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**ANALYSIS OF THE MACROECONOMIC
EFFECTS OF EU-TRANSFERS
BY THE MODEL 'ECO-TREND'**

INTRODUCTION

It is analysed in the paper what role the transfers coming from the EU play in the catch-up process of the Hungarian economy by means of the macroeconomic model 'ECO-TREND' developed by the Department for Economic Modelling of the ECOSTAT Institute. It is a more and more important issue in what measure the supports from the EU contribute to the economic growth, consequently to the economic convergence of the new member states. This is also very important from the viewpoint of Hungary, since the country is supposed to receive a very large amount of supports during the next seven years, and this may raise the growth rate and further the convergence in case of an appropriate use of the transfers. Therefore, the present paper focuses on the effects of EU transfers on the catch-up process, and these effects will be quantified by the model 'ECO-TREND' after a short overview of evaluation techniques known from the literature.

Paper is organised as follows. Firstly, an overview on the system of EU-supports is given focusing on the structure and targets of the Structural and Cohesion Funds with special emphasis on Hungarian aspects by presenting the targets and measures of the next programming period. Secondly, the evaluation methods known from the special literature will be discussed. Then, the main causal relations built in the model 'ECO-TREND' will be presented focusing on the effects of the EU-transfers. Finally, the effects of the EU-transfers on the catch-up process of the Hungarian economy will be analysed, where both the baseline and alternative scenarios will be presented.

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1. THE EFFECTS OF THE EU-TRANSFERS ON THE LONG-TERM GROWTH

The endogenous theories of growth occurred in the 80s. They criticised the basic assumption of SOLOW's model stating that the technical development is an exogenous condition for the national economy. ROMER (1986) observed that the economic development is a function of the fixed capital with increasing and not with decreasing return. This recognition catalysed the emergence of endogenous growth theories.

The endogenous growth models focus on technical development in the long-term growth, i.e. the R&D activities and the development of the infrastructure are considered as the basis of the long term catch-up process. Since the EU-transfers are concentrated basically to these areas, they relevantly contribute to the economic growth and speed up the catch-up process. In order to examine this, we survey below the structure of use and the main targets of the EU-transfers.

One of the main purposes of the EU is to promote the economic development of the member states and to support the catch up of the less developed regions and member states, to eliminate the different development levels, to strengthen thus the economic and social cohesion. The financial means available for cohesion policy since 2007 are structural funds (namely the European Regional Development Fund and the European Social Fund) and the Cohesion Fund serving to achieve the above purposes by means of granting capital transfers. In addition to the Structural Funds and the Cohesion Fund, communal initiatives were also available for the regional policy in the previous period. Furthermore, financing means connected to the common agricultural policy and the common fishing policy operated within the Structural Funds earlier. In 2007, however, these were separated from the Structural Funds, and the European Agricultural and Regional Development Fund as well as the European Fishing Fund were established.

The principle of additionality is an important point of view, stating the minimum level of state development investments the given member state has to realize out of own resources in order to prevent union resources from ousting other state investments of the given state. The handling of this issue has been tightened up strictly since 2007, namely, the receiving country which cannot fulfil the additional expenditure purposes has to pay back the received EU subsidies.

The establishment of the Cohesion Fund was ordered by the Maastricht Treaty. It supports the catching up of the most underdeveloped member states of the Union in the period of the preparation for the monetary union. The main purpose is to strengthen the economic and social cohesion and to decrease the difference among the development levels of the different regions. The resources of the cohesion funds are available for those EU member states where the GNP per capita calculated at purchasing power parity does not reach 90 percent of the EU average.

In the period of 2007–2013 the European Regional Development Fund, the European Social Fund and the Cohesion Fund contribute to three new programmes. The target of convergence is similar to that of the period 2002–2006, aiming to support the catching up of the most underdeveloped countries and regions, all together 84 regions in 17 member states (regions where GDP per capita calculated at purchasing power parity does not reach 75 percent of the EU average). The second purpose is to increase the regional competitiveness and employment in countries not belonging to the convergence programme. The third purpose is that of the European regional cooperation strengthening transnational cooperation by means of common local and regional initiatives.

Regarding the programming period of 2007-2013, Hungary is entitled to EU resources in the value of 25.3 billion euros whereas the distribution of the country amounts to 4.4 billion euros in the frame of cohesion policy. This amount can be spent according to the National Strategic Reference Frame having been ratified by the European Commission. The aim of the national strategic reference frames is to connect the general national programmes including the economy modernization measurements of the member states to the Lisbon strategy serving economic growth and job creation. Regarding the aims of the Lisbon schedule, sustainable development and the increase of employment belong to the comprehensive objects of Hungarian development strategy.

The second aim of this strategy is to solve the problem of regional differences in Hungary. A well balanced regional development can be realised by means of developing the centres of regional increase, developing the countryside, and catching up the underdeveloped small regions. Economic development, social regeneration, development of transport, the problems of environment and energy, regional development and state reform all belong to the priorities.

Besides the aims of the EU transfers it is important to mention the structure of the use of subsidies. Studies on this object (e.g. BRADLEY-MORGENROTH [2004]) rank the incoming transfers to three main groups: infrastructural investments, development of human capital and subsidies to production. Regarding the distribution of transfers in Hungary in the period of 2004-2006, 63 percent of the funds were spent for infrastructural investments, 17 percent for human capital investments and 20 percent for production subsidies.

The structure of subsidies shifted to infrastructure by 2000-2006, whereas the ratio of subsidies to human capital decreased. The reason for this is that the importance of telecommunication and information technology development and environment protection is increasing continuously, and the use of Structural Funds is more effective in the case of greater projects such as infrastructural investments than that of smaller and more complicated projects like human capital investments [European Commission, 2004].

Referring to the period after 2013, conceptions connected to EU financial funds did not take shape yet. Deriving from this, neither the size nor the structure of the subsidy frame expected for the second half of the next decade is known yet. However, there are certain processes considered to be possible. We formed our expectations and the system of external conditions used for our impact studies according to them. Namely, we expect subsidies even for the period of 2014-2020, Hungary is thought to be the net beneficiary of the common European budget. The value of the transfers is expected to decrease of course, as Hungary catches up to the development level of the European Union. On the other hand, recent structural changes are expected to proceed, the ratio of amounts spent on agricultural subvention are very likely to decrease further, whereas the ratio of infrastructural subsidies increases, within which environment protection and information technology are expected to be the most preferred areas.

2. THEORETICAL BACKGROUND, INTERNATIONAL EXPERIENCES ON MODELLING EU TRANSFERS

The model HERMIN was established in the European Union, because it was necessary to set up a model that is suitable to analyse the development of the peripheral countries. The model can handle the supply-side effects of the structural funds to the economy. The model deals with the foreign relations, especially the income-flows. Its aim is the economic modelling of the countries which joined later the Union before and after the accession.

The HERMIN macro-sectoral modelling framework has been widely applied to structural fund analysis at the national level and macro-regional level. The model is strongly growth-orientated, its target is the analysis of the long-term supply-side shocks (structural reforms, the development of the infrastructure, etc.)

The HERMIN is composed of four sectors: manufacturing, market services, agriculture and government services at least. This level of disaggregation is necessary to identify the key sectoral shifts in a developing (regional) economy over the years of the Structural Fund program. The model is made up of three main blocks: a supply side, an absorption side and an income distribution side.

HERMIN is basically a neo-Keynesian model with some neo-classical features in the supply-side. Two sectors are modelled: a manufacturing and a market services sector. Output of the manufacturing sector is driven by world demand and cost and price competitiveness, while the output of the sector is determined by the final demand. Wages are determined in the tradable sector in a bargaining model and are sensitive to the tax wedge, unemployment and productivity. The model attempts to capture the external effects of public investments to the accumulation of physical and human infrastructural capital. Interest and exchange rates are exogenous to the model, and expectations are adaptive.

Based on the ex-post simulations of the model, the potential effects of the realised programs can be quantified. For example, in the case of Spain, Greece and Ireland, the effects of the structural funds during the 1994-1999 financial planning period are positive, though they increased the GDP level by a modest 1-1.5 percent, and by 0.5-1 percent in the long run, i.e. this increase in the growth will be sustained. However, in Portugal, these effects are much stronger, around 3-3.5 percent and 2 percent in the long run.

The model QUEST is a global macroeconomic model with strong micro-foundation which contains a well specified supply side allowing for the modelling of the productive impact of investment in infrastructure and human capital. Behavioural equations of the households and firms are derived from the intertemporal optimization problem for utility and profits.

The model captures the response of private sector agents to the fiscal injection and allows for the possibility that public spending crowds out private investments and leads to lower total investment spending due to consumption smoothing. On the basis of assumptions on the productive impact of the additional spending, the model provides an estimate of the potential benefits of the Cohesion Policy programmes.

The model can be described as a New Keynesian-Neoclassical Synthesis-based DSGE (dynamic stochastic general equilibrium) model, which combines the rigours of dynamic general equilibrium models with features of Keynesian style rigidities.

The QUEST is partly estimated, but for those equations that could not directly be estimated, estimates available in the empirical literature are used.

The initial positive effects of the cohesion policy can be decreased through the increase in the capital accumulated because of the effect that this capital can crowd out private investments. In the long run, the increase in the GDP level is higher than the short term increase triggered by the positive supply side effect, which continues after the supported period as well.

Fiscal transfers attached to the cohesion policy programs appear in the model as intergovernmental fix transfers. It is an assumption in the model that these transfers put a burden on the EU15 countries in the portion of their GDP, and the regions lagging behind receive more financial support than what they pay. In the case of the cohesion policy, the rules of additionality and co-financing have to be fulfilled.

Additionality requires that Structural Funds are additional to domestically-financed expenditure and are not used to substitute for it. The co-financing principle means the EU provides only matching funds to individual projects that are part of the operational programmes and that the EU funds are matched to a certain extent by domestic expenditure.

Ex-ante simulation has been done for the 2000-2006 financial planning period with the QUEST in the case of the four cohesion countries. The results were published in the second report of the European Commission, which is about the economic and social cohesion. Based on the results, transfers will have more moderate effect than that predicted by other models, which can be explained by inclusion of the agents' expectations and their anticipatory behaviour, the long-term real appreciation and the crowding-out effect of the supports for private investments.

There are mainly three types of evaluation methods for assessing the effectiveness of the cohesion policy of the European Union: case studies, econometric estimations and model simulations [EDERVEEN, 2002a].

The different studies do not give a unified picture about the effect of capital transfers by the EU on the convergence. The picture which can be drawn is ambiguous, because the methods used for evaluation have different advantages and disadvantages, so that the questions to be answered by them are not the same. Case studies for example generally give an exact picture about the properties of a given project, or about the way of realisation, but are less practical for quantifying the effects of the funds, or for drawing conclusions on aggregated, regional and country level.

Cohesion policy has the potential to foster regional convergence within the EU. Crowding out, weak redistributive efficiency, and rent-seeking may dampen or even annihilate its positive impact. Many evaluation studies have analysed if cohesion policy is indeed able to reduce differences in welfare between regions.

There are a wide variety of case studies in which single projects are evaluated. Some focus on the way in which the funds are actually spent, others emphasise the impact of the funds on local authority practices.

A study titled *Funds and Games* by EDERVEEN [2003] gives a good outline about case studies and in the followings some elements of it are to be reviewed.

LOLOS (1998) evaluates the success of macroeconomic and structural policies in Greece and Portugal over the 1980s and 1990s and concludes that the cohesion support in Portugal has been more successful than in Greece.

The European Commission [1999] tends to be positive in their paper about the impact of cohesion policy. Its verdict is that programs of Cohesion Fund that have been evaluated contributed significantly to productivity growth and employment.

BACHTLER and TAYLOR made a research based on evaluation of projects and surveys of EU officials for the period 1994-99. They did not arrive at a quantitative impact, but they had some critical observations: projects often lack a clear rationale, it is difficult to establish coherence of EU-funded strategies with the broader policy context and the allocation procedure is over-elaborated or bureaucratic, which raises questions about procedural efficiency.

In particular, model simulations measure the potential impact of cohesion policy, whereas econometric analyses measure the actual impact. For this, according to the models, structural support has a significant and positive effect on the economic growth of the countries within the framework, thus strongly supporting the convergence. According to the econometric estimations, funds even in the best cases had negligible effects in the past, and in some cases the effects on the convergence are negative.

Econometric studies consist of two categories: those looking for indirect evidence regarding the impact of cohesion support on convergence and those that directly measure the extent to which regional growth is determined by the cohesion support. The ex-post econometric analyses thus complement the model simulations that are based on ex-ante evaluations.

It can be said about the majority of the studies, that they estimate generally one regression equation, in which EU transfers are represented among the explanatory variables.

A number of econometric studies directly measure the impact of cohesion policy on economic growth. Some of these studies find support for the convergence hypothesis.

FAYOLLE and LECUYER (2000) measured the economic growth of European regions over the period of 1986–96. The correlation between these performances and the national membership of regions is investigated as well as the link with their access to the European Structural Funds, then regressions are estimated. They find that growth is enhanced by cohesion support, although its impact is strongly conditioned by the national membership. The variables of national membership were not equally significant in case of all countries but influence the regional catching up, rather in a negative way in the case of France, Italy, the United Kingdom and Spain.

BOLDRIN and CANOVA [2001] concluded that there is just a weak connection between the regional policy of the EU and fostering economic growth. They argue that in order for the successful EU expansion processes, the regional support system should be revised and reshaped, because the present structural and cohesion funds are subordinated to aims of which economic growth and supporting convergence are not among the priority targets.

Based on the study of EDERVEEN et al. [2003], Structural Funds have a conditional effect, because they only facilitate convergence in countries with high export and import ratio per GDP, low corruption index and better quality institutions.

FUENTE [2002] examined the effects of cohesion supports on the convergence and on the rate of employment in Spanish regions, which belonged to the first objectives of EU supports. According to their results, EU transfers had significant effects in Spain, they increased the growth rate of the output by 1 percentage point and they increased the employment rate annually by 0.4 percentage point during the examined period.

Econometric studies give more pessimistic results in general about the effects of the funds than most of the model simulations. Econometric models try to estimate the real effects of the supports in contrast with the potential quantifications of the

model simulations. Moreover, they do not assume the productivity of investments, the absence of the crowding-out effect and the accomplishment of additionality.

The weakness of econometric research is the scarcity and bad quality of data. In several cases, there is no detailed and/or regional level database at the researchers' disposal, which would be necessary. Available data do not contain in every case the necessary length time series, thus making harder the quantification of the long term effects of Structural Funds.

3. THE STRUCTURE OF THE MODEL ECO-TREND

The ECO-TREND is a yearly macroeconomic simulation model, frequently used for forecasting and for policy simulation at the ECOSTAT Institute. We also develop complex macroeconomic scenarios regularly with the help of this model. ECO-TREND can be used for analyzing the macroeconomic effects of the EU transfers. First we will show the main characteristics of the ECO-TREND model, then we will focus on the transmission mechanism of the EU transfers.

ECO-TREND is a yearly calibrated model, which means that the parameters of the model are determined by a very complex method using stochastic estimation results, experts' informations and expectations for the future behaviour of the specific equation together.

The main exogenous determinants of the model are the items affecting foreign trade turnover (world market prices, the boom of external markets, devaluation) and lending interests in real terms affecting venture investments directly and taxation items (personal income taxes, corporate taxes, taxes related to customs and imports, VAT-rate, etc.). The information system of the model follows the national accounts categories of the ESA95 European Union Statistical standards.

ECO-TREND consists of four main blocks such as the demand and supply blocks determining real categories and employment, the block of prices and money and the block of income distribution. The stochastic equations lie in the centre of the model complemented with identities.

Additional to employment and wage determination, the supply block provides the potential, theoretical supply by means of a production function. GDP is determined from the supply side, but the final demand components (private and public consumption, investments, exports) are determined by stochastic equations, as well, while imports are calculated as a balancing item of the demand and supply blocks. Real and nominal categories are related by prices determined by stochastic equations.

Labor demand is formulated as a function of the capacity utilization rate and real wages whereas labor supply is dominantly determined by demographic factors. Actual values of labor demand and labor supply imply the corresponding rate of unemployment.

Domestic prices are represented by the consumer price index (CPI) and the producer price index (PPI) while the effect of world markets are transmitted via export and import prices. CPI strongly follows PPI whereas PPI is dominantly affected by import prices. Export and import prices are driven by world market tendencies.

With respect to the income block, disposable incomes of the corporate sector and households, the general government budget, foreign disposable income and the balance of payments are all determined by means of their income balances and the balance of payments. There are three income balances in the model such as the in-

come balances of the corporate sector, private households and the general government. Profits and savings of the corporate sector are calculated by subtracting wages and taxes from the net GDP. This balance includes both the amounts of wages as input figures to the balance of private incomes and the taxation items of the state budget balance.

Disposable income is determined in the balance of private incomes by adding mixed, proprietor and transfer incomes to the wages paid in the corporate sector and subtracting taxation items. Savings are derived as the difference of disposable income figure and consumption.

The balance of the general government is made up of three parts as follows: the central budget and the two social security funds. The revenue side of all sub-balances includes taxes, contributions paid by the corporate sector and households whereas on the expenditure side there are certain benefits and transfer income payments. Aggregation of the balances of the three income proprietors complemented by the balance of payments provides the income distribution matrix of the national economy and the net lending/borrowing positions of the different sectors.

The basic structure of the ECO-TREND model can be seen in *Figure 1* (next page).

4. TRANSMISSION MECHANISM OF THE EU TRANSFERS IN ECO-TREND

Transfers from the Cohesion and Structural Funds of the European Union are getting more and more important growth factor in Hungary. The total factor productivity is endogenous in ECO-TREND, so we can analyse the spill-over effects of the EU transfers to the productivity and the long term growth.

The functional structure of the EU transfers is the following: infrastructure, human capital and production subsidies. The TFP is determined by these factors as explanatory variables in the model.

The public investments are influenced by the amount of the EU transfers, as well. The model also calculates the co-financing requirements.

The sum and the functional structure of the EU transfers affect the general structure of the government expenditures which has a further effect on the TFP and the long-term growth performance. Regarding the growth effects, the additionality assumption was accepted.

The model also calculates the values of the national accounts categories by a transition matrix.

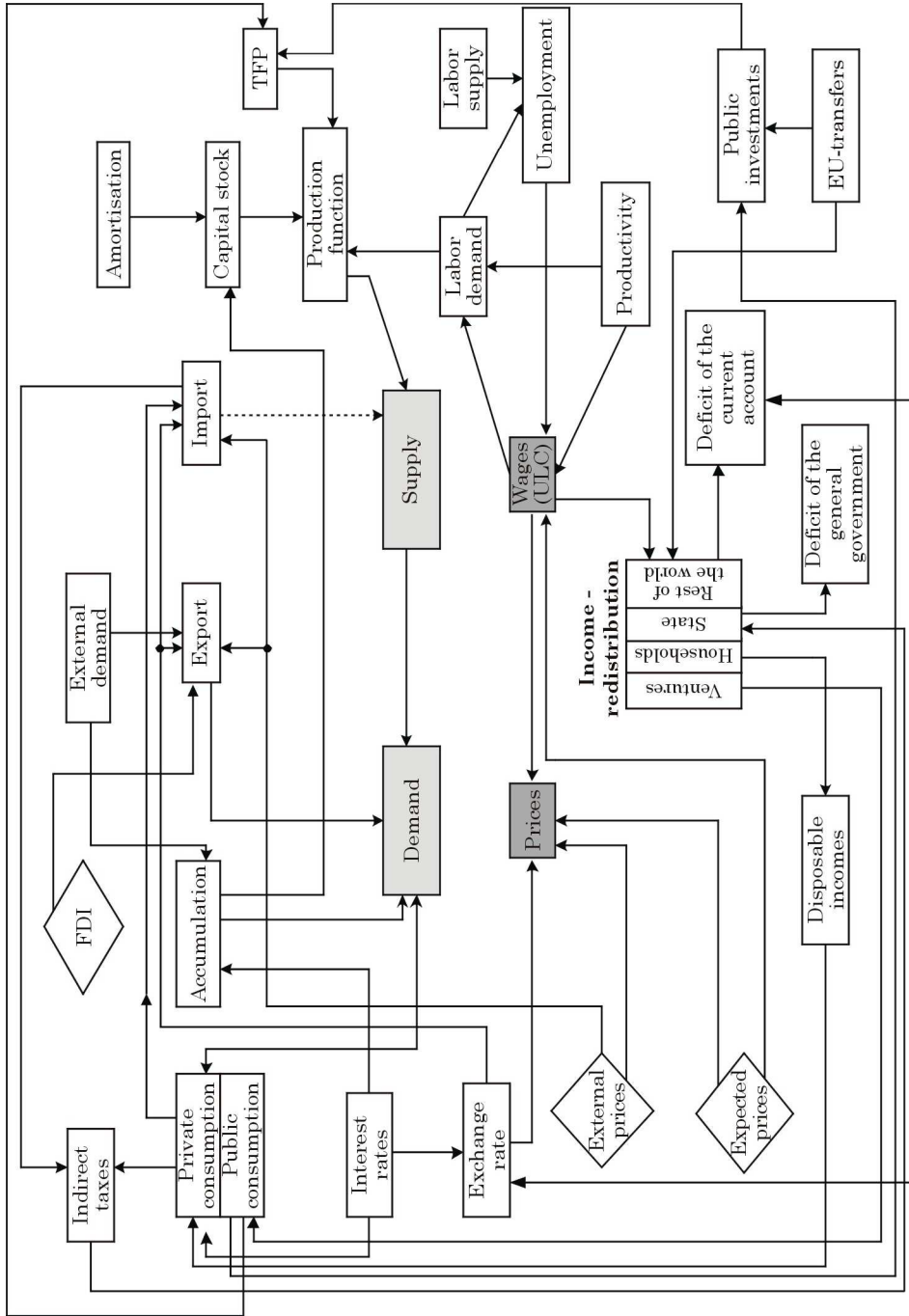


Figure 1
The structure of the ECO-TREND model

5. THE IMPACT ANALYSIS OF THE FUNCTIONAL STRUCTURE OF EU TRANSFERS

The exogenous assumptions of the baseline scenario are as follows.

- The external demand is expected to increase annually by 2-2.5 percent.
- The expected inflation rate declines gradually to 3 percent by 2011. The reason for this is that we assume rational expectations in the model, namely, economic participants expect consumer price indices corresponding to price stability on the long term (cca. 3 percent)
- Deposit and lending interest rates converge to the actual euro interest rates by 2012.
- Foreign direct investments are expected at about 3-4 billion euros per year.
- The amount of the used EU transfers reaches 2-3 percent of the GDP from 2009.
- The interest rates of the long term government bonds converge to the eurozone level.

Assumptions connected to EU transfers are as follows.

- 80 % of the available 25.3 billion euros will be properly used for the period 2007-2013. In the next period there is a gradual decline in the volume of the transfers.
- The assumed functional structure of the EU transfers is the following: 63 percent for infrastructural investments, 17 percent for human capital investments and 20 percent for production subsidies.¹
- The structure of the government expenditures is unchanged for the whole forecasting period.

The expected annual average growth rate of the GDP is 3.9% from 2010. However, the growth is not smooth, it reflects the political cycles. This means that the higher governmental expenditures influence the growth rate raising it in the years of elections. The rate diminishes in the next year and increases until the year of the next elections. We have also examined how we can catch-up to the average level of the EU25 in terms of GDP per capita (measured at purchasing power parity) until 2020. The results show that the domestic level is 62.1% of the average level of EU25, and it gradually goes up to 76.7% by the end of the examined period.

The GDP per capita is only one of the indicators of the catch-up process, although it is a very important index. It is not less important that also the income level of the household sector should approach to the average level of the developed countries. We have examined the development of the disposable income of households (QDI). Results show that the convergence of this indicator measured at purchasing power parity is slower than that of the GDP per capita: the 53.1% of 2008 will grow only up to 66.6% by 2020. This means that the average annual increase of the disposable income will be only 3.3%. This relevant difference can be explained by two factors. On the one hand, the gross national income (GNI) grows slower than the GDP (its average growth rate is 3.5%), since the stock of foreign capital in Hungary is far higher than the stock of the Hungarian capital abroad. This means that the income of the foreign investors in Hungary is far higher than the income received by the Hungarian investors from abroad. On the other hand, the distribution of incomes continually changing at the expense of the households; this phenomenon can be observed also in the developed countries.

¹ The functional structure of the transfers was taken from Bradley – Morgenroth [2004].

Table 1
The main economic indicators 2010-2020 (baseline scenario)

Variables	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Gross domestic production	3.9%	3.9%	3.2%	3.5%	4.3%	3.2%	3.5%	4.0%	4.7%	3.9%	4.4%
Final consumption	2.4%	2.2%	2.4%	2.6%	3.1%	3.0%	3.3%	2.7%	3.2%	2.3%	2.6%
Private consumption	2.5%	2.3%	2.4%	2.6%	3.1%	2.4%	2.6%	2.8%	3.2%	2.5%	2.7%
Public consumption	1.9%	1.4%	1.9%	2.4%	3.4%	7.5%	8.0%	2.4%	3.4%	1.4%	1.9%
Fixed capital formation	9.4%	10.3%	5.5%	5.5%	4.7%	4.5%	4.9%	5.0%	5.4%	5.6%	5.7%
Gross accumulation	9.4%	10.3%	5.5%	5.5%	4.7%	4.5%	4.9%	5.0%	5.4%	5.5%	5.6%
Domestic demand	4.1%	4.2%	3.2%	3.4%	3.5%	3.4%	3.7%	3.4%	3.8%	3.3%	3.5%
Export	10.9%	9.0%	7.1%	7.1%	7.2%	7.2%	7.1%	7.1%	7.1%	7.1%	7.1%
Import	10.3%	9.2%	7.1%	7.0%	6.5%	7.5%	7.2%	6.5%	6.6%	6.8%	6.6%
Gross national income	3.5%	3.5%	3.0%	3.3%	3.9%	3.2%	3.5%	3.5%	4.2%	3.4%	3.7%
Disposable incomes	3.9%	3.1%	2.9%	3.2%	3.6%	3.0%	3.2%	3.3%	3.8%	3.1%	3.4%
GDP (at ppp, EU25=100)	64.0%	65.2%	66.0%	66.9%	68.5%	69.3%	70.3%	71.7%	73.6%	75.0%	76.7%
QDI (at ppp, EU25=100)	55.0%	56.0%	56.9%	57.9%	59.2%	60.2%	61.4%	62.6%	64.2%	65.3%	66.6%
Inflation	3.2%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	3.0%	3.0%
Current account in the percentage of the GDP	-4.2%	-3.8%	-4.0%	-4.0%	-3.8%	-4.3%	-4.7%	-4.6%	-4.3%	-4.0%	-3.7%
Deficit of the budget according to ESA	-2.4%	-1.6%	-1.4%	-1.3%	-1.5%	-1.6%	-1.9%	-1.7%	-2.3%	-1.8%	-1.4%
Nominal average earnings	6.7%	6.4%	6.6%	6.5%	6.4%	6.4%	6.5%	6.5%	6.5%	6.5%	6.6%
EU transfers	3000	4000	4100	4200	4000	3700	3500	3300	3200	3200	3200

The growth rate of the accumulation of the fixed capital rapidly increases; it may reach about 10% by 2010-2011. This is supported by the fact that more and more transfers will be used from the EU-funds, and the largest amounts will be used in these two years increasing primarily the investments. The growth rate of the fixed capital accumulation will be smaller in the subsequent years, and it will be stabilized around 4.5-5.5% from 2014 until the end of the examined period.

The deficit of the general government per GDP will decrease below 3% next year from the 3.9% expected for 2008. The deficit will further decrease below 2%, and it will be stabilized then. The 3% inflation target can be reached by the end of 2010.

In the sequel, three scenarios will be presented, in which certain conditions are changed compared to the baseline. It is assumed in the first case that we will not be able to draw 80% of the EU-sources; instead, the rate of use will be only 60%.

The second scenario considers the 80% rate of use, but it is assumed that the structure of the use is less favourable compared to the baseline scenario. This latter means that fewer sources will be devoted to growth supporting projects, like R&D, infrastructure or human capital. This was assumed not only for the EU-sources, but for the whole expenditure of the general government as well. The third scenario is the combination of the previous two ones, i.e. the rate of use and the structure are less favourable than in the baseline.

We underline the development of two indicators when comparing the scenarios.

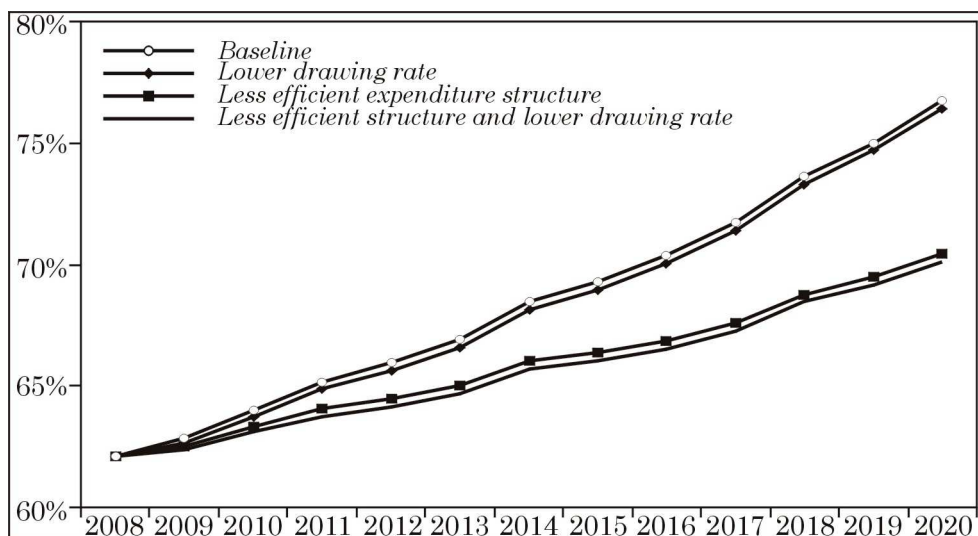


Figure 2
The gross domestic product
(at purchasing power parity, in the percentage of EU25)

The GDP per capita measured at purchasing power parity shows an interesting evolution in the examined scenarios. A relevant deviation can be observed only when the structure of use becomes inefficient, and there is less difference, when only the use of rate decreases. This means that, although the amount of use of EU-sources is an important factor, it is even more important that it should be attached with an efficient structure of use.

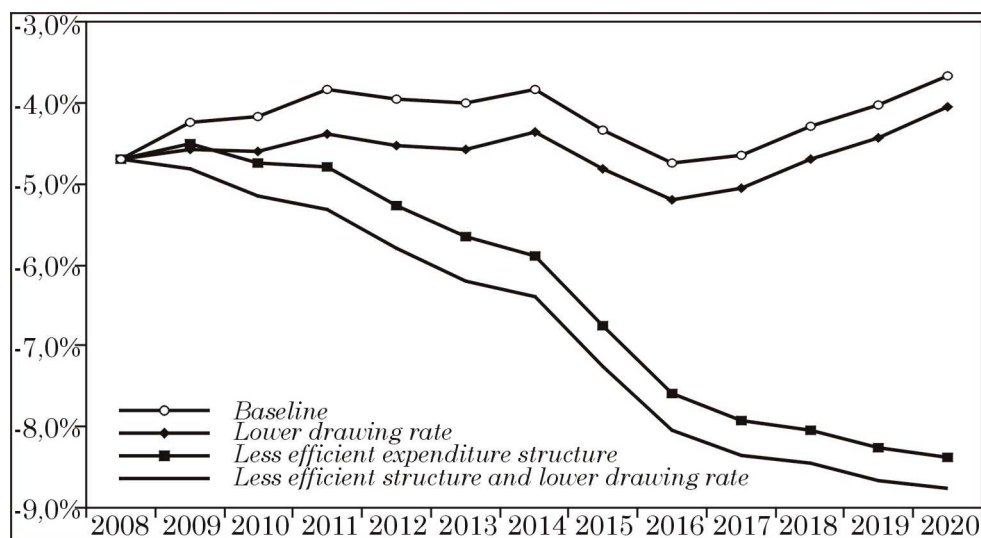


Figure 3
The current account balance
(in the percentage of the GDP)

If one examines the balance of current payments, it turns out that the income receivers compensate this effect by taking credits from abroad. This means that there are only small differences in the evolution of the indicators of the real sphere at the expense of a higher deficit of the current payments.

Table 2
The long term performance of the different scenarios in 2020

	2020			
	Baseline	Lower drawing rate	Less efficient expenditure structure	Inefficient structure and lower drawing rate
GDP (at ppp, EU25=100)	76.7	76.4	70.4	70.1
Disposable income of the households (at ppp, EU25=100)	66.6	66.5	66.3	66.2
Balance of the general government (in the percentage of the GDP)	-1.4	-1.5	-1.5	-1.6
Current account balance (in the percentage of the GDP)	-3.7	-4.0	-8.4	-8.8

The amount of EU-transfers influences the potential growth, therefore also the speed of catching-up and also the indicators of equilibrium. The effect of the structure of use is even stronger, therefore we conclude that Hungary has not only to increase the amount of received EU-sources, but the country has to endeavour to use them in an effective way, as well.

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***Analysis of the macroeconomic effects of EU-transfers
by the model “ECO-TREND”***

EU transfers play a significant role in the long-term convergence of the Hungarian economy. The paper presents several channels through which transfers can be effective. First the modelling experiences and other techniques are summarised which can be useful to estimate the impact of EU transfers.

Next we present the so-called ECO-TREND model developed in the ECOSTAT, suitable for both mid- and long-term forecasts and scenario analysis. The assessment of the model parameters has been based on standard statistical methods and on experts' estimations. Such a model can be a useful decisionmaking tool for the economic policy. Finally, forecasts are presented for the Hungarian economy until 2020, which is completed by the analysis of three different macroeconomic scenarios based on different subsidy absorption rates and different structures of expenditure.