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THE CONSTRUCTION OF A EUROPEAN DATABASE AND TREND DEVELOPMENTS FOR SOCIOECONOMIC FACTORS

WERNER ROTHENGATTER AND AXEL J. SCHAFFER
Institut fuer Wirtschaftspolitik und Wirtschaftsforschung
Universitaet Karlsruhe, Germany
Email: rothengatter@iww.uni-karlsruhe.de/schaffer@iww.uni-karlsruhe.de

Abstract

Projection of transport development is not feasible without simultaneous analysis of external factors. There is a synergy between in- or decreasing transport and socio-demographic factors, technological innovation and political decisions. The SCENARIOS project encounters this problem by defining a task for constructing a common regional European database (EU, Czech Republic, Hungary, Norway, Poland and Switzerland).
Trend forecasting (one scenario with several variants) of population, economy and trade started from this base line and has been prepared on a country level. The projected developments of External Factors have been elaborated for 2005 and 2020.

INTRODUCTION

Projection of transport development is not feasible without simultaneous analysis of external factors. There is a synergy between in- or decreasing transport and growth rate of GDP or quality of environment. Furthermore, transport development is dependent on the development of socio-demographic factors, technological innovation and political decisions. Regarding this interactive process between almost all fields of human activities, data collection plays quite an important role. Without detailed information on regional data, forecasting becomes a difficult job. Only a high standard of data availability guarantees a high quality of prognosis.
The SCENARIOS project of the 4th Framework Programme of the EU encounters this problem by defining a task for constructing a common European database. For one base year external factors of the socio-economic fields: population, economy, labour market, trade flows and technology have been compiled, as well as diverse transport data, at regional level. It was decided to choose 1994 as base year for the SCENARIOS European database but also data from 1993 or 1995 have been collected in the case that 1994 data were not available on the desired regional scale. All statistics are available at the SCENARIOS database homepage in the WWW (http://www.iww.uni-karlsruhe.de/research/scn/). To a wide extent data had to be collected from the national bureaus of statistics and other sources made available by the SCENARIOS research partners.
Trend forecasting (one scenario with several variants) of population, economy and trade started from this base line and has been prepared on a country level. The projected developments of external factors were elaborated for 2005 and 2020. The following approach was chosen: After an introduction into the Global Economic Prospects, elaborated projections are displayed up to 2005. Finally a trend scenario with several variants for economic indicators and trade is presented for 2020. Data and information have been taken from publications of the World Bank, OECD, EUROSTAT, UNO, International Monetary Fund, PROGNOS A.G. and from IIASA in Laxenburg (Austria).
The following chapters are based on Deliverable no. D2 of the SCENARIOS project. The public report 'External Developments and Relationship to the Transport Sphere' was elaborated by Prof. W. Rothengatter, Dr. P. Gehrung and A. Schaffer in September 1997 for the European Commission.

CONSTRUCTION OF A EUROPEAN DATABASE

Specification of Data Requirements

Indicators

Though the process of European integration is going on since the mid fifties, the national statistics have not been harmonised yet. Therefore the first step was to specify the data requirement in a way, that a detailed database can be established which allows to define comparable aggregate indicators. As a result of this first workstep it was decided to use the following categories:
- population by age and by sex, by profession, by education, by size of households (NUTS 3)
- population by car availability and by car ownership (NUTS 3)
- unemployment and employment by sectors (NUTS 3)
- GDP / GVA and gross capital formation by sectors and labour productivity (NUTS 2 / 3)
- disposable income and consumption by households (NUTS 0 / 2)
- R&D-expenditures and percentage of GDP (NUTS 0)
- import/export (tons) (NST/R) and values (SITC) (NUTS 0)
- number of cars, motorcycles, trucks and coaches (NUTS 3)
- length of road, rail networks and inland waterways as well as pipelines (NUTS 0 / 2)
- transport volume (passengers / tons and passenger kilometres / ton kilometres) (NUTS 0 / 1)

Geographical Extension

For the purpose of the SCENARIOS project it was necessary to extend the geographical scale. Additional to the EU 15 territory, data were collected for Norway, Switzerland and the eastern neighbourcountries Czech Republic, Hungary and Poland. Up to now the territory of the European Union is subdivided into 15 NUTS 0 (corresponding to member state level), 77 NUTS 1, 206 NUTS 2 and 1031 NUTS 3 regions (year 1995), whereas each region of one level consists of integers of smaller territorial units. The intention has been to provide a common NUTS structure for all considered countries. Therefore it was necessary to extend the existing NUTS nomenclature. According to disposability of statistical information the NUTS structure is mainly based on existing institutional partitions in the member states. With regard to this, the regional partitions of Czech Republic, Hungary, Norway, Poland and Switzerland are assigned to the following NUTS regions:

Table 1 - Suggested NUTS structure for Non EU members

Nuts 0	Nuts 1		Nuts 2		Nuts 3	
EU 15	77		206		1031	
Czech Republic	1	-	7	Kraje	30-40	Groups of 'okresy'
Hungary	1	-	8	Regions	20	Kommitate
Norway	2	Macroregions	6	Regions	19	Fylker
Poland	5	Macroregions	11	Regions	49	Voivodships
Switzerland	1	-	9	Grossbezirke	26	Kantone
Europe 20	86		240		1175-1185	

(Source: IWW)

Data Availability

Integration of the EUROSTAT REGIO Database

Some of the External Factors and their specifications include regional statistics, which are part of the (regional) database REGIO (fewer NEW CHRONOS and COMEXT) of EUROSTAT. If available EUROSTAT statistics have been integrated in the SCENARIOS database. In particular indicators concerning population, employment and GVA are similar to the requested data. Unfortunately the integration of statistics of EUROSTAT databases in a SCENARIOS database can not be carried out by simply pasting the files into the SCENARIOS database. A lot of statistics are incomplete. The degree of incompleteness of data depends on the indicator and the year.

Data Comparability

Since national data availability is rather heterogenous, three groups with different levels of data availability have been introduced. The countries with the highest status of data availability have been assigned to the first group. The second group is composed of countries with average level of empirical information, while countries with significant data gaps have been classified in the third group. It has been an aim to get all countries into the first or the second group, but there are some countries in the third group left. The situation is as follows:

First group (high level):	Austria, Germany, Hungary, Denmark, Spain, Sweden, Poland, Finland, France, Benelux, Switzerland, Norway
Second group (average):	Ireland, United Kingdom, Portugal
Third group (low level):	Greece, Italy, Czech Republic

Low level means that only some additional information to the EUROSTAT statistics are available. Data for the Czech Republic are not available by EUROSTAT, but only by the National Czech Statistics. Czech population data are available at NUTS 3 level, labour data at NUTS 2 level, but most data concerning the other socio-economic fields are only available at NUTS 0 level or are missing at all.

Reaching a high level of data availability and a good standard of data comparability has been the main objective of the SCENARIOS database. In fact availability and comparability are contrary. Realizing a high level of availability by collecting various data of 20 European countries means simultaneously increasing problems of data comparability. Prefering a high data availability would result in various disaggregated tables for different countries, which are hardly comparable. Vice versa statistics, which are elaborated only with regard to high comparability, are highly aggregated and would not add many substantial information to the regional database of EUROSTAT.

Problems

Gross value added and employment are exhibited by sectors. All countries use a classification which is orientated to the NACE nomenclature, but which is not the same for all countries. E.g. Germany uses the 'Wirtschaftszweigsystematik', Austria has its 'ÖNACE' and some countries prefer the I.S.I.C.

With regard to the regional aspect of the SCENARIOS data collection, it was obviously impossible to get labour data by 59 NACE sectors at NUTS 2 or NUTS 3 level. (It was neither possible, nor useful on NUTS 3 level, because data would have been dependent on few companies and not on a regional structure anymore.) Hence it was decided to use the major NACE sectors instead of the 59 NACE sectors. But again national statistical offices delivered different tables. The number of major sectors were 6, 10 or 14 and sometimes only the three classical (main) sectors were available.

Because of the link to transport activities trade flows are quite important within the data availability. Concerning the transport volume the tons of transported goods are more interesting than the values. But instead of delivering trade flows by NST/R-chapters many offices offered detailed information about import and export using the SITC or the I.S.I.C. (which does not base on weight but on value). Several statistics on national level only present data for the 10 main groups of goods. Some countries gave information about transit (transport), others do not include waterways or air transport.

The base year for the data collection normally is 1994. One common base year would support data compatibility, but a compromise had to be made, because many information has only been available for years around 1994.

Compatibility regarding the regional scale is an additional difficulty. Unfortunately the size of NUTS 2 regions varies a lot. Some NUTS 2 regions of France or of Germany are almost as large as Denmark, and they are larger than Luxembourg. But even if the NUTS areas were comparable, data have often been delivered for different NUTS levels.

Not only the regional but also the geographical scale turned out to be critical. Not being member of the EU, statistics from Norway and Switzerland were in some cases less compatible than EU data were. But both countries are close partners of the EU and provide many similarly classified data. Especially with regard to data availability and regional scale the differences to EU members are rather small. However, differences within the eastern European data are more important. In particular Poland and the Czech Republic are still working on new methods of National Account Statistics and could not deliver all requested data. Although the Hungarian statistics seem to be more detailed, it has been difficult to compare data for economy and labour market with other European statistics. All these countries normally do not use the regional NUTS code and most delivered employment data by sectors different to NACE or I.S.I.C. Nevertheless a lot of basic and detailed information has been provided, such that the regional database of EUROSTAT has been extended substantially.

TREND DEVELOPMENTS

Global Prospects and Short-term Development

After widespread deceleration of economic activity in 1995, the world growth rate increased in 1996 again. There are only few indicators of the tensions and imbalances, that usually may be responsible for disturbance in the business cycle. On the other hand commitments to reasonable price stability may be stronger than any other time since the second world war. In addition there is an increasing determination of many countries to reduce fiscal imbalances and thus to foster higher investment rates. With regard to the eastern and central European countries, the current political stability and the new role of the state will support liberalization and privatization processes and thus accelerate economic growth within Europe. (see International Monetary Fund, World Economic Outlook, 1997)
The continued robust growth with low inflation in the United States and the United Kingdom can be taken as an example for the favourable global economic conditions. However, despite these optimistic factors, negative contrasts in economic process have become stronger recently. Across industrialized countries in Europe the rate of unemployment has reached new postwar peaks, and neither companies record profits and turnovers nor political decisions give reason to expect any significant (positive) changes on the labour market. High unemployment and weak growth are critical points, which will make it probably difficult for various EU members to match the criteria associated with the plan for monetary union on time. This uncertainty is not only present in Europe's political scenery, it also is a delicate point with regard to scenarios.
A favourable global economic environment does not automatically benefit every country. It also depends on the ability of taking advantage of the opportunities for the national economy. Among the European economies developments differ widely. For instance unemployment is expected to remain at or near record levels in France, Germany, Italy, and several other countries. The uncertainty and partly a lack of confidence, characteristic of these economies in recent years, contrast with the presently good performance of the United States and the United Kingdom as well as Denmark, Ireland, the Netherlands and Norway.
The different situation within Europe and around the world is certainly linked to the phenomenon of 'globalization', which, on the one hand, allows rapid integration of economies worldwide through trade, financial flows, technology spillovers, information networks and, which, on the other hand, has negative effects on employment and real wages in the advanced economies. But actually it seems to be dangerous to explain the positive as well as the negative developments in Europe only with the magic word 'globalization'. It will not affect the structure within the Common European market significantly in the next years. Internal changes are more likely to influence the further development.
Table 2 shows the projections for GDP, prices and unemployment in 1997 and 1998. Germany, France and Italy will obviously recover in the near future. While having growth rates under two per cent in 1996 (for Italy even 0.7 per cent) economy will increase in 1998 by 2.4 per cent for Italy and almost 3 per cent for the French and German economies. Unfortunately the rate of unemployment will not benefit from this favourable environment. The fourth European G7 member, United Kingdom, will also have a growth rate near 3 per cent in 1998. But in this case 3 per cent are not a recovery but an indicator of a constant positive economic climate. Hence the repercussions on the labour market will be significant in the next years.
Also interesting is the short-term development of the new EU-members. While Austria and Sweden will increase their growth rates from 1.1 per cent in 1996 to respectively 2.8 and 2.5 per cent in 1998, Finland will not develop its economy constantly. However, the rates of around 4 per cent are the second highest, after Ireland, where the economy will grow around 6 per cent.
Almost all countries are confronted with enormous unemployment, in particular Spain, but with only moderate increase in consumer prices between 2 and 3 per cent. Only exception is Greece with more than 6 per cent.

Table 2 - Short-term projections for Europe (per cent change and per cent of labour force)

	Real GDP		Consumer Prices		Unemployment	
	1997	1998	1997	1998	1997	1998
Austria	1.7	2.8	1.9	1.9	4.8	4.8
Belgium	2.3	2.2	2.0	2.0	12.8	12.6
Denmark	2.7	2.5	2.5	2.7	8.2	8.1
Finland	4.4	3.4	1.3	1.6	15.1	14.0
France	2.4	3.0	1.6	1.8	12.8	12.3
Germany	2.3	3.0	1.8	2.0	11.3	10.6
Greece	3.0	3.1	6.9	6.0	9.6	9.3
Ireland	6.3	5.6	2.2	2.1	11.6	11.0
Italy	1.0	2.4	2.4	2.0	12.3	12.0
Norway	4.2	3.2	2.5	2.5	4.0	3.8
Portugal	3.3	3.5	2.5	2.3	7.4	7.5
Spain	2.8	3.4	2.5	2.3	21.4	20.7
Sweden	2.0	2.5	2.3	2.2	7.2	6.7
Switzerland	0.7	2.3	1.0	1.5	5.5	5.5
The Netherlands	3.0	2.9	2.7	2.5	7.1	6.3
United Kingdom	3.3	2.8	2.6	2.5	6.2	6.0

(Source: International Monetary Fund, 1997)

The recent collapse of the Asian financial market will obviously influence investment of Asian companies in Europe in the short run. In the middle and long run the Asian-Pacific economies will recover. 'The Economist' published in November 1997 that "for all its troubles, Japan has not lost its enviable strengths: highly skilled workers, productive research labs and companies that churs out things that people in other countries want to buy. Many Japanese businessmen are eager to leave the days of heavy-guided government guidance behind in favour of competition. If the government is finally willing to set the financial system to rights, it would not be difficult to imagine the typhoon turning out to be a divine wind, a kamikaze". (This is true for most of the other Asian-Pacific countries.)

Medium-term Projections

Concerning medium-term outlooks, many factors will influence developments. Political willingness towards low inflation does not seem to be a temporary impression but a main objective of European policy. With regard to the monetary union, the efforts to keep public sectors' deficits small will continue as well. Combined with many tariff agreements in Europe, showing moderate wage increases, this means that from the political side positive impacts on economic growth can be expected. Unfortunately high unemployment levels will persist in the coming years. As most of European economies are dependent on imported energy and raw materials, prices for these intermediate products are quite important. These prices will probably stay almost at the current low level, at least no significant rise is assumed. This expectation is based on the consideration, that the oil market will be characterized by big supply in the short and medium turn. Not only Iraq is expected to expand its oil production, but also European countries like Norway and the United Kingdom will be able to produce cheaper and more effective by the help of modern technology (see PROGNOS, World Report '96, pp 35-40).

Table 3 - Medium-term development for Europe (basic data in US$)

All Activities	Gross Domestic Product per Capita (US $)			Civilian Employment (1000)		
	1994	2000	2005	1994	2000	2005
Austria	21237	24229	27123	3405	3575	3689
Belgium	19864	22681	25482	3670	3760	3840
Denmark	26860	30997	34680	2495	2486	2477
Finland	24324	28656	32313	1927	2013	2052
France	21413	24303	27046	22089	22670	23206
Germany	22875	25131	28969	34957	34973	35011
Greece	6756	7547	8428	3730	3820	3895
Ireland	15085	18495	20730	1153	1210	1240
Italy	19853	22781	25714	22100	22350	22671
Luxembourg	28467	31937	35599	206	216	225
Netherlands	19592	21988	24340	5337	5579	5785
Norway	27511	31877	35658	2064	2114	2155
Portugal	7020	8311	9597	4549	4761	4965
Spain	13015	15274	17502	12358	12880	13347
Sweden	25417	28573	31506	4003	4140	4214
Switzerland	32130	35340	38965	3330	3375	3450
United Kingdom	17363	20042	22471	25347	26164	26560
EU	19335	22045	24651	141023	144461	147193

(Source: IWW estimate, based on PROGNOS, World Report '96)

Improvement in transport infrastructure, especially in Eastern European countries, and technological changes may also influence European medium-term development in a significant way. Spatial patterns, in particular changes in population structure by migration, will influence Europe's long-term development (see chapter 'Long-term Projections') but will have rather small influence with regard to short- or even medium-term outlooks. Table 3 provides projected data for GDP per capita in US$ and civilian employment in 1000. National currencies are converted into US$ using constant exchange rates. For information data of the three non-European G7 members Canada, Japan and the United States are presented as well.

Following these projections all countries will increase their economy constantly. In 2005 the ranking according to absolute GDP is more or less the same: Germany, France, Italy and the United Kingdom will have the lead in a 'European economic Armada'. Concerning annual growth rates, the strongest European economies are not within the top five. Ireland, Finland, Norway, Portugal and Spain enjoy a stronger increase than the other countries. The GDP of Japan and of the United States will grow faster than the average annual growth rate of the EU, but this could change if the EU extends to eastern countries, where annual growth rates may be over 3 per cent.

In the second columns of table 3 the GDP per capita is listed. Because of constant technological development combined with rather small increases of population, the GDP per capita rises up in Europe. Switzerland, Luxembourg and the Scandinavian countries are the most effective ones. Starting from lower levels Greece and especially Portugal does not seem to be satisfied with a moderate status of their productivity anymore and will show high annual growth rates up to 2005. Portugal's upswing is not only a result of the general favourable climate, but is also an effect of its deep entanglement with a booming Brasil economy.

The number of employed civilian persons will increase only in the United Kingdom by more than 1 per cent. Employment in other European countries will not rise significantly, but data concerning labour market have to be taken with care, as statistical effects can be rather high.

Long-term Projections

Long-term Projections up to 2020 in Western Europe

Long-term developments concerning economy are extremely rare. According to the PROGNOS World Report most data are available up to 2005. In fact almost all scenarios or trends for 2020 are limited to demographic data. Table 4 gives more detailed data about population development in Europe. Data, which have been delivered by EUROSTAT are compared with three population

scenarios developed by Christopher Prinz and Wolfgang Lutz (Ch. Prinz, W. Lutz, 1994). The assumptions have been:

	scenario 1	scenario 2	scenario 3
i. total fertility rate:	1.7	1.3	1.3
ii. life expectancy (m / f):	83.5 / 89	77 / 83	90 / 95
iii. total immigration:	0.5 mio	zero	1 mio

For scenarios 1 and 3 immigration is distributed to all countries. The share depends on the number of inhabitants, size of area, momentary immigration, etc. For the more pessimistic second scenario not only immigration but also emigration is assumed to be zero.
For most of the considered countries EUROSTAT data are covered by the results of the pessimistic scenario 2 and the more optimistic scenario 3. Exceptions are statistics concerning Austria, Denmark and Norway, which are projected higher from EUROSTAT. For Ireland EUROSTAT trend forcasts are significantly lower.

Table 4: Population trends

Population	1995	2010	2010	2010	2010	2020	2020	2020	2020
(in 1000)	eurostat	eurostat	scen 1	scen 2	scen 3	eurostat	scen 1	scen 2	scen 3
Austria	8045	8283	7888	7534	7989	8354	7929	7182	8081
Belgium	10131	10328	10258	9840	10362	10338	10282	9391	10403
Denmark	5216	5496	5348	5134	5393	5568	5352	4902	5406
Finland	5114	5233	5272	5071	5308	5222	5315	4882	5347
France	58048	61721	62843	60268	63368	63453	64553	58970	65128
Germany	81550	81036	81391	77398	82912	78445	81508	73055	84071
Greece			10778	10328	10874	9900*	10857	9900	10990
Irland	3590	3832	4500	4335	4499	3947	4798	4430	4753
Italy		57495	59731	57242	60263	55939	59453	54289	60234
Norway		4656	4644	4453	4688	4831	4767	4357	4815
Portugal			11332	10837	11435	9700*	11567	10512	11708
Spain	39177	39800	41372	39865	41461	39331	41632	38488	41565
Sweden	8837	9043	9163	8759	9295	9222	9337	8465	9525
Switzerland	7060	7443	7291	6918	7446	7553	7446	6631	7725
Netherlands		16470	16423	15742	16584	16898	16783	15306	17016
United Kingdom	58504	60352	60978	58616	61428	61082	62010	56897	62331

(Source: IWW based on EUROSTAT, Prinz / Lutz, and * UNO (only available for 2025))

Even if, with regard to different data sources, the absolute projected number of people living in Europe varies, a common conclusion is the change of the age structure. The European Commission published in the '1995 Report on the Demographic Situation in the European Union' that, without unusual developments, the number of people over 60 years will rise from 76,3 million in 1995 to 113,5 million in 2025. Especially from 2006 onwards this part of the European population will increase strongly. As a contrast the number of younger people under 20 years will fall by 11 per cent. This change in the age structure will result in various consequences for all members of the European Union concerning social, cultural and economic life. Thus the effects on labour market are considerable. While the younger part (under 30) of the working population will drop in relative terms of around 17 per cent, the number of people nearing the end of their working life will increase by around 6.5 million men and women.
As mentioned already, only few projected economic data are available for 2010 or even 2020. However some trends will be given here. Concerning to the GDP of 2020 the proceeding was the following one: Starting from GDP per capita in 1984 for every country the annual growth rate was considered up to 1994. This was compared with the projected growth rates from 1994 up to 2000 and from 2000 up to 2005, which are given in the PROGNOS World Report and 'The World Bank Atlas 1996'. With regard to this information for each country three different average growth rates have been assumed from 2005 up to 2020. The results are expressed in a scenario with three variants on the GDP per capita development: A 'low performance' variant (2020min), a 'business as usual' variant and a 'high performance' variant (2020max). Due to the different levels, the considered

countries have been subdivided into two groups. For the sake of clearness the second variant is not shown in the figure, but the 1994 level. The projected data for GDP per capita (thus the data for GDP) are based on 1990 prices and on a constant 1990 exchange rate.

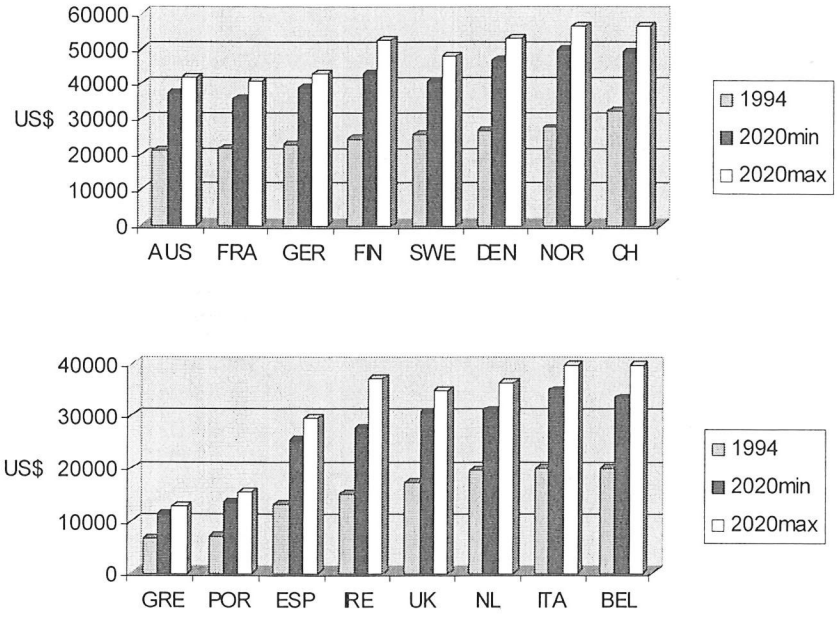


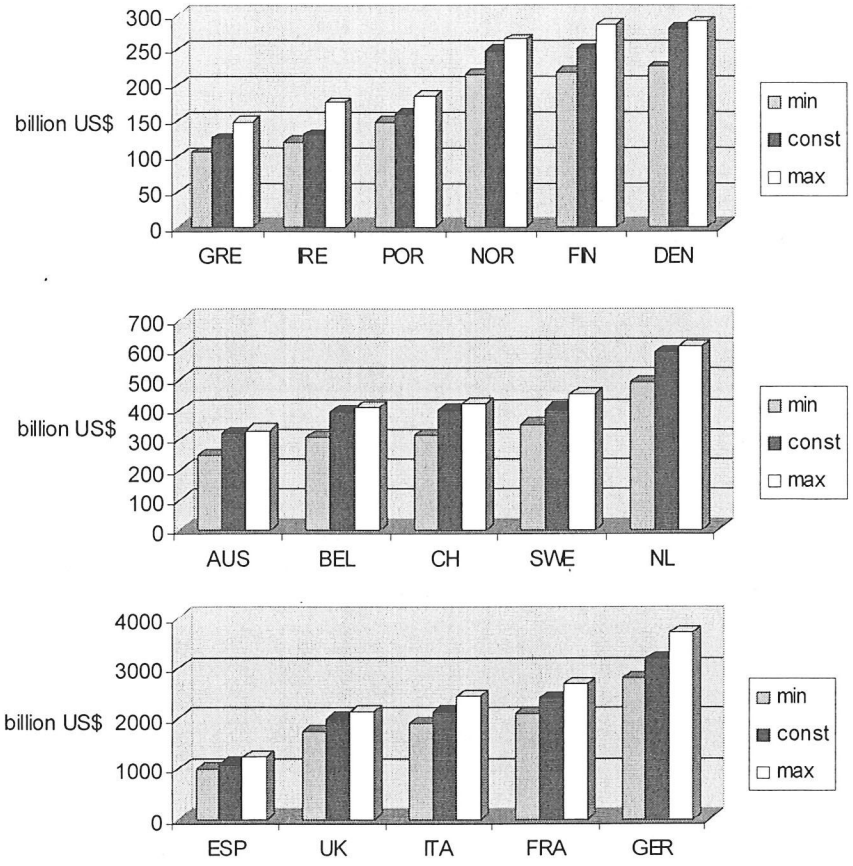
Figure 1 - GDP per capita in 2020

Especially the Scandinavian countries will be able to keep their level of GDP per capita. Also low-populated countries (e.g. Switzerland) will be able to increase their high 1994 status. The highest growth rates are expected for Ireland, Portugal, Spain and Finland.

The projected GDP for 2020 (figure 2) depends on two factors: The GDP per capita (see figure 1) and the population in 2020 (see table 4). With regard to clearly arranged diagrams the countries are subdivided into three groups. For each country three variants can be supplied. A 'low performance' variant (min), which is based on the pessimistic population scenario (scen 2) and on the low variant of GDP per capita (2020min), a 'business as usual' variant (const) which is based on the EUROSTAT population trends and on the not shown constant variant for the GDP per capita, and a 'high performance' variant (max), which results from the optimistic population scenario (scen 3) and from the high GDP per capita performance.

The relative share and the ranking will be almost the same as in 1994. The economies of Germany, France, Italy and the United Kingdom will still be the most powerful ones, if the GDP is taken as an indicator for economic power.

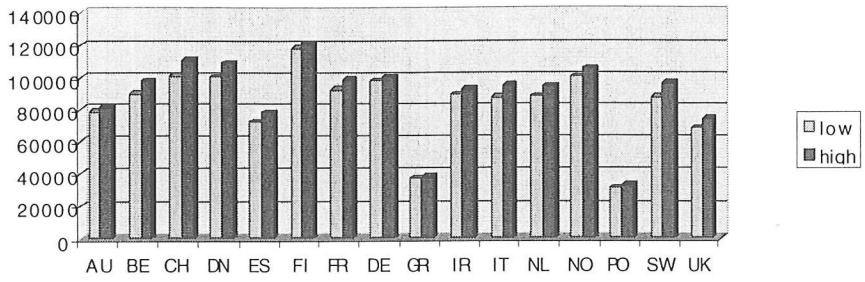
The development, which looks favourable, will probably result in higher standards of living. But there may also be a widening in income distribution, as labour market pressures from trade and technology could promote skilled labour at the expense of unskilled and semi-skilled labour. The above mentioned changes in populations' age structure will also shrink labour forces, reduce private savings and increase government expenditures to finance pensions and health care (see International Monetary Fund, World Economic Outlook, 1997). In fact the development does not look favourable anymore, if the situation on the labour market is taken as an indicator.



(Source: IWW estimate)

Figure 2 - GDP in billion US$ in 2020

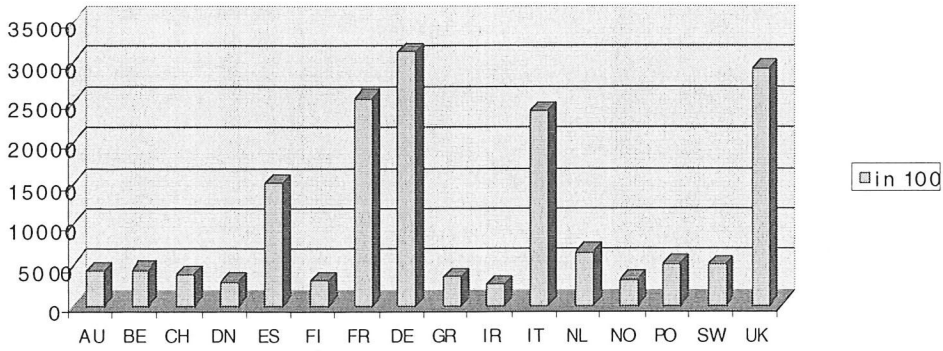
The projected GDP for 2020 should be handled carefully, but the situation concerning the labour market is even worse. Many uncertainties and imponderabilities make projections for labour force data more difficult than trends for population or GDP. Besides the change of the population structure, the productivity (GDP per employed person) has been taken into consideration. Its annual growth rates from 1984 to 1994 and the expected rates for 1994 to 2000, respectively for 2000 to 2005, have been compared with the growth rates of GDP per capita (see PROGNOS, World Report '96). According to this information two average growth rates for 2005 to 2020 have been projected. They are related to the business as usual variant for GDP per capita up to 2020. It is hardly possible to choose one probable rate, so that a low and a high performance variant for productivity have been provided.



(Source: IWW estimate)

Figure 3 - Labour productivity in 2020 at 1990 prices (low and high performance variant)

Due to the definition of labour productivity (GDP per employed person) it is possible to project the number of employed persons in 2020. Based on the 'business as usual' - GDP for 2020 a corridor for the civilian employment can be developed.
With regard to the different uncertainties, the results have been compared with a forecasted number of employees, resulting from an assumed constant average growth rate for EU members, given by PROGNOS up to 2005, and for advanced industries, presented by the OECD up to 2020 (OECD 1997, Towards A New Global Age). Figure 4 provides an average number of employed civilian persons (without self-employees).



(Source: IWW estimate)

Figure 4 - Civilian employment 2020 (low and high performance variant)

Long-term Projection up to 2020 for Selected Countries in Eastern Europe

The population growth rates in the Czech Republic and in Hungary have already reached EU standard. Moderate or even negative average growth rates up to 2020 will be responsible for a stagnation respectively a slight in- or decrease of the number of inhabitants. Hence the changes of the age structure will cause the same problems, at least for Hungary and the Czech Republic, as in Western Europe.

The projected data of table 5 are given in the PROGNOS World Report for 2015. The extension for 2020 was elaborated with the help of trend forecasts, delivered from KTI-Budapest and the University of Gdansk.

Table 5 - Population development for eastern European countries

Population development for eastern European countries						
Countries	1990 Population in 1000	2020 Population in 1000 (medium figure)	Change 1990-2020 in % (medium figure)	Average change in % p.a. 1990-2020 (medium figure)	2020 Population (lower figure)	2020 Population in in 1000 (upper figure)
Czech Republic	10306	10525	2.1	0.07	9850	11100
Hungary	10376	9640	-7.0	-0.25	9200	10600
Poland	38180	43500	14	0.44	40500	46000

(Source: IWW estimate, based on PROGNOS, KTI-Budapest and University of Gdansk)

It is almost presumptuous to try and make a long-term forecast of economic developments in eastern European countries. In accordance to the PROGNOS report, it should not really be attempted - the uncertainties regarding political stability are too great; slumps and radical changes in production, employment and liquidity too dramatic. This may be right, but on the other hand imponderabilities are present for every long-term outlook. Besides political uncertainties are minimized for the considered countries, which will be NATO (and EU) members soon. Thus one of the main objectives is to minimize the uncertainties by using as much information concerning the economic field as possible. In order to reduce the risc a study, carried out by the European Bank for Reconstruction and Development (European Bank for Reconstruction and Development, 1994) was taken into account. It assessed the Eastern European Countries to several criteria on a scale of 1 (very poor) to 4 (very good). According to this study the economic climate is rather favourable for Hungary and the Czech Republic. Also for Poland most indicators are seen quite positively. In fact these three countries are taking the lead for all eastern European countries (average >3), discussed by the European Bank for Reconstruction and Development. Besides only Croatia, Estonia, Slovakia and Slovenia reach average values near 3, developments for others, as Bulgaria or Romania and in particular Ukraine, is seen more critical.

The development of the standard of living, measured by a population's per capita GDP, will vary significantly between eastern European countries. According to the PROGNOS report the average growth rate p.a. from 1993 to 2015 will be around 5 per cent for Poland, 6 per cent for the Czech Republic and 7 per cent for Hungary. Starting from a lower level these economies will increase faster than most of the western European economies. Decreasing growth rates have been assumed from 2015 up to 2020. As for Western Europe 3 performances have been elaborated. Despite of all the uncertainties for the eastern as well as for the other countries, the GDP per capita of Poland, Czech Republic and especially Hungary will probably reach the level of the poorer members of the current EU. On the other hand the advanced western economies will almost keep their distance.

When interpreting these results please bear in mind that this is a long-term view, which attempts to illuminate possible perspectives. The actual time profile is sure to deviate from this average view. It is plausible that the development during this time might show that 1994, 1995 and possibly 1996 will still be part of the crisis period with further declines in economic activity, or economic development will continue to stagnate during these years, but then in subsequent years development will accelerate and make up for losses at the beginning (compared with the forecast in this study) or even overcompensate them, and finally, growth will return to a more moderate pace.

One of the main results is that Hungary will probably become a 'Central European Tiger country' with an average growth rate around 7 per cent in the future years, followed by the Czech Republic with an average rate around 6 per cent.

Table 6 - GDP in 2020

GDP,1993 and 2020 in US$ billions (1992 prices)					
Countries	1993	2020 lower figure	2020 medium figure	2020 upper figure	Average change in % p.a. 1993-2020
Czech Republic	25	100	115	130	5.6
Hungary	30	160	175	190,0	6.5
Poland	71	230	250	270	4.8
Russia	329	712	830	980	3.5

(Source: IWW estimate)

OUTLOOK

The construction of the SCENARIOS European database and of the SCENARIOS webpage is not finished yet. At the end of the project, a database will be available, which will supply detailed data at a regional level. It is planned to continue work on the database within the SCENES project. In particular regional and geographical scale will be extended. Additional eastern European and Mediterranian countries will be considered. Furthermore new indicators will be developed. Especially data concerning environment and tourism are missing at the moment and should be established in the future. However the database will still focus on external factors.

Within the next years new nomenclatures, e.g. NACE rev.3, will be introduced. They will hopefully make data collection less (time-)costly, at least data can be delivered harmonized already by the national offices of statistics.

Using the rich database, an exact calibration of a system's dynamics modell can be done. Taking into account changes in spatial patterns and the results of the long-term trend developments, forecasts can be made at a more regional level. With regard to the transport sphere, especially to the transport volume, it will be helpful to elaborate some trend developments disaggregated by economic sectors. Additionally, trade flows will be taken into consideration in the future. Disaggregated by 24 NST/R chapters, in particular foreign trade flows will become more and more important. For some European countries, e.g. Belgium, export volume (and import volume too) will be almost as high as GDP in the future.

In the coming years the eastern European countries will become stronger and will establish in a common European market. Some will even overtake smaller western European economies soon.

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