentage deviations from baseline*																									
HICP*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Consumption Deflator	0,36	1,11	1,79	2,55	3,14	-1,08	0,10	0,26	0,44	0,64	0,86	1,04	1,20	1,36	1,34	1,56	1,83	2,00	2,15	2,28	2,39	2,46	2,55	2,64	2,73	2,81
GDP Deflator	1.30	3.00	4.08	5.46	6.13	-3.25	0.44	1.03	1.61	2.12	2.63	2.92	3.12	3.33	3.17	3.75	4.44	4.59	4.71	4.81	4.84	4.80	4.89	5.00	5.11	5.22
ULC	-0.87	0.87	3.52	5.74	7.46	-4.11	-1.00	-1.02	-0.87	-0.59	-0.32	0.58	1.26	1.94	2.08	2.32	2.80	4.58	4.80	5.40	6.06	6.60	6.59	6.71	6.73	6.66
Compensation per employee	0.19	1.61	3.70	5.46	6.76	-2.78	0.00	0.06	0.22	0.48	0.86	1.33	1.87	2.36	2.66	3.11	3.57	3.98	4.48	4.94	5.31	5.64	5.85	6.00	6.06	6.07
Productivity	1,11	1,08	0,87	0,59	0,09	0,11	1,01	1,11	1,15	1,19	1,37	1,02	0,97	0,94	1,08	1,35	1,40	0,22	0,51	0,39	0,13	-0,12	0,05	-0,01	-0,05	-0,04
Export Deflator	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Import Deflator	0,03	0,19	0,35	0,50	0,65	-0,22	0,00	0,01	0,04	0,08	0,12	0,17	0,22	0,26	0,26	0,29	0,33	0,38	0,43	0,46	0,49	0,52	0,54	0,55	0,57	0,58
GDP and Components	*Levels, percentage deviations from baseline*																									
GDP	1.33	1.84	1.68	1.20	0.39	-0.53	1.01	1.23	1.43	1.64	1.98	1.78	1.81	1.81	1.79	2.06	2.15	1.03	1.25	1.03	0.67	0.29	0.30	0.12	-0.01	-0.09
Consumption	0.78	2.67	3.52	4.10	4.33	-1.70	-0.02	0.49	1.03	1.64	2.35	2.53	2.77	3.03	2.78	3.13	3.66	3.89	3.94	3.91	3.77	3.55	3.70	3.67	3.58	3.53
Investment	0,13	1,37	2,04	2,24	2,27	-1,28	-0,08	-0,02	0,17	0,45	1,07	1,23	1,51	1,68	1,60	1,69	1,77	2,01	2,37	2,33	2,27	2,07	1,89	1,74	1,63	1,58
Of which: Residential Inv.	0.30	3.88	4.86	5.54	5.38	-3.96	-0.43	-0.20	0.44	1.38	3.54	3.43	4.02	4.51	3.66	4.02	4.21	4.76	6.48	6.16	5.59	4.92	4.47	3.93	3.50	3.32
Gov. Consumption	10,90	10,90	10,90	10,90	10,90	0,00	10,90	10,90	10,90	10,90	10,90	10,90	10,90	10,90	12,53	14,99	14,94	3,70	7,08	7,79	7,11	6,43	6,81	7,35	8,35	9,34
Exports	-0,01	-0,08	-0,14	-0,22	-0,29	0,00	0,00	0,00	-0,01	-0,03	-0,05	-0,07	-0,09	-0,11	-0,11	-0,12	-0,14	-0,16	-0,18	-0,20	-0,22	-0,23	-0,24	-0,25	-0,26	-0,27
Imports	0,33	1,59	2,68	3,63	4,37	-0,86	0,02	0,17	0,41	0,72	1,07	1,50	1,77	2,04	2,00	2,27	2,60	2,95	3,15	3,39	3,54	3,61	3,61	3,71	3,76	3,81
Contributions to Shock	*Percentage of GDP, absolute deviations from baseline*																									
Domestic Demand	1.56	3.04	3.84	4.40	4.55	-1.35	1.02	1.34	1.71	2.16	2.75	2.92	3.14	3.36	3.36	3.86	4.26	3.46	3.92	4.01	3.84	3.54	3.65	3.63	3.64	3.70
Inventories	0,05	0,15	0,17	0,15	0,11	-0,04	0,00	0,03	0,06	0,10	0,13	0,15	0,16	0,17	0,15	0,15	0,16	0,16	0,16	0,15	0,13	0,10	0,09	0,07	0,06	0,05
Trade Balance	-0.28	-1.35	-2.33	-3.35	-4.27	0.86	-0.01	-0.13	-0.34	-0.61	-0.90	-1.29	-1.50	-1.73	-1.72	-1.95	-2.26	-2.59	-2.83	-3.13	-3.30	-3.35	-3.44	-3.58	-3.71	-3.84
Labour Market	*Levels, percentage deviations from baseline, except unemployment: percentage points, absolute deviations from baseline*																									
Total employment	0,21	0,76	0,80	0,60	0,30	-0,64	0,00	0,12	0,28	0,45	0,60	0,75	0,83	0,85	0,70	0,70	0,75	0,81	0,73	0,64	0,54	0,41	0,26	0,13	0,03	-0,05
Employees in employment	0,21	0,76	0,80	0,60	0,30	-0,64	0,00	0,12	0,28	0,45	0,60	0,75	0,83	0,85	0,70	0,70	0,75	0,81	0,73	0,64	0,54	0,41	0,26	0,13	0,03	-0,05
Unemployment rate	-0,20	-0,72	-0,75	-0,57	-0,28	0,60	0,00	-0,11	-0,26	-0,42	-0,57	-0,71	-0,78	-0,81	-0,66	-0,66	-0,70	-0,76	-0,68	-0,60	-0,51	-0,38	-0,24	-0,13	-0,03	0,04
Household Accounts	*Levels, percentage deviations from baseline, except the savings rate: percentage points, absolute deviations from baseline*																									
Disposable income	0,06	1,23	2,27	2,93	3,12	-2,29	-0,09	-0,07	0,06	0,31	0,70	1,05	1,41	1,74	1,72	1,87	2,06	2,33	2,68	2,86	2,92	2,90	2,85	2,74	2,59	2,45
Saving rate	0,07	0,40	0,23	0,20	0,33	0,03	-0,03	0,01	0,10	0,18	0,39	0,38	0,41	0,41	0,26	0,21	0,16	0,14	0,14	0,07	0,32	0,27	0,22	0,19	0,17	0,18
Fiscal Ratios	*Percentage of GDP, absolute deviations from baseline*																									
Total Receipts	-0,83	-0,85	-0,56	-0,23	0,20	0,23	-0,60	-0,78	-0,94	-0,99	-1,06	-0,90	-0,78	-0,67	-0,60	-0,80	-0,90	-0,51	-0,18	-0,02	0,14	0,27	0,36	0,37	0,37	0,29
Total Expenditure	0,77	0,92	1,27	1,57	2,24	2,21	0,85	0,77	0,75	0,71	0,77	0,84	1,00	1,07	1,29	1,64	1,64	0,44	1,06	1,25	1,30	1,32	1,54	1,72	2,00	2,29
Budget deficit	-1,60	-1,77	-1,83	-1,82	-2,04	-1,98	-1,45	-1,55	-1,68	-1,70	-1,83	-1,75	-1,77	-1,75	-1,89	-2,46	-2,50	-0,96	-1,24	-1,31	-1,17	-1,06	-1,18	-1,35	-1,63	-2,01
Government debt	-0,44	0,20	1,43	2,69	4,52	21,77	-0,44	-0,48	-0,44	-0,38	-0,34	0,06	0,39	0,70	0,80	0,96	1,18	1,93	2,01	2,38	2,82	3,25	3,45	3,78	4,16	4,60
Financial Variables	*Percentage points, absolute deviations from baseline*																									
Short-term Int. Rates	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Long-term Int. Rates	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Foreign Demand	*Levels, percentage deviations from baseline*																									
World Demand	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Foreign Prices	*Levels, percentage deviations from baseline*																									
Effective Exchange Rate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foreign Prices (euro)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Commodity Prices (euro)	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00

Table 3 Simulation of a 5-year foreign demand shock of 1 per cent

	Y1	Y2	Y3	Y4	Y5	Y10	Y1Q1	Y1Q2	Y1Q3	Y1Q4	Y2Q1	Y2Q2	Y2Q3	Y2Q4	Y3Q1	Y3Q2	Y3Q3	Y3Q4	Y4Q1	Y4Q2	Y4Q3	Y4Q4	Y5Q1	Y5Q2	Y5Q3	Y5Q4
Prices	*Levels, percentage deviations from baseline*																									
HICP*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Consumption Deflator	0.14	0.25	0.34	0.46	0.52	-0.24	0.05	0.12	0.18	0.21	0.24	0.24	0.25	0.27	1.52	1.69	1.87	2.07	2.26	2.46	2.65	2.82	2.97	3.10	3.20	3.28
GDP Deflator	0.49	0.55	0.74	0.94	0.95	-0.55	0.24	0.48	0.60	0.63	0.60	0.53	0.51	0.54	3.58	3.90	4.24	4.61	4.99	5.34	5.64	5.88	6.05	6.15	6.18	6.16
ULC	-0.23	0.51	0.79	1.05	1.20	-0.77	-0.55	-0.37	-0.09	0.09	0.30	0.50	0.58	0.64	2.60	3.21	3.86	4.43	4.94	5.51	6.02	6.50	6.96	7.34	7.65	7.87
Compensation per employee	0.09	0.49	0.78	0.97	1.09	-0.53	0.00	0.03	0.11	0.21	0.34	0.45	0.56	0.63	2.95	3.49	3.99	4.36	4.84	5.27	5.67	6.05	6.38	6.68	6.90	7.06
Productivity	0.34	0.08	0.12	0.05	-0.01	0.08	0.56	0.41	0.22	0.17	0.10	0.04	0.08	0.12	0.93	0.93	0.84	0.80	0.77	0.65	0.54	0.43	0.28	0.15	0.02	-0.09
Export Deflator	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Import Deflator	0.02	0.05	0.07	0.09	0.11	-0.05	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.06	0.29	0.33	0.37	0.40	0.44	0.48	0.53	0.57	0.60	0.64	0.66	0.69
GDP and Components	*Levels, percentage deviations from baseline*																									
GDP	0.43	0.25	0.22	0.11	0.00	0.03	0.56	0.48	0.35	0.34	0.29	0.22	0.23	0.24	1.78	1.75	1.63	1.54	1.46	1.29	1.12	0.94	0.72	0.50	0.28	0.06
Consumption	0.00	0.20	0.33	0.38	0.37	-0.27	-0.01	-0.02	0.00	0.04	0.11	0.18	0.23	0.28	3.24	3.46	3.63	3.76	3.93	4.06	4.17	4.25	4.31	4.34	4.34	4.32
Investment	0.07	0.37	0.29	0.37	0.35	-0.21	-0.04	0.00	0.11	0.22	0.44	0.39	0.36	0.31	1.93	2.09	2.07	2.04	2.25	2.20	2.24	2.27	2.27	2.29	2.28	2.24
Of which: Residential Inv.	0.20	1.06	0.59	0.87	0.80	-0.63	-0.24	-0.04	0.36	0.73	1.51	1.09	0.91	0.74	4.58	5.19	5.02	4.67	5.86	5.54	5.35	5.42	5.56	5.53	5.34	5.10
Gov. Consumption	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.90	10.90	10.90	10.90	10.90	10.90	10.90	10.90	10.90	10.90	10.90	10.90
Exports	1.09	0.97	0.91	0.92	0.93	0.03	0.84	1.17	1.22	1.15	1.06	0.98	0.93	0.91	-0.12	-0.14	-0.15	-0.17	-0.19	-0.22	-0.23	-0.25	-0.27	-0.28	-0.29	-0.30
Imports	0.53	0.94	0.99	1.13	1.23	-0.21	0.01	0.49	0.75	0.86	0.94	0.96	0.94	0.93	2.30	2.57	2.82	3.05	3.28	3.53	3.75	3.97	4.16	4.32	4.45	4.56
Contributions to Shock	*Percentage of GDP, absolute deviations from baseline*																									
Domestic Demand	0.02	0.21	0.28	0.34	0.34	-0.21	-0.02	-0.01	0.03	0.07	0.16	0.20	0.23	0.25	3.59	3.79	3.92	4.06	4.25	4.39	4.48	4.49	4.54	4.55	4.55	4.55
Inventories	0.02	0.04	0.03	0.03	0.02	0.01	0.00	0.02	0.03	0.04	0.04	0.04	0.03	0.03	0.17	0.17	0.17	0.17	0.16	0.16	0.15	0.14	0.13	0.12	0.10	0.09
Trade Balance	0.39	0.00	-0.10	-0.26	-0.36	0.24	0.57	0.47	0.30	0.23	0.08	-0.02	-0.03	-0.04	-1.98	-2.20	-2.46	-2.68	-2.95	-3.26	-3.50	-3.69	-3.95	-4.16	-4.38	-4.57
Labour Market	*Levels, percentage deviations from baseline, except unemployment: percentage points, absolute deviations from baseline*																									
Total employment	0.09	0.16	0.09	0.06	0.01	-0.05	0.00	0.07	0.13	0.17	0.18	0.18	0.15	0.13	0.85	0.82	0.78	0.74	0.69	0.64	0.58	0.52	0.44	0.35	0.26	0.15
Employees in employment	0.09	0.16	0.09	0.06	0.01	-0.05	0.00	0.07	0.13	0.17	0.18	0.18	0.15	0.13	0.85	0.82	0.78	0.74	0.69	0.64	0.58	0.52	0.44	0.35	0.26	0.15
Unemployment rate	-0.09	-0.15	-0.09	-0.06	-0.01	0.04	0.00	-0.06	-0.12	-0.16	-0.17	-0.17	-0.14	-0.12	-0.80	-0.77	-0.74	-0.69	-0.64	-0.60	-0.55	-0.48	-0.42	-0.33	-0.24	-0.14
Household Accounts	*Levels, percentage deviations from baseline, except the savings rate: percentage points, absolute deviations from baseline*																									
Disposable income	0.04	0.38	0.42	0.49	0.48	-0.33	-0.05	-0.02	0.06	0.17	0.32	0.38	0.41	0.42	1.98	2.21	2.39	2.51	2.77	2.90	2.98	3.06	3.12	3.15	3.13	3.07
Saving rate	0.03	0.10	0.02	0.03	0.05	0.00	-0.02	0.01	0.06	0.08	0.15	0.11	0.08	0.06	0.32	0.27	0.18	0.13	0.12	0.06	0.30	0.31	0.31	0.33	0.34	0.34
Fiscal Ratios	*Percentage of GDP, absolute deviations from baseline*																									
Total Receipts	-0.31	-0.08	-0.10	-0.04	0.02	-0.02	-0.33	-0.36	-0.31	-0.26	-0.17	-0.07	-0.05	-0.05	-0.55	-0.52	-0.47	-0.68	-0.31	-0.23	-0.21	-0.18	0.05	0.14	0.28	0.33
Total Expenditure	-0.39	-0.27	-0.30	-0.24	-0.13	0.14	-0.37	-0.42	-0.40	-0.39	-0.33	-0.26	-0.24	-0.25	1.11	1.26	1.32	1.39	1.46	1.51	1.62	1.70	1.92	2.08	2.34	2.62
Budget deficit	0.08	0.18	0.20	0.20	0.15	-0.15	0.04	0.06	0.09	0.13	0.16	0.18	0.19	0.20	-1.66	-1.80	-1.76	-2.08	-1.77	-1.79	-1.83	-1.88	-1.87	-1.94	-2.06	-2.29
Government debt	-0.52	-0.53	-0.72	-0.91	-0.96	0.71	-0.46	-0.54	-0.53	-0.56	-0.55	-0.50	-0.52	-0.56	0.99	1.25	1.54	1.93	2.18	2.50	2.85	3.21	3.68	4.18	4.77	5.44
Financial Variables	*Percentage points, absolute deviations from baseline*																									
Short-term Int. Rates	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Long-term Int. Rates	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foreign Demand	*Levels, percentage deviations from baseline*																									
World Demand	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foreign Prices	*Levels, percentage deviations from baseline*																									
Effective Exchange Rate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foreign Prices (euro)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Commodity Prices (euro)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 4 Simulation of a 5-year appreciation shock of 1 per cent

	Y1	Y2	Y3	Y4	Y5	Y10	Y1Q1	Y1Q2	Y1Q3	Y1Q4	Y2Q1	Y2Q2	Y2Q3	Y2Q4	Y3Q1	Y3Q2	Y3Q3	Y3Q4	Y4Q1	Y4Q2	Y4Q3	Y4Q4	Y5Q1	Y5Q2	Y5Q3	Y5Q4
Prices	*Levels, percentage deviations from baseline*																									
HICP*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Consumption Deflator	-0.23	-0.41	-0.57	-0.73	-0.88	-0.15	-0.12	-0.21	-0.27	-0.32	-0.36	-0.39	-0.43	-0.47	-0.51	-0.55	-0.60	-0.64	-0.68	-0.71	-0.75	-0.79	-0.83	-0.86	-0.90	-0.93
GDP Deflator	-0.23	-0.30	-0.55	-0.81	-1.03	0.05	-0.14	-0.25	-0.28	-0.27	-0.26	-0.27	-0.30	-0.37	-0.44	-0.52	-0.59	-0.65	-0.72	-0.78	-0.84	-0.89	-0.95	-1.00	-1.06	-1.11
ULC	0.10	-0.17	-0.36	-0.68	-1.03	-0.15	0.32	0.14	-0.01	-0.08	-0.12	-0.16	-0.18	-0.22	-0.26	-0.32	-0.39	-0.47	-0.54	-0.64	-0.72	-0.82	-0.91	-0.99	-1.08	-1.16
Compensation per employee	-0.05	-0.24	-0.46	-0.74	-1.05	-0.24	0.00	-0.02	-0.06	-0.11	-0.16	-0.22	-0.27	-0.31	-0.37	-0.43	-0.49	-0.54	-0.62	-0.70	-0.77	-0.86	-0.94	-1.02	-1.09	-1.16
Productivity	-0.15	-0.12	-0.18	-0.18	-0.16	0.10	-0.32	-0.17	-0.06	-0.06	-0.08	-0.10	-0.14	-0.16	-0.17	-0.18	-0.19	-0.18	-0.19	-0.19	-0.18	-0.17	-0.17	-0.17	-0.16	-0.15
Export Deflator	-0.53	-0.95	-0.99	-1.00	-1.00	-0.01	-0.10	-0.48	-0.70	-0.83	-0.90	-0.94	-0.97	-0.98	-0.99	-0.99	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Import Deflator	-0.89	-0.90	-0.92	-0.94	-0.97	-0.04	-0.88	-0.88	-0.89	-0.89	-0.90	-0.90	-0.90	-0.90	-0.91	-0.91	-0.92	-0.93	-0.93	-0.94	-0.95	-0.96	-0.96	-0.97	-0.98	-0.98
GDP and Components	*Levels, percentage deviations from baseline*																									
GDP	-0.20	-0.20	-0.28	-0.30	-0.27	0.29	-0.32	-0.21	-0.13	-0.14	-0.16	-0.18	-0.21	-0.24	-0.26	-0.28	-0.29	-0.29	-0.31	-0.30	-0.30	-0.29	-0.29	-0.28	-0.26	-0.25
Consumption	0.06	0.10	0.09	0.00	-0.10	0.10	0.03	0.05	0.08	0.09	0.09	0.09	0.10	0.10	0.10	0.10	0.08	0.07	0.04	0.02	-0.01	-0.04	-0.06	-0.09	-0.11	-0.13
Investment	0.00	-0.22	-0.28	-0.40	-0.41	0.13	0.10	0.05	-0.02	-0.12	-0.23	-0.22	-0.22	-0.22	-0.23	-0.28	-0.31	-0.32	-0.40	-0.40	-0.41	-0.41	-0.42	-0.42	-0.41	-0.41
Of which: Residential Inv.	0.35	-0.10	-0.37	-0.79	-0.80	0.51	0.52	0.45	0.31	0.11	-0.20	-0.06	-0.05	-0.10	-0.17	-0.35	-0.46	-0.50	-0.81	-0.79	-0.78	-0.79	-0.83	-0.82	-0.79	-0.76
Gov. Consumption	0.00	0.00	-0.01	-0.01	-0.01	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	-0.01	-0.01	0.00	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
Exports	-0.35	-0.02	-0.02	-0.04	-0.02	0.03	-0.46	-0.46	-0.31	-0.16	-0.06	-0.01	0.00	0.00	-0.01	-0.02	-0.03	-0.03	-0.04	-0.04	-0.04	-0.03	-0.03	-0.03	-0.02	-0.02
Imports	-0.04	0.22	0.28	0.19	0.07	-0.15	0.05	-0.12	-0.09	0.02	0.12	0.20	0.26	0.29	0.30	0.29	0.28	0.26	0.23	0.20	0.17	0.14	0.11	0.08	0.05	0.02
Contributions to Shock	*Percentage of GDP, absolute deviations from baseline*																									
Domestic Demand	0.04	0.01	-0.01	-0.09	-0.16	0.09	0.04	0.05	0.04	0.03	0.01	0.01	0.02	0.02	0.01	0.00	-0.01	-0.03	-0.06	-0.08	-0.10	-0.12	-0.14	-0.15	-0.17	-0.19
Inventories	-0.01	-0.02	-0.02	-0.02	-0.02	0.02	0.00	-0.01	-0.01	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.03	-0.03	-0.03	-0.03	-0.02	-0.02
Trade Balance	-0.23	-0.19	-0.25	-0.19	-0.08	0.18	-0.36	-0.24	-0.16	-0.15	-0.15	-0.18	-0.21	-0.24	-0.25	-0.26	-0.25	-0.24	-0.23	-0.20	-0.18	-0.15	-0.12	-0.10	-0.07	-0.04
Labour Market	*Levels, percentage deviations from baseline, except unemployment: percentage points, absolute deviations from baseline*																									
Total employment	-0.05	-0.08	-0.10	-0.12	-0.11	0.19	0.00	-0.04	-0.07	-0.08	-0.08	-0.08	-0.08	-0.08	-0.08	-0.09	-0.10	-0.11	-0.11	-0.12	-0.12	-0.12	-0.12	-0.11	-0.11	-0.10
Employees in employment	-0.05	-0.08	-0.10	-0.12	-0.11	0.19	0.00	-0.04	-0.07	-0.08	-0.08	-0.08	-0.08	-0.08	-0.08	-0.09	-0.10	-0.11	-0.11	-0.12	-0.12	-0.12	-0.12	-0.11	-0.11	-0.10
Unemployment rate	0.04	0.07	0.09	0.11	0.10	-0.18	0.00	0.04	0.06	0.07	0.08	0.08	0.07	0.07	0.08	0.09	0.09	0.10	0.11	0.11	0.11	0.11	0.11	0.10	0.10	0.09
Household Accounts	*Levels, percentage deviations from baseline, except the savings rate: percentage points, absolute deviations from baseline*																									
Disposable income	0.12	0.08	0.04	-0.10	-0.20	0.16	0.10	0.13	0.13	0.11	0.07	0.08	0.08	0.08	0.07	0.05	0.02	0.00	-0.05	-0.08	-0.11	-0.14	-0.17	-0.19	-0.21	-0.23
Saving rate	0.00	-0.06	-0.05	-0.07	-0.12	0.00	0.04	0.01	-0.01	-0.03	-0.07	-0.06	-0.06	-0.06	-0.06	-0.06	-0.04	-0.04	-0.04	-0.02	-0.11	-0.11	-0.12	-0.12	-0.13	-0.13
Fiscal Ratios	*Percentage of GDP, absolute deviations from baseline*																									
Total Receipts	0.13	0.08	0.15	0.12	0.10	-0.15	0.18	0.15	0.11	0.08	0.07	0.06	0.08	0.10	0.12	0.14	0.14	0.18	0.13	0.12	0.12	0.12	0.10	0.10	0.09	0.10
Total Expenditure	0.17	0.16	0.28	0.32	0.30	-0.37	0.21	0.19	0.15	0.14	0.13	0.14	0.16	0.20	0.23	0.26	0.28	0.34	0.31	0.31	0.33	0.32	0.32	0.31	0.30	0.29
Budget deficit	-0.04	-0.08	-0.13	-0.19	-0.21	0.22	-0.02	-0.03	-0.04	-0.06	-0.07	-0.07	-0.08	-0.10	-0.11	-0.12	-0.14	-0.15	-0.18	-0.19	-0.21	-0.19	-0.21	-0.21	-0.21	-0.20
Government debt	0.25	0.31	0.52	0.80	1.05	-0.22	0.27	0.26	0.23	0.24	0.26	0.28	0.32	0.37	0.43	0.49	0.55	0.63	0.70	0.76	0.84	0.89	0.96	1.02	1.09	1.15
Financial Variables	*Percentage points, absolute deviations from baseline*																									
Short-term Int. Rates	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Long-term Int. Rates	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foreign Demand	*Levels, percentage deviations from baseline*																									
World Demand	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foreign Prices	*Levels, percentage deviations from baseline*																									
Effective Exchange Rate	-1.00	-1.00	-1.00	-1.00	-1.00	-0.01	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Foreign Prices (euro)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Commodity Prices (euro)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 5 Simulation of a 5-year oil price shock of 10 per cent

	Y1	Y2	Y3	Y4	Y5	Y10	Y1Q1	Y1Q2	Y1Q3	Y1Q4	Y2Q1	Y2Q2	Y2Q3	Y2Q4	Y3Q1	Y3Q2	Y3Q3	Y3Q4	Y4Q1	Y4Q2	Y4Q3	Y4Q4	Y5Q1	Y5Q2	Y5Q3	Y5Q4
Prices	*Levels, percentage deviations from baseline*																									
HICP*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Consumption Deflator	0.35	0.55	0.52	0.37	0.19	0.07	0.19	0.31	0.41	0.47	0.52	0.55	0.56	0.56	0.55	0.53	0.51	0.48	0.44	0.39	0.35	0.30	0.26	0.21	0.17	0.13
GDP Deflator	-0.13	-0.48	-0.87	-1.27	-1.60	0.58	-0.03	-0.09	-0.16	-0.24	-0.34	-0.43	-0.52	-0.62	-0.72	-0.82	-0.92	-1.02	-1.12	-1.23	-1.32	-1.42	-1.50	-1.57	-1.63	-1.68
ULC	0.11	0.01	-0.42	-1.03	-1.64	0.55	0.07	0.10	0.13	0.12	0.12	0.05	-0.01	-0.11	-0.21	-0.34	-0.49	-0.63	-0.79	-0.95	-1.11	-1.27	-1.44	-1.58	-1.71	-1.83
Compensation per employee	-0.02	-0.18	-0.57	-1.06	-1.54	0.36	0.00	0.00	-0.02	-0.04	-0.08	-0.14	-0.22	-0.30	-0.40	-0.51	-0.63	-0.73	-0.86	-0.99	-1.12	-1.25	-1.37	-1.49	-1.60	-1.69
Productivity	-0.13	-0.23	-0.27	-0.23	-0.12	0.17	-0.07	-0.11	-0.15	-0.18	-0.22	-0.22	-0.24	-0.26	-0.27	-0.27	-0.26	-0.27	-0.26	-0.24	-0.22	-0.20	-0.16	-0.14	-0.11	-0.08
Export Deflator	0.15	0.15	0.15	0.15	0.15	0.00	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Import Deflator	0.71	0.69	0.65	0.61	0.56	0.00	0.72	0.72	0.71	0.71	0.70	0.70	0.69	0.68	0.67	0.66	0.65	0.64	0.63	0.61	0.60	0.59	0.58	0.56	0.55	0.54
GDP and Components	*Levels, percentage deviations from baseline*																									
GDP	-0.15	-0.34	-0.46	-0.44	-0.29	0.45	-0.07	-0.12	-0.17	-0.22	-0.29	-0.32	-0.37	-0.40	-0.44	-0.45	-0.46	-0.48	-0.47	-0.46	-0.43	-0.41	-0.36	-0.32	-0.27	-0.22
Consumption	-0.16	-0.53	-0.90	-1.17	-1.32	0.48	-0.04	-0.11	-0.19	-0.28	-0.38	-0.48	-0.58	-0.68	-0.77	-0.86	-0.94	-1.01	-1.08	-1.15	-1.20	-1.24	-1.28	-1.31	-1.34	-1.35
Investment	-0.17	-0.23	-0.38	-0.53	-0.67	0.27	-0.15	-0.18	-0.20	-0.17	-0.24	-0.21	-0.23	-0.25	-0.33	-0.36	-0.39	-0.44	-0.48	-0.51	-0.55	-0.59	-0.61	-0.65	-0.69	-0.73
Of which: Residential Inv.	-1.10	-1.29	-1.28	-1.69	-2.02	0.71	-0.83	-1.04	-1.27	-1.26	-1.51	-1.25	-1.22	-1.20	-1.19	-1.28	-1.30	-1.37	-1.61	-1.66	-1.69	-1.79	-1.91	-2.00	-2.06	-2.10
Gov. Consumption	0.00	0.00	0.00	0.00	0.00	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Exports	-0.01	-0.02	-0.03	-0.02	-0.01	0.01	0.00	0.00	-0.01	-0.01	-0.02	-0.02	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.02	-0.02	-0.02	-0.02	-0.01	-0.01	-0.01	0.00
Imports	0.00	-0.11	-0.34	-0.62	-0.88	-0.04	0.02	0.01	0.00	-0.02	-0.04	-0.08	-0.12	-0.18	-0.24	-0.31	-0.37	-0.44	-0.51	-0.58	-0.66	-0.73	-0.80	-0.86	-0.91	-0.97
Contributions to Shock	*Percentage of GDP, absolute deviations from baseline*																									
Domestic Demand	-0.14	-0.39	-0.69	-0.93	-1.07	0.36	-0.06	-0.11	-0.16	-0.22	-0.29	-0.35	-0.42	-0.50	-0.58	-0.65	-0.72	-0.79	-0.85	-0.91	-0.97	-1.00	-1.03	-1.06	-1.08	-1.11
Inventories	0.00	-0.02	-0.03	-0.03	-0.03	0.04	0.00	0.00	-0.01	-0.01	-0.01	-0.02	-0.02	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03
Trade Balance	-0.01	0.07	0.26	0.53	0.81	0.05	-0.01	-0.01	-0.01	0.01	0.02	0.05	0.08	0.12	0.17	0.23	0.29	0.35	0.42	0.49	0.57	0.63	0.70	0.77	0.84	0.91
Labour Market	*Levels, percentage deviations from baseline, except unemployment: percentage points, absolute deviations from baseline*																									
Total employment	-0.02	-0.11	-0.19	-0.21	-0.17	0.29	0.00	-0.01	-0.02	-0.04	-0.07	-0.10	-0.12	-0.14	-0.17	-0.18	-0.20	-0.21	-0.21	-0.22	-0.21	-0.21	-0.20	-0.18	-0.16	-0.14
Employees in employment	-0.02	-0.11	-0.19	-0.21	-0.17	0.29	0.00	-0.01	-0.02	-0.04	-0.07	-0.10	-0.12	-0.14	-0.17	-0.18	-0.20	-0.21	-0.21	-0.22	-0.21	-0.21	-0.20	-0.18	-0.16	-0.14
Unemployment rate	0.02	0.10	0.18	0.20	0.16	-0.27	0.00	0.01	0.02	0.04	0.06	0.09	0.11	0.14	0.16	0.17	0.19	0.19	0.20	0.20	0.20	0.19	0.19	0.17	0.15	0.14
Household Accounts	*Levels, percentage deviations from baseline, except the savings rate: percentage points, absolute deviations from baseline*																									
Disposable income	-0.34	-0.76	-1.12	-1.44	-1.63	0.57	-0.17	-0.29	-0.40	-0.50	-0.61	-0.71	-0.81	-0.90	-0.99	-1.08	-1.16	-1.24	-1.34	-1.41	-1.47	-1.52	-1.57	-1.62	-1.65	-1.67
Saving rate	-0.05	0.00	0.02	0.02	0.02	-0.03	-0.06	-0.05	-0.06	-0.03	-0.04	0.00	0.01	0.03	0.03	0.02	0.02	0.02	0.01	0.00	0.03	0.02	0.02	0.02	0.02	0.02
Fiscal Ratios	*Percentage of GDP, absolute deviations from baseline*																									
Total Receipts	0.13	0.26	0.30	0.24	0.17	-0.17	0.06	0.11	0.16	0.19	0.24	0.26	0.27	0.29	0.29	0.29	0.29	0.35	0.25	0.23	0.23	0.23	0.19	0.18	0.15	0.14
Total Expenditure	0.15	0.41	0.62	0.66	0.59	-0.55	0.06	0.11	0.18	0.24	0.32	0.37	0.43	0.50	0.55	0.59	0.63	0.72	0.65	0.66	0.68	0.66	0.64	0.61	0.58	0.54
Budget deficit	-0.02	-0.14	-0.32	-0.42	-0.43	0.39	0.00	-0.01	-0.02	-0.05	-0.08	-0.12	-0.17	-0.21	-0.26	-0.30	-0.35	-0.37	-0.40	-0.41	-0.45	-0.42	-0.45	-0.43	-0.43	-0.40
Government debt	0.15	0.48	0.90	1.42	1.85	-0.48	0.06	0.11	0.18	0.26	0.36	0.43	0.53	0.62	0.73	0.82	0.94	1.10	1.22	1.35	1.49	1.59	1.71	1.81	1.90	1.98
Financial Variables	*Percentage points, absolute deviations from baseline*																									
Short-term Int. Rates	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Long-term Int. Rates	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foreign Demand	*Levels, percentage deviations from baseline*																									
World Demand	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foreign Prices	*Levels, percentage deviations from baseline*																									
Effective Exchange Rate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foreign Prices (euro)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Commodity Prices (euro)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00