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THE EUROPEAN ECONOMY TO THE YEAR 2000

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Austria	WIFO	Oesterreichisches Institut für Wirtschaftsforschung, Vienna
Finland	ETLA	Research Institute of the Finnish Economy, Helsinki
Germany	DIW	Deutsches Institut für Wirtschaftsforschung, Berlin
	IFO	Institut für Wirtschaftsforschung, Munich
	RWI	Rheinisch-Westfälisches Institut für Wirtschaftsforschung, Essen
Ireland	ESRI	Economic and Social Research Institute, Dublin
Italy	PROMETEIA	Associazione per le Previsioni Econometriche, Bologna
Norway	SSB	Statistics Norway, Oslo
Spain	DGPC	Dirección General de Previsión y Coyuntura, Madrid
Switzerland	ETH	Konjunkturforschungsstelle an der ETH, Zurich
United Kingdom	LBS	London Business School, London
Czech Republic	IE-CNB	Institute of Economics of the CNB, Prague
Hungary	GKI	Economic Research Company GKI, Budapest
	KOPINT	Institute for Economic and Market Research, Budapest
Poland	FTRI	Foreign Trade Research Institute, Warsaw
Slovenia	SKEP	Economic Outlook and Policy Services, Ljubljana
international:		
	EC	European Commission of the European Union, Brussels
	IMF	International Monetary Fund, Washington
	OECD	Organisation for Economic Co-operation and Development, Paris

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Preface

Each year the Working Group on Longer-Term Prospects and Structural Change of the Association of European Conjuncture Institutes discusses the medium-term outlook for the European economy on the basis of projections submitted by the member-institutes. In this publication the Central Planning Bureau reports on behalf of the working group on the expected developments up to the year 2000. The views expressed do not necessarily represent those of the CPB. In addition results are presented of recent CPB research on growth cycles and their use in projections. The main authors of the report are Wim Hulsman and Hans Timmer.

F.J.H. Don
Director

I Introduction

Each year the AIECE Working Group on Longer-Term Prospects and Structural Change discusses the medium-term outlook for the European economy on the basis of projections submitted by the member-institutes. The present medium-term report is the fifteenth in the series.

This time we can present the recent medium-term forecasts of AIECE member institutes for 13 European countries, 9 Western European and 4 Central European countries. For several countries two or more forecasts are available. In some countries, France and the Netherlands, the national institutes have not made a medium-term projection recently. Aggregation of the national forecasts may give an idea of what we can expect for Europe as a whole.

Also the international bodies regularly prepare medium-term forecasts, often of a scenario type. The report contains the recent views of the European Commission, the IMF and the OECD.

The outline of the report is as follows. First, in chapter II we will briefly describe the present situation of the world economy and the short-term prospects, in order to put the medium-term in a proper setting. In chapter III we give an overview of the forecasts of the member-institutes and those of the international bodies, and indicate to what extent the aggregated national views are in line with the scenarios for Western Europe as a whole. Chapter IV stresses the importance of growth cycles in medium-term analyses. In chapter V we report on recent analysis by the Central Planning Bureau on the growth cycle mechanism, carried out with a preliminary version of the CPB World Model. Chapter VI summarises the main findings of the report. Annex 1 surveys the main assumptions used by the institutes. Annex 2 contains the detailed projections of the different member-institutes grouped by source and by variable. Annex 3 gives some detail on the scenarios of EU, IMF and OECD, while annex 4 sketches some characteristics of AIECE and CPB.

II Short-term development

The recovery of the West-European economy last year has been much stronger than expected earlier. Indeed, the upturn was not slower than customary in the early stages of the business cycle, notwithstanding the structural rigidities that are still evident, in particular on the labour market and the government account, as well as those related to the German unification. Now, the European cycle is entering the phase where final domestic demand is taking over from net exports and stockbuilding as the driving forces of the recovery. Business investment in particular is expected to remain dynamic these years. Area-wide output growth is expected to remain stable both this year and next at about the 3 per cent rate reached in the course of last year. Economic activity in Japan is recovering at an unusually moderate pace, hampered by the erosion of competitive power due to the high yen exchange rate. A pick-up of domestic demand (mainly private consumption, due to last year's income tax cut) could raise the Japanese GDP growth to about 3 percent next year. The American economy has passed its cyclical peak in the first half of this year. Monetary and fiscal tightening seem to make for a rather soft landing, with real GDP growth decelerating to about 2 per cent in 1996. Given the diverging stages of the cycle in the different regions, OECD output could continue a steady growth of between 2½ and 3 per cent a year in 1995 and 1996, which is above potential growth.

Other positive points in the short-term picture of the OECD economy and in particular the economy of Western Europe are a continued low inflation, improving profits for companies, decreasing unemployment and declining public sector deficits. Inflation is creeping up due to some acceleration in the United States, but in Europe and Japan inflation will remain low. In particular in Europe wage-cost moderation has contributed to an improved financial position of private companies, and given the still double-digit unemployment rate it is not likely that the policy of moderation will be relaxed soon. Apart from Germany, there are hardly signs of significant wage pressure. The expected decline in the unemployment of the industrial world will be mainly in Europe. Also the projected improved government finances is confined to Europe, with net lending dropping from 6 per cent of GDP in 1994 to 4¼ per cent in 1996.

This rosy picture is somewhat clouded by the recent turbulence in financial markets with the Deutschemark having appreciated strongly against the dollar, but also

against several European currencies. The projections assume that the foreign exchange markets will resettle in due time and that the repercussions are manageable.

The prosperous development in the OECD area provides a good back-up to the developing regions, which are featuring as a group a real growth trend of about 5 to 5½ per cent. Solid growth is displayed by the Asian countries, mostly achieved on own steam. On the other hand, the improvement in large parts of Africa is not really convincing, and in the CIS chaos is nearly complete. The countries of Latin America and Central Europe find themselves somewhere in between. The Latin-American economies are re-establishing themselves after often drastic reform, without as yet showing a structurally strong growth. Many are very vulnerable, given their – for developing countries – relatively low savings ratios and mostly structural external deficits, as the Mexican peso-crisis may illustrate. In the four Visegrád countries, Slovenia and the Baltic states, the serious production decline at the time of the transition to a market economy has been succeeded by recovery. Especially Poland has made good progress, while the Hungarian performance remains rather weak.

Reflecting the buoyant worldwide production growth, the world-trade volume increased last year at over 9½ per cent rate. This year and next the increase will be slightly lower, mainly due to the cyclical slowdown of American imports. That will bring an end to the deterioration of the current balance position of the United States. At the same time, the surpluses of Japan and the European Union will become somewhat smaller. Nevertheless, the imbalances will remain large.

III Medium-term forecasts of the AIECE institutes and some international bodies

III.1 Assumptions of institutes

The policy assumptions made by the various institutes show a high degree of similarity with respect to the policy stance. The monetary policy is generally characterised as restrictive and tight, aimed at achieving or maintaining a low rate of inflation. With respect to exchange rates most institutes apply the straightforward assumption of fairly constant rates against the Deutschemark as well as the dollar. For Italy PROMETEIA projects some recovery of the lira during the forecasting period, while KOPINT on the other hand foresees a substantial erosion of the Hungarian forint. The recent drastic shifts in the exchange rates of the Western European countries bilaterally and against the dollar are not (yet?) reflected in the projections of the institutes. No institute has worked with a dollar rate as low as in recent months.

Long-term interest rates are broadly stable in the projections of most institutes in nominal and in real terms (that is corrected for inflation). LBS projects for the UK a significant drop in real rates, and PROMETEIA for Italy a substantial decline in nominal as well as real rates.

Most institutes foresee a further improvement of government finances by pursuing a consolidation policy. Quite exceptional is Norway, with a projected rise of the budget surplus from 1 per cent this year to 4¼ per cent in the year 2000. Only in the British case tax cuts have been explicitly assumed. The Berlin-based DIW expects a tax reform in favour of enterprises. PROMETEIA expects for Italy a reduction of the budget deficit from 8.3 per cent this year to 5.2 per cent at the end of the century, but declares that conditional to the results of the autumn elections.

The assumptions made for real growth in the industrial world in the period 1996-2000 vary between less than 2½ (WIFO) and 3¼ (ESRI) per cent per annum, where the central projections of both IMF and OECD arrive at 3 per cent. (In the first half of the 1990s the OECD activity increased on average by only 2 per cent, and in the previous decade by 2¾ per cent.) For Western Europe the institutes have worked with a real growth of 2¾ per cent per annum, compared with a 3½% real growth projected by the European Commission.

For world trade volume the different institutes' projections feature assumed growth rates in the range of 5½ to 7½ per cent, largely in line with their expectations for OECD production. These growth rates are higher than those experienced in the eighties (4.3%) and the first half of the nineties (5.8%), but still rather modest in a longer historical perspective and taking account of the dynamic expansion outside the OECD area. Oil prices show fairly moderate increases in most medium-term projections. The largest rise in the Brent-oil quotation is expected by the institutes of Oslo and Essen with an annual increase of respectively 5 and 6 per cent; PROMETEIA on the other hand has assumed fairly stable oil prices. In that respect all scenario's can be considered as surprise free.

III.2 Forecasts

Short-term developments within Western and Central Europe are assessed by the institutes much more buoyant than they expected a year or even half a year ago. Hungary is a major exception. Now, the expected economic growth of the Western European countries for the present year varies between 2¼ and 6½ per cent, while for next year growth rates of 2 to 5¼ per cent are envisaged. The stronger short-term picture is reflected in somewhat higher medium-term growth trends. Compared with a year ago the differences seem small, but are significant: for Western Europe as a whole 2.9 per cent and 2.6 per cent respectively. Still, most institutes project a slower rate than in the present years of upswing, and imply more or less a return to the trend growth of potential output (see graph III.1 and III.2). The potential output rate (we used OECD data) embodies information about trend development of capital stock, labour force and technological change. It gives an indication of the supply capabilities of an economy and can be a useful guide in the assessment of the sustainable non-inflationary growth path of output and employment (see OECD Economic Outlook, December 1994). The time profile in nearly all projections is quite flat. The slower pace after 1996 is not expected to end in a real recession, although such a development is not altogether excluded (see below). Some institutes introduce some cyclical variation in their forecasts. Norway forecasts a moderate international recession with a trough in 1997 and an upturn towards the end of the century, Finland expects the same mild recession during 1997-1998, while the Czech institute dates it at the end of the century. Who will be right? Chapter IV stresses the importance of a proper assessment.

The growth rates for the Western European economy as a whole, presented in table III.1 under the heading "Institutes" result from the aggregation of the individual country forecasts submitted by the member-institutes. In some cases the projection had to be extrapolated by one year, and/or the relevant five-year period had to be derived from submitted projections for different periods. The annual economic growth on that

basis amounts to 2.9 per cent, which is a slightly higher growth rate than the institutes assumed themselves when they made their forecast. It is also higher than the rate recorded on average in the nineteen eighties and much higher than that in the first half of the present decade.

Table III.1 Composition of West-European growth

	1980/1990	1990/1995	1995/2000 Institutes	EC
annual percentage changes				
GDP volume	2.5	1.6	2.9	3.4
Private consumption	2.6	1.5	2.5	2.9
Public consumption	1.9	1.3	1.7	1.0
Gross fixed investment	2.5	0.1	4.3	6.9
Exports of goods and services	4.4	5.0	5.5	6.5
Imports of goods and services	4.5	3.5	5.2	6.4
contribution to real GDP growth (change as % of GDP in previous year)				
Private consumption	1.6	0.9	1.5	1.8
Public consumption	0.4	0.2	0.3	0.2
Gross fixed investment	0.5	0.0	0.8	1.3
Exports of goods and services	1.3	1.3	1.3	1.7
Imports of goods and services	1.3	0.9	1.2	1.6

When we compare for Western Europe the aggregated forecasts of the institutes with those submitted by the European Commission, we see some remarkable differences, but also a lot of consensus. The first observation is that the EC projects a substantially stronger growth of activity in Europa over the five-year period 1996-2000 than the institute forecasts suggest. This can be explained by the character of the EC forecast, which can be seen as a target scenario rather than a real forecast. Second the composition of the growth is somewhat different. The EC projects in particular a stronger contribution to growth of investment than the institutes, also more private consumption growth and – reflecting the budget targets – weaker growth of government consumption. As far as inflation is concerned, there is a general consensus on fairly low inflation rates up to 2000. The aggregated price forecasts of the institutes are largely in line with the projections of the European Commission and other international bodies, and suggest a continuation of modest inflation in Western Europe. The high inflation countries of Western Europe all project a considerable improvement, while better scoring countries like Germany and the United Kingdom mostly expect somewhat higher inflation than at present.

Graph III.3 Contribution to growth of real GDP 1995-2000, according to institutes and EC

Table III.2 West-European real GDP growth

	1980/1990	1990/1995	1995/2000 ^a
	annual percentage changes		
Austria	2.2	2.0	2.2
Finland	3.2	-0.6	4.0
Germany	2.3	2.4	2.8
Ireland	3.6	4.5	4.3
Italy	2.3	1.3	2.7
Norway	2.1	3.2	2.3
Spain	3.0	1.4	()
United Kingdom	3.0	1.5	2.8
European Union	2.5	1.6	2.9

^a Institutes' projections

The countries of Central Europe, apart from Hungary, also tend to be more confident about medium-term growth than a year ago. The Czech Republic, Poland and Slovenia have all revised upwards their real growth projections, which now amount to 4½ to 5½ per cent on an annual basis. The major contributing factors are investment and foreign trade. As far as inflation is concerned, all countries assume a substantial deceleration over the forecasting period; nevertheless inflation remains much higher than in Western

Europe. The prospects for Hungary are judged rather bleak as far as growth is concerned, also reflecting the recent extensive austerity programme.

III.3 What about the EMU-criteria?

The short-term projections of the member institutes of the countries of the European Union show converging tendencies for several of the Maastricht indicators. However, the number of countries complying with the norms at end 1996 will probably not be sufficient to start with the third phase of the European Monetary Union already in 1997. If so, the EMU will come into force at January 1st 1999. According to the institutes, at that time more countries can be expected to comply with most or all of the reference values. Germany and Ireland will certainly be among them. Remarkably, the non-members of the European Union, Norway and Switzerland will meet the criteria already next year. Most EMU candidates do not see inflation as a problem in this respect, nor the interest rate, and also exchange rate stability is part of their surprise-free projections. More difficulties are expected to comply with budgetary discipline, with respect to the targets for public sector deficit and government debt. A substantial lowering of the latter is quite difficult in a situation of low inflation. It must be noted however that the criteria are not absolute and there will be a large element of judgement in the assessment of the Council of Ministers on that score. The political will is decisive. Articles in the Treaty of Maastricht contain words like "close to the reference value" and "sufficiently diminishing" when referring to the excessive deficits criteria.

In article 104c:

(The Commission)... shall examine compliance with budgetary discipline on the basis of the following two criteria:

(a) whether the ratio of the planned or actual government deficit to gross domestic product exceeds a reference value, unless

-either the ratio has declined substantially and continuously and reached a level that comes close to the reference value

-or, alternatively, the excess over the reference value is only exceptional and temporary and the ratio remains close to the reference value;

(b) whether the ratio of government debt to gross domestic product exceeds a reference value, unless the ratio is sufficiently diminishing and approaching the reference value at a satisfactory pace...

The Commission shall prepare a report if a member state does not fulfill the requirements under one or both of these criteria. But the final word comes from the Council of Ministers.

III.4 Structural rigidities

Are structural obstacles an impediment to growth? Institutes from Finland, Germany (DIW), Ireland, Norway, Slovenia and the United Kingdom do not see (short-term) rigidities as a major obstacle to growth. Much has been done in the eighties, but, of course, more flexibility is desirable. Rigidities on the goods market are reported, also by German institutes, as harming competitiveness and thus economic growth. Mentioned are supply-side factors like technical progress and flexibility of primary inputs, but also the inefficient functioning of the market. Solutions are deregulation, administrative reforms, and trade liberalization. Labour market rigidities concern the flexibility of labour, the narrow-mindedness of politicians and labour unions (the Munich institute) and tumbling social consensus.

The Eastern European countries put special emphasis on the problems in the transition towards a market economy. Difficulties with the modernization and reconstruction of the infrastructure, the transformation of the capital structure towards privatization, the development of managerial manpower and of the financial services sector can do more harm to the growth potential than rigidities on labour and goods markets.

III.5 Risks and uncertainties

For Germany one of the main risks in the projection concerns the exchange rate fluctuations and the resulting value of the Deutschmark. A lasting deviation from the purchasing-power-parity rate of DM 1,60 to the dollar necessitates a revision of the expectations on exports, import and international capital balances. The low dollar is a particular concern because the present upswing is export-based. Uncertain is also the impact of the assumed restrictive monetary policy on capital movements, interest rates, government deficit and finally on the exchange rate. A third uncertainty in the German projections relates to the demographic consequences of the German unification. The wave of migrants from East to West has caused problems in estimating the population, with consequential difficulties for the projection of labour supply and social security costs. Last but not least uncertain is the impact on the West-East flow of subsidies and on the political situation in Eastern Germany.

Also for Italy and United Kingdom the current disturbances of the exchange rates and their influence on interest rates and inflation may have consequences for the medium-term projection. In Italy the coming elections may decide whether the assumed tight fiscal policy, wage moderation and strong investment growth is feasible. In the United Kingdom higher interest rates and uncertainty given the coming elections (after spring 1997) could moderate the investment growth.

For Norway, itself in a comfortable surplus position, the restrictive fiscal policy of its EU-partners on their way to EMU and, understandably, the crude oil price are areas of concern and uncertainty.

Major uncertain factors for the Czech projection are the international economic development and the trade-political measures of partner-countries. Poland and Hungary see the non-acceptance of the envisaged monetary and fiscal policy-measures as a major risk. Also the removal of rigidities on the labour and goods market may be slower than assumed. Hungary (GKI) explicitly warns against political disturbances in Eastern Europe and against isolationist tendencies of the European Union. The latter warning is supported by the Czech Republic.

An external risk for all of Europe is a possible hard landing of the American economy. The longer the American growth remains strong, the more likely it becomes that inflation and interest rates will be higher than projected, with a possible recession in both the US and elsewhere.

Surprisingly, nearly all institutes stress only downward risks. The exception is Poland, stating that a higher than projected inflow of FDI could contribute to a better economic performance.

A risk not explicitly mentioned and thus certainly not worked out in the projections is the risk of disturbed trade relations. The prosperous development of the world economy may suggest the proper environment for a reduction of tensions between the main economic agents the United States, Germany and Japan. In reality the frictions are as big as ever, not only in the financial sphere, where domestic considerations have contributed to dollar and yen rates that are in no relation with the purchasing power of these currencies. And the trade relations between the United States and Japan are so much imbalanced that the Americans are more and more favouring managed trade. Up to now, the rules of the World Trade Organisation have not yet been overtly violated. But if these countries do not comply with the rules, other countries could follow and the chance of a more sanguine trade environment cannot be excluded.

IV Special issue: Growth cycles

There is a sharp contrast between historical developments and medium-term forecast as produced by most of the economic agencies. Historical developments always show a cyclical pattern, although this pattern is not necessarily regular. Graph IV.1 shows the historical pattern of GDP, consumption and investment growth in the European Union, Italy and the United Kingdom. The average GDP growth rate in a five year period depends to a large extent on the phase of the cycle at the beginning of the period. Looking at the individual demand categories, investment demand shows a remarkably greater fluctuation than consumption demand.

Medium-term forecasts, on the contrary, contain hardly any cyclical pattern. Such forecasts typically show a smooth transition from the current phase of the business cycle to some kind of steady growth path. During a boom, the main question asked in medium-term forecasts is when the economy will slow down to more sustainable growth rates. Similarly, during a recession the dominant question is when and at what pace recovery will emerge. Seldom the question is asked when the next recession will start after the expected recovery and when the next boom might be expected after the next recession. In other words, forecasts concentrate on the current phase of the business cycle and they do not picture future cycles. The projections for European Union, United Kingdom and Italy as presented in graph IV.1, clearly illustrate this point.

Why do the smooth forecasts contrast so evidently with the volatile historical developments? An obvious answer is that past volatility is caused by exogenous shocks which cannot be explained nor foreseen by economists. For a small national economy these exogenous shocks can be primarily of a foreign nature. Indeed, most of the cyclical behaviour in small open economies seems to be related to the cyclical behaviour of foreign variables: world trade, competitor prices, foreign interest rates, etc. Graph IV.2, in which relevant world trade and GDP are presented, shows that, at least in the pre-unification period, this is even true for a country as big as Germany.

Graph IV.1 GDP, consumption and fixed investment: European Union, the United Kingdom and Italy, 1976-2000 (annual percentage changes in volumes)

PROMETEIA (Italy) LBS (UK) and EC (EU)

However, also in large economies with a much more closed character, like for instance the United States, business cycles are manifest in the historical data. And, if foreign trade would be an exogenous cause, what could be the reasons for cyclical developments in the global economy? An answer might be that there are also domestic exogenous shocks, like policy changes and technological developments, which cannot be foreseen.

A striking example of such a shock in recent economic history is the reunification of Germany, which prolonged the economic upswing in Europe.

*Graph IV.2 Relevant world trade and GDP of West-Germany, 1976-1993
(annual percentage changes in volumes)*

Source: CPB, Wildcat database

In this view, the economic process itself is stable, and forecasts show the expected developments in absence of shocks in exogenous variables. However, this view might be challenged by arguing that cycles are endogenous to the economic system. In fact business cycles could be at the heart of a market economy. Whether cycles need an exogenous disturbance to take off is not important. What is essential, is that cycles are prolonged through endogenous mechanisms. Business cycle theories are able to give a theoretical explanation for the cyclical behaviour of a closed economic system, in response to a short-term shock. Accelerator mechanisms can be seen as a key-element of such theories. Investments in machinery, housing and stocks and consumption of durables are demand categories, which are driven by the adjustment of actual stocks towards optimal stocks. These adjustment mechanisms result in sharp fluctuations of

flow variables, which are further amplified by multiplier mechanisms, with spill-over effects to other demand categories. This accelerator mechanism explains continual over-reactions of investment demand, giving rise to persistent cyclical movements in total demand and income.

Even if one endorses these endogenous business cycle theories, one can still opt for smooth medium-term forecasts. Several arguments can be given why this is a good strategy. Firstly, since the exact timing of business cycle movements is rather unpredictable, stressing the cyclical element can give rise to big forecast errors in separate years. When year-to-year policy is hampered by this kind of forecast errors, a flat projection will be more useful. From a statistical point of view smooth forecasts might be a good representation of expected values. Secondly, medium term projections are often used to point out a number of structural trends underlying the economic developments. In projections with rather strong cyclical components these kinds of trends, and their influence on the economic system are rather difficult to entangle. Thirdly, if the projection is used as a baseline for policy analyses the influence of the policy on the timing of the cycle will dominate the outcomes. This makes a judgement of the effectiveness of the policy rather difficult. We may conclude that, although smooth forecasts evidently contradict with economic reality, there are some convincing arguments in favour of this practice.

Nevertheless, in our view, even more convincing arguments can be made in favour of stressing cyclical movements in medium-term projections. Firstly, as we have pointed out above, the business cycle is an economic phenomenon that arises from the heart of the market-oriented economic system. Ignoring this mechanism leaves out crucial economic relationships. Although wrong timing of the cycle may lead to big forecasting errors, the projection will be better in the sense that it states correctly the relations between the individual variables. Secondly, even when policies are targeted at influencing the underlying structural trends, these policies will have to deal with the fact that the short-term and medium-term economic consequences and the political acceptability to a large extent are determined by the way how these policies interact with the business cycle. Thirdly, preparing for the future implies that one prepares for times of hardship. If a medium-term projection presumes convergence to some steady-state growth path, this implies that attention is diverted from the fact that periods of relative fast growth are singled out with periods of relative decline.

To generate growth cycles in medium-term forecasts, we are currently building a new medium-term world model with endogenous business cycles. Some preliminary results of simulations with that model are presented in chapter V.

We agree with the opponents of cyclical medium-term forecasts that the exact timing of the cycles is difficult to predict. Therefore, we think it is useful to present different scenarios in medium-term analyses. We define a scenario as an internally consistent set of developments which in our view could be a realistic continuation of the historical cyclical movement. Alternative scenarios do not differ in the sense that they incorporate different mechanisms¹. The medium-term scenarios show what the consequences are when the *same* mechanisms are at work but the timing of the cycles is not correct. The exact outcomes of the scenarios hinge on explicit assumptions with respect to the timing of the cycle. It is this timing which is largely responsible for the uncertainty and complexity of endogenous cycles. Summing up, the scenarios differ in two respects from standard smooth forecasts. Firstly, the predictions for a specific year are more uncertain in the scenarios. Secondly, the total picture is more consistent and realistic and the mechanisms richer than in the forecasts. It is because of this second difference that we opt for cyclical projections.

Not only the baseline forecasts depend on the timing of the cycles. Also the year-to-year effects of policy simulations will in general be influenced by the cyclical behaviour in the baseline. Analyzing the same shock in different baseline scenarios can therefore be very interesting. The analyses are even more interesting if it is accepted that the shock itself can generate a cyclical movement. A striking example is the unification of Germany. More than a permanent effect, this unification influenced the phase and amplitude of the cycle. It prolonged and re-enforced the upswing, but it also provoked a sharper than usual recession.

¹ Medium-term scenarios therefore have a different nature than the long-term scenarios which have been published by the CPB in 1992. (See *Scanning the Future and The Netherlands in Triplo*). In these long-term scenarios the mechanisms at work were presumed to differ between the scenarios.

V Cyclical exercises with the CPB World Model

V.1 Introduction

The Central Planning Bureau is currently completing a new medium-term world model. Compared to the earlier model, two major improvements have been made. Firstly, the model is based on a new international database, which is internally consistent. Considerable effort was put forth to eliminate discrepancies in trade statistics and discrepancies between trade statistics and national accounts. This was important, because from experience we learned that the use of inconsistent data in an economic model reduces the analytical value of the simulations.

The second major improvement was a better modelling of the supply side, to ensure more stable longer-run solutions of the model, and the analysis of supply-side policies and to be able to describe endogenous business cycles.

In this chapter we will mention some of the main characteristics of the new model. Also we will present some finger-exercises with separate country blocks, concentrating on the endogenous cycles.

V.2 An overview of the new CPB medium-term world model

The model comprises six individual economies (France, Germany, Italy, Japan, United Kingdom and the United States) and two regions (Rest of Europe and Rest of OECD, excluding Turkey). All economies are modelled in a comprehensive and identical way, whereas only the value of parameters differ among countries or regions. No effort was made to describe the domestic economies of non-OECD countries. Only international trade of the non-OECD region (including Turkey) is modelled to close the trade block of the model. International trade is disaggregated into four categories (energy, other primary commodities, industrial products and non-factor services).

For each domestic economy, the model contains a consistent accounting framework with four sectors: households, enterprises, government and the external sector. Besides the international trade flows, six demand categories are distinguished: private consumption, government consumption, investment in equipment, investment in dwellings, increases in stocks and other investments. Total investments are also

separated into depreciation and net cumulation of fixed capital. Primary income is split into compensation of employees, imputed wage income of self-employed and property income. Finally, direct taxes, indirect taxes, social benefits, social contribution and transfers make up the secondary income distribution.

All investment categories, including investments in housing and increases in stocks are explained in an accelerator model, in which stocks adjust to output flows. Owing to this mechanism there is a positive long-term relationship between investment ratios and growth rates. But, more important, the accelerator mechanism causes endogenous cycles. During a recovery the capital stock tends to increase at the same rate as output flows. This causes growth rates of investments which exceed the growth rates of output, through which the recovery is intensified. Once the stocks are to a large extent adjusted to the desired level, the growth rates of investments fall back, which moderates the overall output growth. That squeezes investment growth further. This is the prelude to the next recession, in which the reverse process takes place.

The model contains putty-clay production functions, with substitution possibilities of the Cobb-Douglas type in the new vintages. This ensures in the long run stable labour-income shares and the possibility of endogenous labour productivity growth through capital deepening. At the same time, in the short run, rigidities in the production structure are combined with adaptable employment, independent of the existing capital stock. This enlarges the possibility to increase employment after a positive technology shock.

The model embraces a traditional interpretation of Keynesian theory. That interpretation does not stress rigidities in wages and prices, but emphasizes that not real, but nominal wages are determined in the labour market. Real wages are rather the outcome of price setting. Real wages are pro-cyclical in the model, because labour productivity is pro-cyclical.

Interest rates, determined by monetary policy, may influence unemployment in the short and in the long run. In the short run interest rates influence cyclical demand for output and labour. In the longer run, lower interest rates could lead to capital deepening, higher labour productivity and higher real wages. Because the wage-price mechanism implies in the long run a negative relationship between labour productivity growth and unemployment, interest rates may influence the unemployment rate also in a more structural way.

The cost structure may differ between the categories of final demand. Each category may have another import content and its structural labour productivity may differ from the rest. Furthermore, output prices may be influenced by prices of competitors, which are specified for each exposed demand category.

V.3 A dynamic historical simulation of the domestic economy in the United States

One of the main purposes of the model is an endogenous explanation of business cycles. This can be tested through a dynamic historical explanation with the whole model. However, we are currently completing the international linkages in the model and it is just too early for such an exercise. Instead, we present a historical simulation of a single domestic economy. We have chosen the United States, because this is a relatively closed economy with a strong internal business cycle, and cycles in international trade do not necessarily coincide with its domestic cycles. The model should be able to reproduce the domestic cycles without added incidental adjustment factors. To test this requirement, a dynamic simulation was made over the period 1978-1991. Because it is a simulation with a single domestic model, import prices and export values are exogenous, as well as interest rates and exchange rates. Almost all other variables are endogenous, including budgetary policy and labour supply.

Graph V.1 shows real growth rates in the dynamic simulation, along with historical growth rates. The graph reveals that the model is capable to reproduce fairly realistic cycles, although the boom in 1984 is exaggerated and the model produces a sharp drop in growth rates in 1987, while in reality there was only a mild downturn. The engine of the cycles are investments. Their growth rates significantly exceed the growth rates of private consumption and GDP. Especially investments in housing are extremely volatile. The model can reproduce this volatility as an accelerator mechanism. However, here we see the flip side of those volatile mechanisms in the model. If the timing and the amplitude of the cycles is not correct, like in the first half of the 80's, forecasting errors in individual years might become very large. Still we consider these endogenous mechanisms highly preferable to a model based on average trends with respect to variables like investment in housing.

The inventory cycle is rather important in the United States, much more than e.g. in Japan, where the just-in-time system is also reflected in macroeconomic figures. In the United States increases in stocks fluctuate very frequently as a percentage of GDP. These fluctuations explain about a full percentage point of GDP growth. Graph V.3 demonstrates that the model can simulate the sharp seesaws.

Graph V.2 presents the simulation results of some other variables. Again, despite obvious errors, the model reproduces a realistic cyclical behaviour of labour productivity and real wages. The same is true for employment and labour supply. The labour income share is rather stable in the United States, compared e.g. to Europe. But even here the model is capable to follow the cyclical developments.

Graph V.1 A dynamic historical simulation of the US economy; income and expenditure (annual percentage changes in volumes)

*Graph V.2 A dynamic historical simulation of the US economy; labour market
(annual percentage changes and percentages)*

Graph V.3 *A dynamic historical simulation of the US economy; inventory cycles*

We can conclude that the model can explain the general picture of the domestic cycles in the United States. If one is willing to accept some incidentally clear discrepancies between simulation and reality, one does not need ad hoc factors nor incidental policy measures to reproduce the cyclical pattern.

V.4 German unification and cyclical developments

Germany, and in its wake the rest of continental Europe, has witnessed strong cyclical developments since the beginning of this decade. Directly after the unification, in 1990 and 1991, abundant 'exports' from the Western towards the Eastern part kept the West-German economy in a prolonged and intensified boom. GDP growth rates of around 5% were combined with double digit growth rates of investments in equipment and double digit growth rates of trade flows. In those two years employment increased by 3 and 2.5%, more than 2 percentage points above average growth. Unemployment fell to 4.2%, 2 percentage points lower than in 1988. The prolonged boom in West-Germany was followed by an almost unprecedented deep recession in 1993, whereas the 1.7% decline in GDP was twice the decline in 1982. Investments in equipment dropped 17%, employment dropped 1.7% and the unemployment rate was back at its 1988 level. After this recession we witnessed a forceful recovery. Business, government as well as economists were surprised by the strength of this recovery.

How can we analyze these developments with a model that emphasizes endogenous growth cycles? Could the deep recession and the following strong recovery be the consequence of the extreme boom in the beginning of the decade? What would have happened without the unification, without the outburst of 'exports' to the new *Bundesländer*. Unquestionably, the boom would not have been so strong and lengthy. But would the recession have been also less deep?

The answers can be explored by making an endogenous simulation with the model from 1992 onwards, to see whether the hectic developments after the first positive effects can be explained. To examine a scenario without unification an alternative dynamic simulation could be made from 1990 onwards. In that alternative simulation it could be assumed that German exports are in line with relevant world trade.

These analyses need the use of a complete world model with international linkages. Germany is too large to treat foreign economies as exogenous and, with exports being 30% of GDP, too open to ignore foreign influences. Through the intense trade relations in Western Europe, a slowdown of the domestic economy and import demand in Germany will deteriorate Germany's export possibilities. These feed-back mechanisms can be reinforced by evoked investment cycles in other countries. Also import prices in Germany cannot be treated as exogenous, because these are not independent of German export prices. However, as said before, it is just too early to use the complete version of our new model. In order to get some flavour of the model characteristics, we endogenized the international variables in a technical way. Import price changes were made equal to export price changes. Trade balances were kept constant in time, so that less import demand automatically leads to less export demand. The reinforcement through foreign investment cycles is taken into account by letting the German investments react slightly faster to output growth. This leads to a small intensification of the German investment cycle.

After these technical adjustments the two simulations mentioned above were run. Again, like in the case of the historical simulation of the US economy, no adjustments were made for specific policies or other incidental developments. All demand and income variables, all policy measures, employment and labour supply were endogenous. It was not our purpose to approximate actual developments as closely as possible, but to show the model characteristics to full advantage.

Graphs V.4 to V.6 show the technical forecasts after 1991 as dashed lines. The overall picture is that the model indeed expects the boom in 1990 and 1991 to be followed by a relatively deep downturn, which in turn is followed by a strong upswing. The timing of this cycle differs from the actual cycle we have seen till now, but the amplitude is quite realistic. In the forecast the cycle is accompanied by strong cyclical movements in export growth (see graph V.6). It even suggests that exports are an important engine fuelling the overall cycle. However, the opposite is true. Changes in exports just come after changes in imports, which follow the pattern of the overall cycle but with a relatively large amplitude. The real engine of the cycle in the forecast are investments. Both investments in housing and other private investments show strong reactions after abundant growth in 1990 and 1991. The consumption multiplier supports this investment cycle, but growth rates of private consumption are obviously less volatile than growth rates of investment demand.

Graph V.4a Technical forecasts for the German economy with and without unification (annual percentage changes in volumes)

Graph V.4b Technical forecasts for the German economy with and without unification (annual percentage changes)

Graph V.5 Technical forecasts for the German economy with and without unification (percentages)

Graph V.6 Technical forecasts for the German economy with and without unification (annual percentage changes in volumes)

The strong cyclical movements are reflected in the labour market. Employment growth ranges in the forecast from -0.4% till 2.7%, followed by a somewhat less pronounced movement in labour supply, leaving enough room for significant changes in the unemployment rate. Labour productivity growth is typically pro-cyclical, leading to an equally pro-cyclical development of real wages. Labour shares decrease during downturns and they show the opposite movement during recoveries. The magnitude of these movements seems to fit nicely in historical patterns.

This technical forecast might give some impression of what one may expect from cyclical forecasts. The forecasts strike certainly not the golden mean. On the contrary, they are perhaps even a bit defiant. Forecasting errors might be large, but this disadvantage is outweighed by the possibility to picture realistic patterns and to analyze rich endogenous mechanisms. The latter is especially fruitful in policy simulations and the study of external shocks.

One possible study could examine the medium-term consequences of the unification. To give a foretaste of such a study, a second simulation was run from 1990 onwards. The external shock consists of less exports in the first two years. It was assumed in this simulation that German exports were in those years in line with relevant world trade. The results of this simulation are shown in the graphs as dotted lines.

The results are strikingly different from the simulation with unification. Instead of a prolonged boom, the economy runs into a recession, in line with developments in international trade. This recession is somewhat milder than the postponed recession in the unification scenario. At the time of this postponed and deep recession, the second scenario already shows a recovery. From then on the phase of the cycle is completely opposite to the phase in the first scenario. This gives an interesting view on the medium-term effect of demand stimulus. Such a stimulus has not a long-lasting effect, but merely influences the phase of the cycle. Whether the overall effect is positive or negative depends on the forecasting horizon. Dependent from the magnitude and the timing of the demand shock, the stimulus might enlarge or mitigate the amplitude of the business cycle.

VI Summary

The conjunctural institutes of Western and Central Europe are more optimistic than last year about short-term as well as medium-term developments in their respective countries. For Western Europe the projections suggest an average real GDP-growth over the period 1995-2000 of about 2.9 per cent, compared with a growth trend of 2.6 per cent in the earlier projection, covering the five-year period to 1998. In the recent projections for Central Europe real growth hovers around 4½ to 5½ per cent, with only Hungary substantially lower.

The expected policy stance in Western Europe in the medium term is a combination of fiscal consolidation and a mostly stability-oriented monetary policy. External assumptions are quite moderate as far as price impulses are concerned: inter alia constant exchange rates, modest oil price increases. On output growth outside the area and the related world demand the views of the institutes differ.

The institutes' projections on growth are largely in line with the 3-percent trend in the reference scenarios of OECD and IMF. The recent projection of the European Commission, however, features a considerably higher growth rate for Western Europe. This can be explained by the nature of the Commission forecast, which is based on the medium-term target projections of the member-states of the European Union incorporating the essence of the Convergence programme. The institutes of most countries in question are not very confident on the results of these efforts, in particular with respect to the Maastricht criteria on government finance.

Surprisingly, many of the interviewed institutes did not see rigidities on labour and goods markets as a major obstacle to growth. "Much has been done already in the eighties." Still, the unemployment level up to the year 2000 will remain quite high. Other institutes mentioned a whole list. For the countries in transition, growth prospects are more dependent on the privatisation, managerial skills, and the reshaping of the infrastructure and the financial services sector.

Not surprisingly, many institutes see the international financial markets as a source of risks, even though their projections do not yet take account of the recent turmoil. Election results may give rise to different forecasts for several countries. Political disturbances may hamper growth also in Central European countries. Trade-political measures of partner countries are an additional uncertainty for the transition

countries. A possible hard-landing of the American economy is seen as an external risk. The possibility of major disturbances in trade relations between the United States, Europe and Japan is not explicitly mentioned.

The time profile in nearly all projections is quite flat. Medium-term forecasts contain seldom a cyclical pattern, and concentrate on the current phase of the business cycle. Why? One answer is that past volatility is caused by unforeseen exogenous shocks from abroad. This is mostly true for small open economies. Large countries with a more closed character also show cycles. These might be caused by domestic exogenous shocks, like policy changes and technological development. One example is the export shock caused by the German unification. Business cycle theories say however that cycles are endogenous to the economic system, with the accelerator mechanism as a key element. The exogenous shocks can influence the course of the cycle. In this paper that is illustrated with some model simulations. Is that reason enough for presenting cycles in projections? CPB thinks yes, although there are arguments contra:

- not exact timing gives large forecasting errors for separate years
- we use the projections mainly to analyze structural trends
- policy simulation can more clearly be analyzed on a smooth time path.

But the arguments pro win:

- the projection gives correct relations between individual variables
- policies are indeed interacting with the cycle
- trend projections do not prepare for periods of relative decline.

As timing is difficult it is useful to present different scenarios.

ANNEXES

Annex 2**International forecasts, 1996-2000**

Austria		WIFO
Finland		ETLA
Germany		DIW
		IFO
		RWI
Ireland		ESRI
Italy		PROMETEIA
Norway		SSB
Spain	DGPC	
United Kingdom		LBS
Czech Republic		IE-CNB
Hungary		GKI
		KOPINT
Poland		FTRI
Slovenia		SKEP
international:		
		EC
		IMF

Annex 3 Medium-term projections of EU, IMF and OECD

3.1 European Commission projection

The presented data are an update of the projection made by the Commission services in may/june 1994. Typical for the projections of the European Commission is the normative nature: they incorporate the essence of the convergence programmes presented by the member-states, extending to 2000 the assumptions about budgetary instruments like tax rates, non-endogenous expenditures etcetera. That implies a continuation of the medium-term policy stance already under way.

The external environment is kept neutral. Raw material prices (including oil) are deemed to remain constant in real terms. The exchange rates of Ecu, dollar and yen are reflecting inflation differentials, therefore short-term interest rates are assumed to converge to the same level.

Over the period 1997-2000, real GDP of the United States and Japan is rising annually by about 2¾ and 3½ per cent respectively. The import demand growth of all Non-EU countries is expected to average 7½ per cent.

The resulting growth in the Community, of close to 3½ per cent in 1997-2000 is mostly driven by internal forces. Investments lead the recovery, returning to growth rates of more than 5 per cent, reflecting favourable sales prospects, diminishing slack and improved profitability. Private consumption growth is below GDP growth, in a situation of continued wage restraint. The contribution to growth of the external sector is at first positive, thanks to a sustained world demand and improved competitiveness, but becomes neutral as EU import demand picks up. Growth rates among member countries would be quite similar, but tend to be the lowest where the largest adjustments need to take place, Belgium, Greece and Italy. For unemployment to start falling, GDP-growth has to exceed 2½ per cent, also given an expected growth in labour supply of ½ per cent per year. The projected growth of activity produces a significant reduction of unemployment. Inflation could remain low, provided that unit wage costs are kept under control together with the maintenance of a monetary policy oriented towards price stability.

Source: European Commission, Medium-term projections 1994-2000, Analytical Study no. 1, Brussels, March 1995.

3.2 IMF scenarios for industrial countries

The baseline projection of the IMF starts from the technical assumption of current structural, fiscal and monetary policy, constant real exchange rates (constant nominal ERM rates) and stable real commodity prices. US real GDP is projected to grow in 1996-1999 at the potential output rate of 2½ per cent, with inflation stabilizing at about 3 per cent. For the other industrial countries a growth rate is projected of more than 3 per cent. Fiscal deficits decline substantially, mostly through automatic stabilisers. Fiscal consolidation and interest rises help to avoid overheating. Persistent slack will help to stabilise inflation in the industrial world at 2½ per cent. The US current balance deficit hovers around 2½ per cent of GDP. The Japanese surplus diminishes.

Next to the baseline projection, two scenarios are presented, each composed of two separate simulations. The "pessimistic" scenario combines hysteresis in the labour markets of Europe and Canada with a monetary policy that responds too slowly to the disappearance of slack during the recovery. The "optimistic" scenario uses the cyclical expansion to implement greater fiscal consolidation and structural reform.

In the first simulation of the pessimistic alternative it is assumed that in all industrial countries except the US and Japan, the natural rate of unemployment gradually rises by 2 percentage points relative to the baseline. This leads to an increase of real and nominal wages, tending to lower real output. The price increase lowers the real money stock, raises interest rates and leads to a small currency appreciation. The result is a permanent decline in investment, consumption and export volume. The increase in prices raises import demand of the countries concerned, but this effect is offset by the decline in domestic demand and higher interest rates. The global increase in real interest rates leads to some decline in domestic demand in the US and Japan.

The second simulation of the first scenario assumes that monetary authorities in all industrial countries fail to adjust monetary conditions as economic slack is absorbed; implemented by a onetime 2 percentage point level increase of the money stock beginning in 1997, for US in 1995. At first nominal long-term and short-term interest rates fall relative to baseline, next the higher inflation expectation raises long-term rates and bring short-term rates about back to baseline. However, due to sticky wages, real interest rates are lower than in baseline, resulting in higher output and inflation. After two years the growth rate of money stock is assumed to return to baseline. At first, the authorities still lack credibility while the liquidity decrease raises short-term rates, which reduces output and inflation. Later also inflation expectations are adjusted downward. Due to price stickyness, the monetary contraction drives output below baseline for some years.

The first simulation of the optimistic alternative involves policies that reduce structural unemployment, by reducing labour income taxes by 2 percent of GDP over two years, financed by an equivalent increase in consumption tax, for all industrial countries except Japan. The narrowing of the wedge between actual and take-home pay

leads to a one-percentage point lower natural rate of unemployment. Monetary authorities are assumed to accommodate the one-time impact of the higher consumption taxes on the price level. Additional structural policies are assumed to lower the natural unemployment rate gradually further by another percentage point. Higher tax revenues due to higher output are assumed to be compensated, thus leaving the public debt to GDP ratio unchanged. Real disposable income is roughly unchanged and the price increase has only a modest effect on interests. The decline in the natural rate of unemployment raises output, lowers interest rates and provides for an increase in domestic expenditure. The effect on prices is mixed; consumer taxes and monetary accommodation tend to raise prices, while lower natural unemployment lowers prices.

The second simulation assumes a reduction of public debt through a permanent decline in public expenditures in all industrial countries of 2 percentage of GDP reached in three years. Real interest rates are assumed to decline immediately, giving rise to higher investment spending. Thus, output growth increases after the first year, and by 1998 its level is above baseline.

Source: IMF World Economic Outlook, autumn 1994.

3.3 OECD scenarios

The reference scenario of the OECD, representing "one of many possible projections which may be considered more or less likely", extends the most recent short-term projections on a consistent basis over a medium-term horizon to the end of the year 2000. It features a continuation of the short-term recovery with medium-term growth in the OECD of 3% with world trade growing at an average 7¼%, and inflation remaining around 2½%. Unemployment is declining gradually, and also fiscal deficits decline steadily in line with stated official objectives. The public debt levels remain high in relation to GDP.

The scenario does not take an explicit view about the timing of future cyclical events, but envisages a growth pattern such that the output gap is broadly eliminated in all countries by 2000. The commodity prices and exchange rates are assumed to remain broadly unchanged in real terms. However, the bilateral exchange rates of ERM-participants and their main partners in continental Western Europe are assumed to be fixed in nominal terms, with a general convergence of interest rates. The scenario is based on stated medium-term targets for fiscal and monetary policies.

The pattern and timing of recovery and growth differ significantly between North America, Europe and the rest of the OECD (see graph). Activity in the US expands by around 2½%, which is no more rapidly than potential. In Europe output gaps are still quite large, and output growth is slowing gradually after 1996 to an average 2¾%. The Japanese recovery takes some time given the appreciation effects and the output gap

closes only gradually from 1996. Japanese growth accelerates to around 4¼% in 1998 before slowing gradually toward the potential rate of 3%.

OECD labour productivity grows in the range of 1½ to 2%, the same as in the past decade. Employment grows by 1% per year and the labour force by nearly 1%. Thus, the reduction in unemployment is rather modest, 1 percentage point for total OECD and 2 points for Europe.

Fiscal assumptions are consistent with stated medium-term objectives and imply active consolidation. With sustained growth rates, fiscal deficits decline substantially. OECD net borrowing falls to 1¾% of GDP in the year 2000. The American deficit increases somewhat to 2½%, while Japan rewins a slight surplus. Most European countries make significant progress towards the Maastricht norm. In some countries, e.g. Belgium and Ireland, gross public debt shows significant reductions. Of the European countries only Germany, France and the United Kingdom will achieve a debt-to-GDP ratio below 60% of GDP.

Monetary policy is aimed at keeping inflation low, in the 2½% to 3% range. US inflation rises to 3½% in 1997, before moderating slightly due to monetary tightening. The Japanese inflation remains below ½%, while the European inflation is around 2½% for much of the period. There is a temporary tightening of monetary policies in Europe with rising short-term interest rates in 1996, when German inflation picks up. Long-term rates fall steadily over the period. The main change in external balances is a declining surplus for Japan.

Source: OECD Economic Outlook 57, december 1994.

Annes 4. AIECE and CPB

AIECE is the Association of European Conjecture Institutes (in French: Association d'Instituts Européens de Conjoncture Économique), founded in 1957. The AIECE now groups 42 members and observing institutes, representing 20 countries and 4 international organizations (EU, OECD, IMF and ECE). The membership is open to independent European institutes involved in surveying economic development and macroeconomic forecasting. Independent is interpreted as not directly being involved in conducting economic policies and not representing some economic interests. The main objective of the association is to intensify the exchanges between its members with a view to improve their insight into international economic developments.

The **Central Planning Bureau** of the Netherlands, though administratively and financially belonging to the Ministry of Economic Affairs, operates as a fully independent institute for (macro)economic forecasting and analysis. Its main tasks are *a* the preparation of independent economic analyses and forecasts, which are scientifically founded and relevant for policies of the Government and other social organizations (like parliament and social-economic council), *b* doing scientific research, including modelbuilding, aimed at the improvement of forecasting and analysis, *c* the evaluation of the results of national and international research relevant for the CPB work, *d* the preparation of the annual publications Central Economic Plan and Macroeconomic Outlook, and *e* periodically reporting on the prospects on medium and longer term for the Netherlands economy and its branches.

The Central Planning Bureau is a long-standing member of AIECE, which is appreciated as a valuable platform for exchange of views with mostly non-governmental institutes, next to the Bureau's official contacts with in particular OECD and EU. Moreover, it is a useful source of information when making CPB-forecasts.