Human Development Report, Slovakia and Hungary

Forecast for 2006-2020 and different scenarios

Working Paper

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Contents:

I. Introduction

Chapter III is aimed at modeling macroeconomic and human development trends in both regions in order to forecasting them up to year 2020. The subchapter's focus is Hungary and particularly the Northern-Hungarian NUTS-2 region as well as Slovakia and the Eastern Slovakian NUTS-2 region.

The Chapter builds to kinds of models:

1. National level: an overall but simple country-level macroeconomic model for Hungary and for Slovakia. The purpose of the model is to forecast the key determinants of growth through 2020.

-2. Regional level: a macro-regional economic model for the Northern-Hungarian and for the Eastern-Slovakian regions, being consistent with the overall macroeconomic models.

The two models are able to estimate the effects of different exogenous shocks such as changes in demographics, and macroeconomic policy. The data of the models are based on national statistical offices' and national banks' data, supported and complemented by UNDP's vulnerable groups database and the European Union's macroeconomic database. The purpose of the models is to provide a user-friendly and simple framework for forecasting.

Using the above models, it is possible to draw different development scenarios for both countries and for both regions. Those scenarios will cover possible macroeconomic shocks, which might have an effect on poverty and economic performance, such as:

- ERM-II and EMU entry of either of the countries
- Changes in fiscal and/or social policy
- Increased volatility in exchanges rates
- Changes in global macroeconomic environment (i.e. external market or investment climate conditions)
- Changes in the human capital and vulnerability of regions

The Chapter is built up as follows: Section 2 covers the relevant existing sources, focusing on the aim to gain relationship between regional and country-wide growth. In the section 3 both national and regional models are introduced and described in detail. The last section 4 deals with drawing different scenarios for the regions.

II. Theoretical background

When thinking about different ways to building up an appropriate model, taking into consideration the availability of data, their quality, reliability and the shortness of the time period is necessary. Several methods have been examined from the point of view of their effectiveness and convenience, ranging from the fairly sophisticated spatial growth analysis (e.g. Bröcker et al., 2001; Fürst et al., 2000), through the macroeconomic models as HERMIN (Bradley-Morgenroth et al., 2004) until rather simple textbook models such as growth accounting, new growth theories and new economic geography.[1]

A short summary of existing relevant sources on (regional) growth follows, which is in relation to purposes of the chapter.

II. 1. Growth accounting approach

In the neoclassical Solow growth model (Solow, 1956), long run growth depends only on technological progress. However, short run growth may occur as a result of technological progress and capital accumulation, as well. The growth accounting method (Abramovitz, 1956; Solow, 1957) determines those sources of growth: it decomposes the growth of output per capita (or per worker) into the contribution of growth of capital per worker and the so-called Solow residual. That is latter generally interpreted as the contribution of technological progress. Yet it reflects all the sources of growth other then the contribution of capital per worker through its return.

The growth accounting model can be extended and modified in several ways. The most widespread generalization is such as if overall growth is decomposed into growth of physical capital, human capital and external factors. This means, growth of capital is divided into two factors: growth of physical capital and growth of human capital (see e.g. Mankiw-Romer-Weil, 1992; Lucas, 1988; Rebelo 1991). As new growth theories have proved, human capital has a crucial importance in any economic growth. New theories emphasize the role of human and social capital in regional growth and development as missing elements of its explanation. The core thesis of human capital theory is that peoples' learning capacities are comparable to other natural resources involved in the production process; when the resource is effectively exploited the results are profitable both for the enterprise and for society as a whole. Economists such as Nobel Prize winners Gary Becker and Theodore Schultz established the concept in the early 1960s when they recognized the importance of including human knowledge and skills in models to explain economic development (Becker, 1964; Schultz, 1961). The most frequently used definition of human capital comes from the OECD report The knowledge, skills, competencies and attributes embodied in individuals that facilitate the creation of

[1] A detailed description of these models is to be find in Romer (1995).

personal, social and economic well-being (OECD 2001).II. 2. International spatial analytical socio-economic models

Spatial analytical socio-economic models use an assumption that transport infrastructure is one of the fundamental factors for regional development. Theoretically, regions with better access to input and output markets are supposed to be more productive, more competitive and more successful in comparison to isolated, peripheral regions. However, the relationship is more complex, as it is implied by some of prosperous EU regions on the periphery and some lagging regions in the core. There are several factors contributing to success and regional competitiveness as transport infrastructure. The positive correlation between transport infrastructure endowment or the location in interregional networks and the levels of economic indicators might be also due to historical agglomeration processes (Bröcker and Peschel, 1988). On the other hand, trying to explain changes in economic growth of a region by the infrastructure investments does not lead to success. This has an explanation that infrastructure investments might have declining returns to scale: large investments in regions with more developed infrastructure might have only small effects.

"Socio-Economic and Spatial Impacts of Transport Infrastructure Investments and Transport System Improvements" (SASI) is a model for forecasting socio-economic and spatial impacts of transport investments in Europe. With respect to the cohesion objective of the European Union, the model is developed to predict impact of different EU policies on a reduction of regional disparities and to specify which regions of the European Union are likely to benefit from those policies.

The SASI model differs from the other approaches trying to modeling the impacts of transport on regional development taking into consideration not only production (the demand side of regional labor markets) but also population (the supply side of regional labor markets), which gives an opportunity to modeling regional unemployment. In the regional GDP submodel of the overall model, accessibility is also incorporated as an additional production factor. Output is calculated separately in each sector (agriculture, industry, and services), considering that output is a function of five different factors.

The SASI model is based on the approach considering that output is reduced by transfers and its multiplier effects, thus output reduced by transfer depends on regional labor force, accessibility, economic factors and endowment factors.

The endowment factor has been added as the conditions for production in a certain region depend significantly on a given sectoral structure reflecting historical developments and path dependencies. In the SASI model for example, the four endowment factors have been chosen as crucial for regional economic development - availability of skilled labour, the degree of urbanization of a region, the availability of land and intraregional transport infrastructure.

In our approach endowment factors are divided into two groups:

- Traditional location factors such as capital stock (i.e. production facilities) and intraregional transport infrastructure
- 'Soft' quality-of-life factors such as indicators describing the spatial organization of the region, i.e. its settlement structure and internal transport system, or institutions of higher education, cultural facilities, good housing and a pleasant climate and environment

The accessibility factor is compounded of potential accessibility, quantity and quality of rail, road and air networks. The labor force factor involves population indicators such as population by sex, age, fertility/mortality, migration; and employment indicators such as employment/unemployment by sector, participation, labor productivity.

II. 3. Empirical factor analysis

Empirical factor analysis approaches (e.g. Faluvégi, 2005) are based on mathematical-statistical methods used to determine the social, economic and infrastructure development of particular regions. Overall or complex development is appraised using demographic, educational, employment, economic and infrastructure indicators. The term "development", although so frequently used, is not easy to define rigorously, as it can be viewed from the economic point of view related to growth, or as quality of life, environment sustainability, democracy and human rights level, etc. Faluvégi (2005) applied factor analysis to examine the development of NUTS-4 (or LAU-1 since 2004) regions of Hungary. He organized 40 indicators into 6 factors:

1. Complex development (containing indicators as urban population, population density, public service infrastructure and some other indicators which are also part of other factors)
2. Demographic indicators (such as fertility / mortality, population over 60, net migration)
3. Employment indicators (such as potentially active population, inactivity rate, agricultural employment, industrial employment, (market) service employment, unemployment, long-term unemployment)
4. Economic development (entrepreneurial capacity, exports, FDI, business services, R&D, personal income tax paid, labor income)
5. Infrastructure development (Basic infrastructure, network infrastructure (phone, Internet, rail, road, air), everyday and strategic accessibility)
6. Educational indicators

Treating the first factor of complex development of the regions as the strongest, Faluvégi built up five categories of regions: dynamic, developing, converging, stagnating, and backwarded. The detailed analysis describes the development level of the regions and

also sheds light on the fact that Northern Hungary is less developed: the most of its NUTS-4 subregions are backwarded, stagnating or converging, and just two of them, urban subregions Eger and Miskolc are dynamic or developing, respectively.

The above regional forecasting model has been simplified and adapted for forecasting macroeconomic drivers that are linked to growth in incomes and employment for Roma and other residents of Northern Hungary and Eastern Slovakia. In spite of its reduction, the adapted model imposes the advantages of the Faluvégi original model.

III. The models

The models have been constructed as transparent and reasonably simple. The starting idea was to explain the deviation of GDP-growth from its potential.[2] Those are fiscal and monetary policy factors embodied in the general government deficit and the interest rate of the national bank, as well as external factors embodied in the current account.

When developing the model for Northern-Hungary and Eastern Slovakia, the UNDP vulnerability database has been incorporated into the models. At the same time, limited accessibility of data and their reliability have been taken into account. The main premise used is that demographic and other trends determine the quantity of labor force of the region, while among others, the situation of the vulnerable groups affects the quality of the employees. The quantity and the quality together represent two aspects of the regional human capital, influencing substantially the regions share in the country's overall income.

III. 1. Country specific models

As already mentioned, the relationship between policy/external factors and the output gap has been studied, determined as the gap between potential and actual GDP. In the employed model, change in the actual GDP of a given year is equal to the weighted sum of changes in potential GDP, general government balance, central bank base rate and the current account balance. For the of the general government deficit date are based on the ESA-95 methodology, including corrections for pension funds reform. It respects also EU budgetary surveillance framework for new EU member countries, called the EU's Excessive Deficit Procedure.

In the case of Slovakia, potential GDP estimates were taken from the European Commission's AMECO database (Annual macro-economic database). However, in the case of Hungary a recent study of the Hungarian National Bank (NBH 2005) has been used, using different methods to examined the potential GDP. Their main result of the study estimates the potential GDP growth between 3.5 and 4.0 percent during the examined period (1997-2004). Out of the other methods producing only slightly different results, results of the Quarterly Forecasting Model have been employed in the model, since the same is employed in the forecasts of the National Bank.

For the rest of needed data, the AMECO database has been used as well, the statistical databases of the Hungarian and the Slovak national banks and definitely, the Hungarian

[2] In spite of its widespread use, the definition of potential GDP is rather unclear. Usually, potential output or potential GDP is identified as the output when unemployment reaches its natural level, i.e. the level of unemployment which does not accelerate inflation. However, in practice potential GDP is often identified with the trend of the real GDP, simply because of it's easier calculation.

and the Slovak central statistical offices. In the Table 1 and 2, the most important factors are reported.

Table 1: Hungary

	1997	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	2005
GDPgrowth	4.6	4.9	4.2	5.2	4.3	3.8	3.4	5.2	**4.1**
Change in exports (%)	48.3	40.4	19.7	33.8	9.3	0.5	8.9	16.4	**9.1**
Change in imports (%)	43.2	42.1	20.3	35.9	6.4	-0.7	10.5	14.1	**6.8**
Current account /GDP (%)	-4.4	-7.2	-7.8	-8.5	-6.1	-7.1	-8.7	-8.6	**-7.4**
Gen. gov. deficit / GDP (%)	-4.8	-4.8	-5.5	-2.3	-3.5	-8.4	-6.4	-5.4	**-6.1**
NBH base rate (%)	21.3	18.9	15.7	11.5	10.9	9.1	8.5	11.4	**7.2**
Inflation (%)	18.3	14.3	10	9.8	9.2	5.3	4.7	6.8	**3.6**
HUF/EUR exchange rate	**211**	**241**	**253**	**260**	**257**	**243**	**254**	**252**	**248**

Source: National Bank of Hungary, Hungarian Central Statistical Office, Kopint-Datorg database

Table 2: Slovakia

	1997	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	2005
GDPgrowth	5.7	3.7	0.3	0.7	3.2	4.1	4.2	5.4	6.0
Change in exports (%)	20.0	16.4	12.2	29.3	11.7	6.7	23.2	11.5	11.1
Change in imports (%)	15.6	17.0	1.7	25.9	21.2	4.6	10.6	14.0	13.6
Current account /GDP (%)	-9.1	-9.5	-5.6	-3.5	-8.3	-7.9	-0.9	-3.4	-8.5
Gen. gov. deficit / GDP (%)	-6.7	-4.8	-6.4	-11.8	-6.5	-7.7	-3.7	-3.0	-3.1
NBS base rate (%)	8.8	8.8	8.8	8.8	8.8	8.0	6.5	5.2	3.2
Inflation (%)	6.1	6.7	10.6	12.0	7.1	3.3	8.5	7.5	2.7
SKK/EUR exchange rate	38	40	44	43	43	43	41	40	39

Source: National Bank of Slovakia, Slovak Central Statistical Office, Kopint-Datorg database

Based on the potential GDP growth rates, calculation of the potential GDP at 2000 prices, and the output gap is possible and running different regressions procedures using different approaches for the mentioned policy and external effects. It is worth to mention, that the time horizon of past data is rather short, thus there is only a few numbers of observations at the disposal. Using the data covering the period 1997-2005 is not only a result of their mentioned availability but also because of unstable macroeconomic environment before 1996 as a consequence of the transition in both countries.

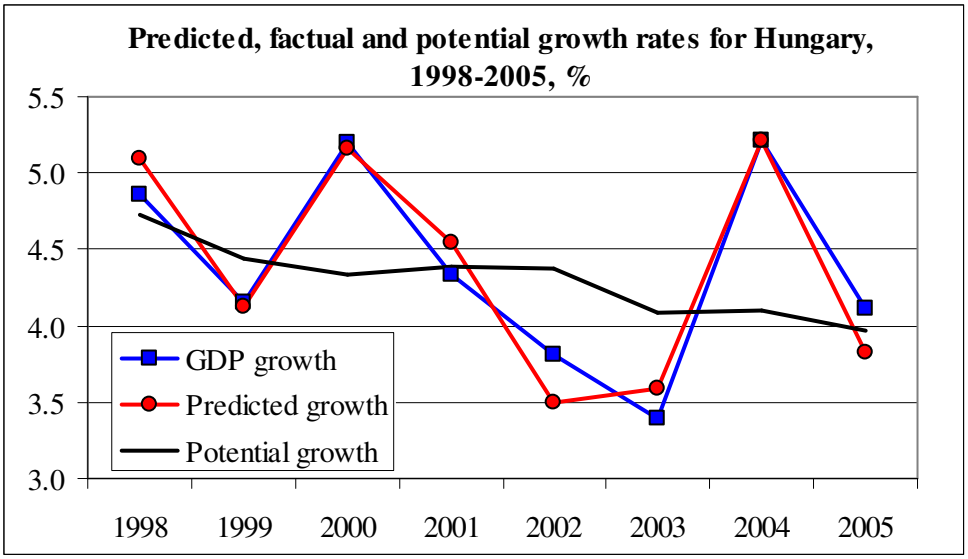
The r estimation resulted in different development in the observed countries. For both Hungary and Slovakia, the higher the change in the current account deficit the higher is the output gap. This means that "ceteris paribus", a higher deterioration in the current account would lead to a real GDP more above its potential level, while an improvement would lead to a smaller gap, or a real GDP even below its potential level. This suggests that rather imports growth than exports growth has a positive effect on growth. In the

prevalent part of the examined period, both countries' growth was based on imports fueled by consumption rather than investments and/or exports.

In the case of Hungary, the higher the interest rate, the smaller the actual real GDP compared to the potential, while in case of Slovakia, high interest rates demonstrate reversed effect. Effect of the government deficit also differs to some extent. It seems that last year's larger deficit has a negative effect, and results in smaller real GDP compared to its potential level. Although a larger deficit two years ago had a positive effect on the Hungarian GDP, nevertheless a negative effect has been observed in Slovakia.

As it can be seen in Figures 1 and 2, the model predicts past values being very close to the factual ones.

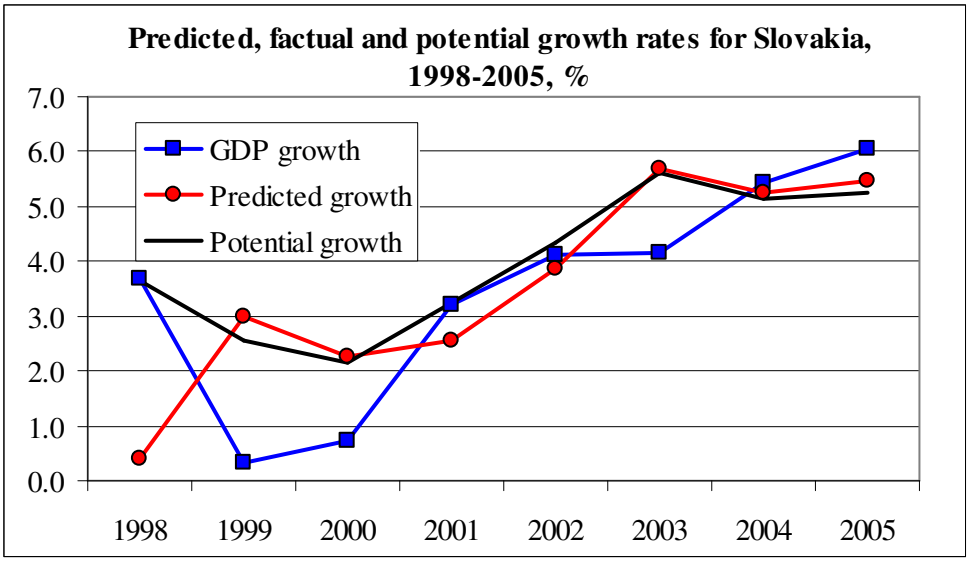
Figure 1



Source: National Bank of Hungary, Hungarian Central Statistical Office, own calculations

In Slovakia, prediction error is a bit larger at the beginning of the investiagated period. But over the years, he indicators show similar development..

Figure 2



Source: National Bank of Hungary, Hungarian Central Statistical Office, own calculations

III. 2. The forecasts

In order to forecast the future values of the real GDP, first is needed to predict the explanatory factors: government deficit, central bank base rate and current account deficit. At the end of the Chapter, six scenarios have been developed, based on two main scenarios for the countries, i.e. Hungary and Slovakia. For the baseline scenarios, (Scenario A1, A2 and A3), the most recent Convergence Programs of the Hungarian and Slovak government have been used, for the 2006-2009 period[3], and Kopint-Datorg forecast for the period 2010-2020, in accordance with the Maastricht criteria. here is an assumption, that if Hungary or Slovakia will be able to introduce the euro at any particular year, the country had to fulfill the Maastricht criteria two years before. In other words: it is assumed that general government deficit has to be slightly below 3% only two years before that date. This assumption determines the developments of other explanatory variables. The sooner introduction of the euro is expected to cause faster decrease of interest rates and inflation as well as a strengthening of HUF/EUR and SKK/EUR exchange rate. A later introduction is expected to lead to a slower decrease of interest rates and inflation and stagnation or weakening of the exchange rate[4].

The forecast of the developments in the current account is more difficult. Also it is hard to predict fluctuations in exports and imports, but the test of income movements and

[3]http://ec.europa.eu/economy_finance/about/activities/sgp/scp_table_en.htm

[4] For sure it would cause larger volatility, but now we are interested only in yearly averages of the exchange rate.

transfers s showes a random pattern. Te forecast of the current accounts is based on Kopint-Datorg's predictions basedon the development of exports and imports.

For the potential growth forecast the AMECO database has been used, as well as the mentioned NBH-study (NBH 2005). For the period 2008-2020 Kopint-Datorg forecast respetively, keeping the potential growth rate at 3.5% for Hungary and 5% for Slovakia. From the potential growth rate, general government deficit, current account deficit and central bank base rate, real GDP and its growth rate have been estimated.

For the GDP per head, considered as a kind of a welfare index, the calculations of nominal GDP in current EUR have been done, as well as the population growth forecast. For the nominal GDP, the real GDP was deflated by the consumer price index forecasted by Kopint-Datorg. For the population, generally accepted slightly moderating decreasing trend for the future has been assumed.

For predicting the other important variable - unemployment rate Kopint-Datorg forecast for change in number of employed, change in number of unemployed, and number of inactive has been used again.

III. 3. Regional models

For the regional level, Northern-Hungary and Eastern Slovakia, by cross-sectional analysis it has been identified, which factors might explain the share of the regions in the countries' overall income. The most obvious explanation of using the share of GDP is that the effect of the performance of the country's economy is fully reflected in the regional growth rates. Let's say if Hungary grows at the same rate year by year, but Northern-Hungary share increased thanks of endogenous reasons (such as local improvement in the employment or education environment), its growth rate will be faster.

The role of UNDP vulnerability database in the model is the following: The relationship between the number of finished classes and the vulnerability indicators developed as it is described in the corresponding Chapter of the Report. Although, the link might be very week; however, it is reasonable. Vulnerability, i.e. poverty, circumstances in living, etc. has direct influence on how long the children in a family attend school.

Then the estimation of the relationship between the share in the Hungarian GDP and the differences in the human capital of the region. For human capital, as indicators of quality and a quantity have been used such a education level achieved and the employment number.

III. 4. Forecasts for the regions

According to the results, changes in the explanatory variables cause only a small change in the share of the regional GDP. Thus, when testing the difference between prediction for the past and the factual growth rates, the results of model are more than satisfactory..

At the regional level is prediction the unemployment rate is considered as the most important indicator. Change in the employment is determined by the change in a region's population as live births minus deaths minus internal net migration. In the case of deaths and internal net migration an unchanging trend is assumed, while in the case of live births, 1% decrease year by year is supposed. It has been assumed that the working age population remains an unchanged share of the total population, as it was in 2004. Finally the number of unemployed is determined by the working age population minus the number of inactive minus the number of employed.

IV. Building scenarios

The six scenarios are depicted in the Table 3. On one hand, two main scenarios regarding the countries are in connection with the expected date of the introduction of the Euro. A "realistic" scenario is when the introduction will take place at the date described in the most recent Convergence Program of the countries: 2009 in case of Slovakia and 2011 in case of Hungary. A "pessimistic" scenario is when the introduction is delayed by 2-3 years.

Table 3: The scenarios

		Countries	
		Realistic	Pessimistic
Regions	Stagnation	Scenario A1	Scenario B1
	Divergence	Scenario A2	Scenario B2
	Convergence	Scenario A3	Scenario B3

IV.1. Stagnating regions

Two scenarios count with the stagnation of Northern Hungary and Eastern Slovakia. Scenario A1 assumes that Hungary introduces the Euro in 2011 and Slovakia in 2009, thus macroeconomic environment develops accordingly. Scenario B1 counts with a later introduction of the euro in both countries. This means, the general government deficit, inflation and interest rates decrease slower and the exchange rate is more volatile.

As regarding the regions, stagnation means that there is no significant change in any of the region's situation, thus their share in their countries overall GDP remains roughly the same. This assumes that there is no change in the vulnerability indicators, either, and employment conditions are also unaffected.

In the reasonable country – stagnation region scenario, GDP growth is expected to be around 3.5% in Hungary and in Northern Hungary, while the unemployment rate is slightly decreasing, mainly due to the increase in the number of active workforce. The number of unemployed does not decrease though. In Slovakia, the GDP growth is around

5% in the middle and long run; Eastern Slovakia's growth is not considerably faster. The unemployment rate remains outstandingly high in this region, as neither the quality nor the quantity of the labor force changes in a favorable way.

If we are pessimistic about the countries performance and assume a later introduction of the Euro, together with the stagnation of the regions, this results in somewhat lower growth in the short run in the two countries. Also, regional GDP grows slower, however, the share of the region's GDP does no

IV.1. Diverging regions

Scenario A2 and B2 count with the divergence of the Northern Hungarian as well as the Eastern Slovakian regions. The vulnerability indicators worsen over the forecast period, which results in a lower quality of the human capital. Also employment conditions are becoming more unfavorable, thus the high unemployment rates in the regions increase further; by 2020 they are likely to reach 12% in Northern Hungary and almost 30% in Eastern Slovakia. The regional growth rates are lower than in the stagnating scenarios, between 2.5 and 2.8% in case of Northern Hungary and below 4% in case of Eastern Slovakia. As a consequence, both regions are lagging behind, and their economic weight is decreasing continuously.

In case of Eastern Slovakia, there is a noticeable difference in the middle run whether Slovakia joins the Eurozone earlier or later: in the latter case, growth is also slower in Eastern Slovakia. However, there is not much difference in case of Hungary.

IV.1. Converging regions

Scenario 3A and 3B draws a picture where Northern Hungary and Eastern Slovakia develop faster then their countries. The vulnerability indices improve and so does human capital. The unemployment decreases, to about 15% in Eastern Slovakia and to about 6% in Northern Hungary. The regional growth rates are above the national ones, reaching more than 4% in Northern Hungary and more than 6.5% in Eastern Slovakia on average, if the countries' macroeconomic environment is favorable.

Appendix

Table A. 1: Scenario A1: Realistic country – stagnating region

Country scenario: realistic	**Hungary**		**Northern-Hungary**		**Slovakia**		**Eastern-Slovakia**	
Region scenario: stagnation	**2007-2012**	**2007-2020**	**2007-2012**	**2007-2020**	**2007-2012**	**2007-2020**	**2007-2012**	**2007-2020**
Economic factors								
GDP growth (%)	3.5	3.6	3.3	3.4	5.1	4.9	5.3	5.1
Unemployment rate (%)	7.8	6.8	9.4	8.3	12.5	10.8	24.8	25.2
Share of the region's GDP in the country's GDP (%)			8.1	8.1			21.6	21.6
Number of finished classes			8.8	8.8			9.0	9.0
Vulnerability factors								
General Deprivation Index			-0.134	-0.134			0.121	0.121
General Poverty Index			0.119	0.119			0.108	0.108
Ethnics Index			0.084	0.084			0.098	0.098

Table A. 2: Scenario B1: Pessimistic country – stagnating region

Country scenario: realistic	**Hungary**		**Northern-Hungary**		**Slovakia**		**Eastern-Slovakia**	
Region scenario: stagnation	**2007-2012**	**2007-2020**	**2007-2012**	**2007-2020**	**2007-2012**	**2007-2020**	**2007-2012**	**2007-2020**
Economic factors								
GDP growth (%)	3.4	3.6	3.0	3.4	4.9	4.9	5.0	5.1
Unemployment rate (%)	7.8	6.8	9.4	8.3	12.5	10.8	24.8	25.2
Share of the region's GDP in the country's GDP (%)			8.1	8.1			21.6	21.6
Number of finished classes			8.8	8.8			9.0	9.0
Vulnerability factors								
General Deprivation Index			-0.134	-0.134			0.121	0.121
General Poverty Index			0.119	0.119			0.108	0.108
Ethnics Index			0.084	0.084			0.098	0.098

Table A. 3: Scenario A2: Realistic country – diverging region

Country scenario: realistic	Hungary		Northern-Hungary		Slovakia		Eastern-Slovakia	
Region scenario: stagnation	2007-2012	2007-2020	2007-2012	2007-2020	2007-2012	2007-2020	2007-2012	2007-2020
Economic factors								
GDP growth (%)	3.5	3.6	2.5	2.8	5.1	4.9	4.0	3.8
Unemployment rate (%)	7.8	6.8	11.8	12.6	12.5	10.8	26.9	29.3
Share of the region's GDP in the country's GDP (%)			7.9	7.7			20.6	19.8
Number of finished classes			8.73	8.70			8.37	7.74
Vulnerability factors								
General Deprivation Index			-0.113	-0.093			0.113	0.104
General Poverty Index			0.142	0.175			0.101	0.093
Ethnics Index			0.071	0.058			0.091	0.085

Table A. 4: Scenario B2: Pessimistic country – diverging region

Country scenario: realistic	Hungary		Northern-Hungary		Slovakia		Eastern-Slovakia	
Region scenario: stagnation	2007-2012	2007-2020	2007-2012	2007-2020	2007-2012	2007-2020	2007-2012	2007-2020
Economic factors								
GDP growth (%)	3.4	3.6	2.5	2.8	4.9	4.9	3.7	3.8
Unemployment rate (%)	7.8	6.8	11.8	12.6			26.9	29.3
Share of the region's GDP in the country's GDP (%)			7.9	7.7			20.6	19.8
Number of finished classes			8.73	8.7			8.37	7.74
Vulnerability factors								
General Deprivation Index			-0.113	-0.093			0.113	0.104
General Poverty Index			0.142	0.175			0.101	0.093
Ethnics Index			0.071	0.058			0.091	0.085

Table A. 5: Scenario A3: Realistic country – converging region

Country scenario: realistic	**Hungary**		**Northern-Hungary**		**Slovakia**		**Eastern-Slovakia**	
	2007-	**2007-**	**2007-**	**2007-**	**2007-**	**2007-**	**2007-**	**2007-**
Region scenario: stagnation	**2012**	**2020**	**2012**	**2020**	**2012**	**2020**	**2012**	**2020**
Economic factors								
GDP growth (%)	3.5	3.6	4.0	4.5	5.1	4.9	6.8	6.6
Unemployment rate (%)	7.8	6.8	8.2	6.3	12.5	10.8	19.5	15.7
Share of the region's GDP in the country's GDP (%)			8.3	8.6			22.9	24.3
Number of finished classes			8.84	9.59			9.40	9.91
Vulnerability factors								
General Deprivation Index			-0.371	-1.596			0.125	0.131
General Poverty Index			0.059	0.033			0.112	0.116
Ethnics Index			0.437	5.244			0.105	0.114

Table A. 6: Scenario B3: Pessimistic country – converging region

Country scenario: realistic	**Hungary**		**Northern-Hungary**		**Slovakia**		**Eastern-Slovakia**	
	2007-	**2007-**	**2007-**	**2007-**	**2007-**	**2007-**	**2007-**	**2007-**
Region scenario: stagnation	**2012**	**2020**	**2012**	**2020**	**2012**	**2020**	**2012**	**2020**
Economic factors								
GDP growth (%)	3.4	3.6	3.5	4.3	4.9	4.9	6.4	6.4
Unemployment rate (%)	7.8	6.8	8.2	6.3			19.5	15.7
Share of the region's GDP in the country's GDP (%)			8.3	8.6			22.9	24.3
Number of finished classes			8.84	9.59			9.40	9.91
Vulnerability factors								
General Deprivation Index			-0.371	-1.596			0.125	0.131
General Poverty Index			0.059	0.033			0.112	0.116
Ethnics Index			0.437	5.244			0.105	0.114

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