



OESTERREICHISCHE NATIONALBANK

Stability and Security.

MONETARY POLICY & THE ECONOMY

Quarterly Review of Economic Policy



Q1 / 06

The OeNB's quarterly publication *Monetary Policy & the Economy* provides analyses of cyclical developments, macroeconomics forecasts, studies on central banking and economic policy topics as well as research findings from macroeconomics workshops and conferences organized by the OeNB.

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Imprint

*Publisher and editor:
Oesterreichische Nationalbank
Otto-Wagner-Platz 3, AT 1090 Vienna
Günther Thonabauer, Communications Division
Internet: www.oenb.at
Printed by: Oesterreichische Nationalbank, AT 1090 Vienna
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DVR 0031577

Vienna, 2006

Contents

ANALYSES

Economic Outlook Improves in Euro Area Inflation Pressure Persists Due to High Energy Prices <i>Andreas Breitenfellner, Gerhard Fenz, Thomas Reininger</i>	6
The Potential Growth Prospects of the Austrian Economy – Methods and Determinants <i>Jürgen Janger, Johann Scharler, Alfred Stiglbauer</i>	24
Oil Price Shock, Energy Prices and Inflation – A Comparison of Austria and the EU <i>Markus Arpa, Jesús Crespo Cuaresma, Ernest Gnan, Maria Antoinette Silgoner</i>	53
Reform of the Stability and Growth Pact <i>Leopold Diebalek, Walpurga Köhler-Töglhofer, Doris Prammer</i>	78
High Employment with Low Productivity? The Service Sector as a Determinant of Economic Employment <i>Andreas Breitenfellner, Antje Hildebrandt</i>	110
The Financial System and the Institutional Environment as Determinants of Economic Performance: Austria in Comparison <i>Friedrich Fritzer</i>	136

HIGHLIGHTS

Price Setting and Inflation Persistence in Austria <i>Claudia Kwapil, Fabio Rumler</i>	160
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NOTES

Abbreviations	166
Legend	167
List of Studies Published in Monetary Policy & the Economy	168
Periodical Publications of the Oesterreichische Nationalbank	171
Addresses of the Oesterreichische Nationalbank	174

Opinions expressed by the authors of studies do not necessarily reflect the official viewpoint of the OeNB.

ANALYSES

Economic Outlook Improves in Euro Area

Inflation Pressure Persists Due to High Energy Prices

Andreas Breitenfellner,
Gerhard Fenz,
Thomas Reininger

The world economy is chugging along, but its key engines may be changing. While the economies of the U.S.A. and China have reached more mature levels, economic activity is now gradually gaining momentum in Europe and Japan.

The growth of the U.S. economy was at least temporarily slowed by the hurricanes which hit the country last fall. Consumer price inflation climbed due to energy prices, while core inflation leveled off. The Federal Reserve continued to tighten its monetary policy, and the real estate market has already begun to show initial signs of cooling. Japan was able to discontinue its unusually expansive monetary policy as its economy remained on a steady growth track. The other Asian economies – especially that of China – are also expanding at an unabatedly high speed. This growth no longer relies on exports and (export-related) investments alone, it is also increasingly supported by consumer spending and residential investment.

Despite the recent deceleration of economic growth in euro area countries, both leading indicators and forecasts point to future GDP growth near its potential. While rising oil prices probably put a dent in net exports and consumer spending, investments made a positive contribution to growth in the first three quarters of 2005. Energy price developments are also the main driver behind the persistently high level of inflation. The European Central Bank responded to medium-term price stability risks by raising interest rates twice, in December 2005 and March 2006, by a total of 50 basis points. However, this has not altered the generally favorable business conditions for exports and investments. As a result of increasing income and employment levels, consumer demand is expected to climb.

The economies of most new EU Member States in Central and Eastern Europe as well as Bulgaria, Romania and Croatia enjoyed robust growth in the third quarter of 2005. Overall, the growth picture emerging for 2005 is dynamic (albeit not uniform), and this trend is likely to gain momentum in the coming years. At the same time, upward price pressure – especially in the new EU Member States – appears to be increasingly under control, which is one of the most important prerequisites for those countries' planned adoption of the euro in the coming years.

In Austria, economic growth over the year 2005 clearly regained momentum after a substantial but temporary slowdown in late 2004 and early 2005. Whereas previously economic growth was mainly driven by exports, it is now increasingly supported by domestic demand, too. Already in the second half of 2005, Austrian businesses visibly stepped up their investment activities, while recovery in consumer spending has been more hesitant. According to the OeNB's economic indicator, growth in Austria's real GDP (seasonally adjusted, compared to the previous quarter) will jump to 0.8% in both the first and second quarters of 2006. Despite high energy prices, inflation has abated considerably, thus supporting the real purchasing power of households. Finally, employment has risen, but the rate of unemployment remains elevated nonetheless.

JEL classification: E200, E300, O100

Keywords: economic developments, global outlook, euro area, central and (south-)eastern Europe, Austria.

1 World Economy Continues Robust Growth

1.1 U.S.A.: Economic Revival after Short-Term Lapse

After climbing 4.1% in the previous quarter, real growth in the U.S. economy's gross domestic product (GDP) slowed to 1.6% (annualized) in the fourth quarter of 2005, thus falling to its weakest level in three years. Overall economic growth in 2005 came to 3.5%. The slowdown toward the end of 2005 can be attributed mainly to the consequences of the hurricanes

which had hit the U.S.A. in the fall. In particular, a substantially weaker increase in consumer spending (+1.2%) – and especially the decline in car purchases within this category – as well as reduced government spending and the negative growth contribution of net exports resulting from heady growth in imports were responsible for the slowdown. However, this was probably only a temporary disruption in the growth of the U.S. economy, as is suggested by the positive business sentiment, the favorable labor market situation and the recent jump in the

Cutoff date for data:
End-March 2006.

U.S. leading index calculated by the *Conference Board*, among other developments. For the years 2006 and 2007, the Organisation for Economic Co-operation and Development (OECD) expects real GDP growth rates of 3.5% and 3.3%, respectively, and the February predictions published by *Consensus Forecasts* are only slightly lower.

Recovery on the U.S. labor market accelerated in early 2006. In February, the number of newly created nonagricultural jobs came to 243,000, while unemployment amounted to 4.8%. In the fourth quarter of 2005, labor productivity dropped 0.5%, the first decrease since the first quarter of 2001. For 2005 overall, productivity growth in U.S. businesses dropped 2.7% and thus deviated substantially from the above-average rates recorded in the three previous years. However, this figure is still on par with the average growth rates between 1995 and 2001, the period which is considered the height of the *New Economy*. Unit labor costs rose 2.4% for the overall year 2005; an increase of this magnitude has not been recorded since 2000.

The Consumer Price Index (CPI) increased 4.0% year on year in January 2006 and was markedly higher than in the two previous months (3.4% and 3.5%). The main driver behind this development was energy prices, which rose 24.7% and contributed 1.8 percentage points to the CPI increase. The core inflation rate (i.e. the rise in the Harmonized Index of Consumer Prices, or HICP, excluding energy and unprocessed foods), on the other hand, came to 2.1% in January 2006, which represents a decline compared to the previous year's figure. As recently as February 2005, core inflation had reached a high of 2.4% after

the 38-year low of 1.1% measured at the end of 2003. The core inflation rate indicates that the high energy prices are currently not generating any second-round effects. *Consensus Forecasts* predicts inflation rates of 2.9% for 2006 and 2.3% for 2007.

On March 28, 2006, the U.S. *Federal Open Market Committee (FOMC)* raised the target level for the *federal funds rate* by 25 basis points to 4.75%, the fifteenth hike since mid-2004. Thus the target rate reached its highest level since May 2001. In its written statement justifying this decision, the FOMC pointed out that core inflation had stayed relatively low in recent months and that longer-term inflation expectations had remained contained. However, the FOMC also noted that possible increases in resource utilization had the potential to add to inflationary pressures, meaning that further interest rate hikes are still probable.

The risks currently facing the U.S. economy include high energy prices as well as imbalances in the economy – specifically the high trade deficit and budget deficit. Although the U.S. reported a decrease in the budget deficit to 2.6% of GDP for the fiscal year 2005, this is based on the one-off effect of a USD 100 billion increase in tax revenues. The overindebtedness of consumers and their low propensity to save can also be regarded as imbalances. However, the fact that signs of overheating have begun to subside on the housing market (declining purchases coupled with an increase in properties for sale) is likely to enhance the propensity to save in the future and suppress consumer spending. Last but not least, rising interest rates are also deterring consumers from taking out additional mortgage loans and using them for ongoing consumption.

1.2 Japan: Monetary Policy Change after Deflation Phase

With real GDP growth of 2.7%, Japan's rate of economic expansion in 2005 overall reached its highest level since the year 2000. In the first three quarters of 2005, domestic demand served as the primary engine of growth. In the fourth quarter, increased exports (buoyed by a weak yen) as well as high demand from the U.S.A. and China also helped boost growth by 1.3% compared to the previous quarter; consumer spending as well as investment in plants and equipment also rose. Imports, on the other hand, slipped for the first time in ten quarters.

After many years of stagnation, the Japanese labor market has also been inspired by this economic recovery. The number of full-time employees increased, as did average monthly wages. The rate of unemployment was 4.5% in January 2006, just above the seven-year low recorded in June 2005. Surveys and economic indicators such as business and consumer sentiment as well as business profits and lending growth point to a favorable economic situation.

Given increased demographic pressure due to an aging society, fiscal consolidation has taken priority in Japan. For the fiscal year 2006 (starting on April 1, 2006), the Japanese government budgeted higher tax revenues and mandated a course of austerity. Yet with public debt exceeding 150% of GDP, Japan will remain the most indebted among industrialized nations.

For five years, the *Bank of Japan* (*BoJ*) tried to remedy the problem of deflation by means of quantitative measures, with interest rates close to zero. In 2005, the core inflation rate (excluding unprocessed foods, including energy), which is relevant in this

context, remained negative (−0.1%) for the seventh year running, but it did begin to edge up in November, even jumping to 0.5% in January 2006. In March, the BoJ announced that it would phase out its expansive policy of excessive liquidity. The new framework for the conduct of monetary policy aims to maintain medium- to long-term price stability, which is deemed consistent with inflation in consumer prices of 0% to 2% per year (as a guideline). This gentle change of course is in line with the opinions of the Japanese government, the OECD and the International Monetary Fund (IMF), which have issued warnings about excessively sudden shifts. At present, those institutions still see high risks of a relapse into a state of deflation, which would result in high costs. Moreover, a rapid increase in interest rates could also jeopardize the attainment of fiscal objectives.

1.3 China: Fourth-Largest Economy in the World

In its correction of GDP data for the period between 1993 and 2004, China revised its annual rate of real GDP growth upward by 0.5 percentage point to an average of 9.9%. By nominal comparison, this made China the fourth-largest economy in the world as of 2004 – behind the U.S.A., Japan and Germany, but now ahead of the United Kingdom. Prior to the revision, China conducted its first comprehensive survey of economic data for the year 2004. This survey showed that nominal GDP was almost 17% higher than previously reported. China's new five-year plan places greater emphasis on the fast-growing service sector in order to encourage more broad-based growth. The GDP growth rate reported for 2005 – once again 9.9% – will secure this rapid expansion

due to robust demand from industrialized nations.

2 Euro Area: Optimistic Economic Expectations

2.1 Moderate GDP Growth fourth quarter 2005

According to initial estimates, the euro area's GDP growth in the fourth quarter of 2005 came to 0.3% after reaching 0.7% and 0.4% in the previous quarters. Regardless of this volatility, a consistent trend of expansion can be identified in the annual growth rates. Economic performance in the fourth quarter of 2005 rose by 1.7% year on year.

Two economically significant countries in the euro area appear to be pulling the most recent economic development in different directions. After many years of weak economic growth, the German economy has finally been approaching the euro area's average GDP growth rates since mid-2005. In addition to foreign demand and improved competitiveness in labor costs, the renewed optimism in Germany's business climate in the wake of extensive structural reforms also played an important role in this development. In contrast to this, Italy's contribution to growth completely disappeared in 2005, as the country has suffered from its unfavorable specialization in labor-intensive goods subject to price-elastic demand, such as clothing and leather products. Given increasing unit labor costs due to stagnant productivity, the Italian economy is hardly able to respond to the fierce competitive pressure from low-wage (Asian) countries.

Aside from inventory accumulation, the euro area's GDP growth in the fourth quarter of 2005 was exclusively supported by investments growing by 0.8%, slightly less than in the previous quarter. The relatively low

negative impact of increasing oil prices can be explained on the one hand by the simultaneous growth in demand for energy-intensive goods as well as energy-saving technologies and alternative energy systems; the euro area is enjoying above-average profits due to heightened demand from oil-producing countries. On the other hand, the euro area's years of wage moderation have also improved its competitiveness.

The monthly statistics for incoming export orders in February 2005 as well as nominal exports in December 2005 confirmed the upward trend in exports from euro area countries thanks to robust demand from abroad. However, the contribution of net exports to GDP growth was still negative at -0.1%, as oil prices caused imports to grow faster than exports.

In December 2005, industrial production rose 2.5% year on year. Measured in terms of average growth rates over the last three months, growth in industrial production accelerated toward the end of the year. Likewise, the European Commission's industrial confidence indicator has shown continuous improvement since May 2005. Capacity utilization in industry rose slightly in the first quarter of 2006, but still remained below its long-term average.

At the moment, consumption in households is not making a steady contribution to growth. Consumer spending declined 0.2% in the fourth quarter of 2005, but the annual rate still indicates growth of 0.8%. The factors suppressing consumption include the rise in energy prices, the situation on the labor market as well as uncertainty about reforms in health care and pension systems. Similarly, the development of the international investment position and mortgage lending due to

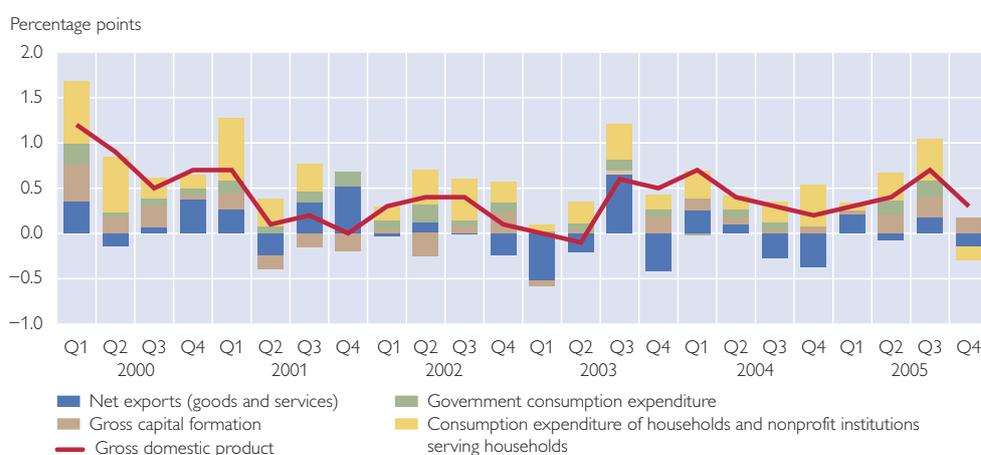
a potential slowdown in the housing boom remains a wild card in the economic outlook. Nevertheless, the European Commission's consumer confidence indicator has shown a slight upward trend since mid-2005. Sentiment among retail businesses has also

climbed above its long-term average. In January 2006, sales volumes rose 0.8% compared to the previous month. Government spending did not make a contribution to growth in the fourth quarter of 2005.

Chart 1

Growth Contribution of Real GDP Components in the Euro Area

Quarter-on-quarter changes



Source: Eurostat.

2.2 Leading Indicators and Economic Forecasts Point Upward

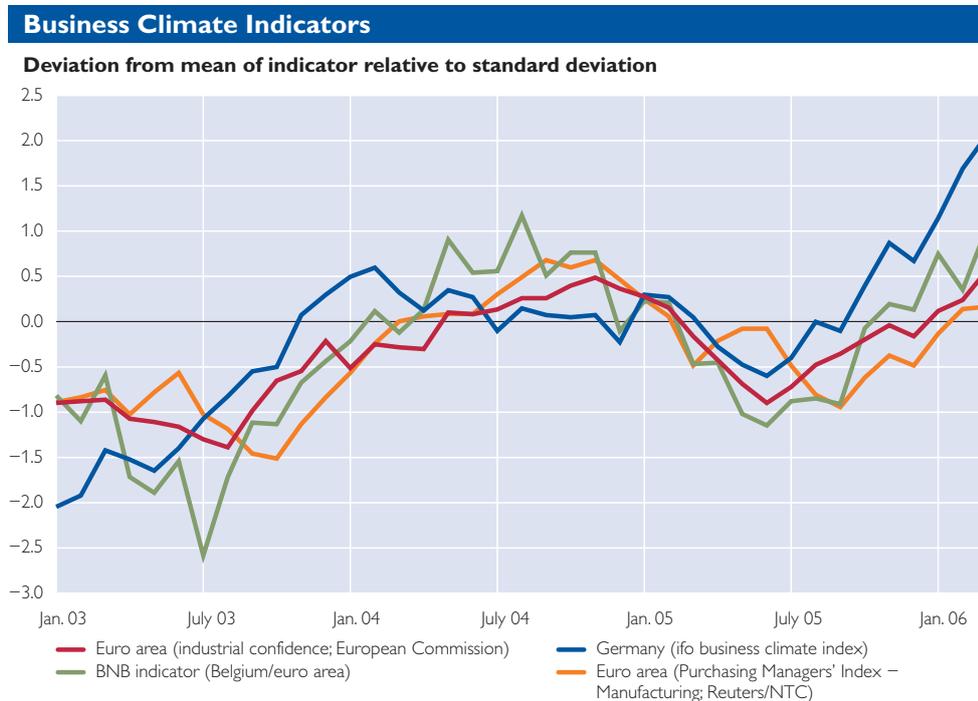
The leading indicators for economic growth have trended upward since May 2005 and thus point to an economic recovery. In January 2006, the European Commission's *economic sentiment indicator* reached its highest level since mid-2001. The *ifo business climate index* for Germany rose again in February 2006 and has now reached its highest level since the early 1990s. The *Belgian National Bank's economic barometer (BNB indicator)* saw a substantial jump in February, with especially large improvements in industrial and trade confidence. The smoothed trend in this indicator points to continued recovery. Despite a slight decline in January 2006, the Purchasing Managers' Index for manufacturing also still

encourages expectations of improvement in industrial production.

The European Commission's short-term economic forecast, which was revised slightly upward, projects GDP growth rates for the first three quarters of 2006 to be between 0.4% and 0.9% compared to the respective previous quarter.

The latest two-year-ahead projections of macroeconomic developments in the euro area compiled by staff experts of the European Central Bank (ECB) are based on information available until February 7, 2006. Assuming relatively stable oil price levels, euro exchange rates and global growth, the ECB predicts economic growth between 1.7% and 2.5% for 2006 and between 1.5% and 2.5% for 2007. According to the ECB, the favorable external environment will have a posi-

Chart 2



tive impact on export demand. Investment activity is expected to benefit from excellent financing conditions, a sound profit situation in businesses and a promising outlook for demand. In line with real disposable income and advances in employment, consumer spending is expected to grow, albeit dampened by increased energy prices and tax hikes. Compared to the Eurosystem staff projections from December 2005, the ECB now sees GDP growth at a slightly higher level, buoyed by higher investment activity. The risks of these projections point downward and refer to a potential strengthening of the euro, a further increase in oil prices, and higher long-term interest rates.

2.3 Steady Improvement on the Labor Market

The seasonally adjusted rate of unemployment in the euro area came to 8.4% in January 2006, which repre-

sents an estimated 12.1 million unemployed people. One year earlier, the corresponding figure came to 8.9%. Current forecasts indicate that this favorable trend will persist. The number of job openings as a percentage of the labor force in the euro area contracted slightly in the first quarter of 2006, but still remains at a relatively high level. In parallel, employment is slowly expanding: In the third quarter of 2005, 0.6% more people were employed than one year earlier.

2.4 Energy Prices Still Weighing on Inflation

The price of crude oil remained at a high level. As of March 15, 2006, the price of Brent crude was USD 63.36 per barrel, which was below the all-time high of USD 67.18 reached in August 2005. In addition to the general trend in demand from booming economies (China and the U.S.A.), the widely varied reasons for the high price

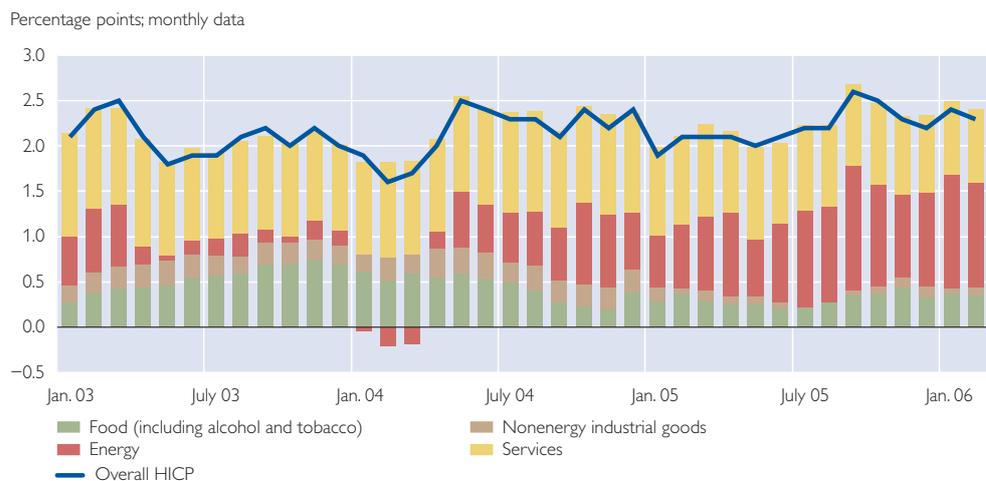
of oil include supply-side shocks as well as news which arouse fears of such bottlenecks. The conflict surrounding the nuclear program in Iran (the fourth-largest oil producer in the world) has repeatedly inspired speculations of this nature. Finally, supply disruptions due to unrest in Nigeria have also boosted the price of oil. Prior to that, problems were caused by the hurricanes in the Atlantic and the Gulf of Mexico, temporary production and transport disruptions in Iraq, terrorist attacks on Saudi Arabian refineries and strikes in Ecuador. OPEC countries are already extracting quantities in excess of the currently agreed quotas. The OPEC members' crude oil production capacities are to be expanded by 10% to 33 million barrels a day by the end of 2006 and to 38 or 39 million barrels a day by 2010. At the same time, production growth is shrinking substantially in non-OPEC countries.

The HICP inflation rate was 2.3% in February, down from 2.4% in January 2006. As in the previous months,

the energy component remained the primary factor influencing inflation. The transportation component also rose in January, likewise in connection with the increase in oil prices. One half of a percentage point in the HICP inflation rate can be attributed to engine fuels; heating oil, gas and district heating together are responsible for the same amount. In addition, major price increases were recorded for apartments and (to a lesser extent) for beverages and tobacco products as well as education. Declining prices could be observed in the communication and clothing components. In January 2006, core inflation fell once again to 1.3%, down from 1.4% and 1.5% in December and November 2005, respectively. This is rooted in relatively low inflation of the prices of nonenergy industrial goods. Among other things, moderate wage settlements and increased competition in some groups of goods are responsible for the low rate of core inflation.

Chart 3

HICP Components: Contributions to Inflation



Source: Eurostat.

ECB staff experts project an HICP inflation rate of between 1.9% and 2.5% for 2006, and a range of 1.6%

to 2.8% for 2007. As no further severe increases in the oil price are expected, the energy component's share of HICP

will shrink but still remain at a high level. The inflation rate will not decrease in 2007 due to the forecast rise in administered prices and indirect taxes. A large part of this can be attributed to the value-added tax hike in Germany.

Wages will also begin to rise again in line with economic recovery. As a result, growth in unit labor costs will return to its average level after the very moderate values seen in recent years. Profit margins are expected to record fairly small increases, not least because the higher administered prices and indirect taxes cannot be completely passed on to consumers. Overall, risks are on the upside in the case of inflation and primarily comprise the higher price of oil, further increases in administered prices and indirect taxes as well as more robust growth in wages.

2.5 High Growth in Money Supply and Lending

The three-month average of the broad money aggregate M3 showed an upward trend between mid-2004 and the third quarter of 2005. Although this trend has since reversed, M3 growth in January 2006 remained at a high level (7.5%). The ample supply of liquidity reflects persistently high demand for relatively liquid funds, such as sight deposits or other short-term deposits. In addition to the transaction motive behind holding cash, the overall structure of interest rates (i.e., lower opportunity costs associated with liquid investments) is probably also driving the expansion of the money supply. The strong demand for cash can be explained in part by heightened foreign demand for euro banknotes. Another important monetary expansion factor is the robust growth in lending to households as well as nonfinancial corporations. Lending growth is favored

by the low level of interest rates as well as a shift in bank policies toward more relaxed credit approval conditions. In particular, demand for mortgages has been dynamic, especially in those euro area countries where housing markets have seen high inflation.

2.6 Increasing Interest Rates, Recovering Euro Exchange Rate

On December 1, 2005, and March 2, 2006, the ECB's Governing Council announced key rate increases of 25 basis points, with the more recent hike bringing the official rate to 2.5%. Prior to the rise in December, interest rates had remained stable since June 2003. The structure of interest rates on the money market, which remained relatively flat until October 2005, has since steepened and shifted upward. This reflects the two hikes in key interest rates as well as expectations of another moderate increase in the coming quarters.

On March 28, 2006, the U.S. federal funds rate was raised to 4.75%. Rates on the money market rose largely in parallel to the prime rate, which has been raised 15 times since June 2004. Obviously the course of constant tightening in monetary policy was anticipated accurately by the markets. In early March 2006, money market rates in the U.S.A. signaled further key rate hikes in the ensuing six months.

The yields on 10-year government bonds in the euro area and in the U.S.A. have risen by 30 to 40 basis points since the third quarter of 2005; this increase is mainly due to higher real interest rates (measured against the yields of inflation-indexed government bonds). In contrast, inflation risk premiums have largely remained constant. In euro area countries, the term structure of real interest

rates has clearly flattened – along with the development of the money market – since the third quarter of 2005, as real yields on inflation-protected bonds with a three-year residual term increased by just over 50 basis points, while ten-year maturities saw a less sharp increase. By historical comparison, long-term interest rates are still

rather low – especially in the U.S.A., where the interest rate structure has become inverted. Since the end of 2004, a substantial difference in both short- and long-term interest rates has materialized between the euro area and the U.S.A.; however, this difference has not expanded further in recent months.

Chart 4

Development of Interest Rates in the Euro Area and the U.S.A.

up to March 15, 2006



Source: Thomson Financial.

Compared to the exchange rate level in mid-2005, the euro continued to slide against the U.S. dollar in the second half of the year. After falling to USD 1.18 in November 2005 – the euro's lowest level since November 2003 – the exchange rate then recovered slightly, standing at USD/EUR 1.20 on March 29, 2006. In recent months, the development of the USD/EUR exchange rate has been closely correlated to the interest rate differential between the euro area and the U.S.A., a difference which is heavily influenced by monetary policy on either side. In addition, the markets still regard the U.S. current account deficit as a risk factor which could place strain on the U.S. dollar in the future. Despite growing expectations of a speedy end to the BoJ's zero-interest policy, a dynamic economic recov-

ery and the reform of China's exchange rate regime, the yen lost even more ground against the U.S. dollar and also depreciated against the euro as a result. The JPY/EUR exchange rate is currently close to its all-time highest level. Announced in the summer of 2005, the reform of China's exchange rate regime to ensure greater flexibility has led to moderate appreciation (approximately 3%) of the yuan renminbi against the U.S. dollar. The yuan's appreciation against the euro was also around 3% over the same period.

3 Economic Developments in Central, Eastern and Southeastern Europe

3.1 Catching-Up Process Continues

At 4.3% in the third quarter of 2005, average economic growth in the new

EU Member States of the Czech Republic, Hungary, Poland, Slovenia and Slovakia increased substantially compared to the rate of 3.5% seen in the first half of 2005. The Polish and Slovakian economies recorded the highest increases, while expansion in the Czech Republic and Slovenia was somewhat less dynamic. According to preliminary growth figures for the fourth quarter of 2005, the positive developments in Poland and especially in Slovakia and the Czech Republic continued. However, a year-on-year comparison shows that GDP for 2005 is likely to be slightly weaker compared to 2004 in Hungary, Poland and Slovenia, but substantially stronger in the Czech Republic and Slovakia.

In the acceding countries of Bulgaria and Romania, growth dropped off significantly – in both cases by about 1.5 percentage points – in the third quarter of 2005. Compared to the overall year 2004, this growth slowdown is especially prominent in the case of Romania, where growth was almost halved in the first nine months of 2005 (from 8.6% in 2004 to 4.6%). In both countries, this slowdown in growth is essentially due to a drastic reduction in agricultural production

(floods, storms) as well as textile production. Croatia, another candidate country, got off to a relatively slow start in the year 2005. However, the Croatian economy then showed noticeable signs of recovery, expanding robustly in the second and third quarters of 2005 with growth rates clearly higher than in 2004.

The catching-up process is increasingly based on high domestic demand resulting from successful structural reforms and income growth. Compared to the first half of 2005, growth in consumer spending accelerated substantially in Poland and Slovakia in the third quarter. In the Czech Republic and Slovenia, growth rates remained nearly unchanged.¹ Higher real growth in wages, a higher rate of employment as well as more dynamic lending growth probably boosted consumer spending compared to 2004, especially in Slovakia. Consumer spending in Romania saw double-digit growth rates in the first six months of 2005. The subsequent decline to 6.3% in the third quarter probably reflects, to some extent, a decline in real lending growth in the private sector following restrictive measures taken by the Romanian central bank.

Table 1

Real GDP Growth in Central and Eastern Europe

Annual real GDP growth rate (%)

	2004	2005 ¹	Q3 04	Q4 04	Q1 05	Q2 05	Q3 05	Q4 05 ¹
Poland	5.3	3.2	4.8	3.9	2.1	2.8	3.7	4.2
Slovakia	5.5	6.0	5.3	5.8	5.1	5.1	6.2	7.6
Slovenia	4.2	3.9	4.7	3.8	2.7	5.5	3.6	3.7
Czech Republic	4.4	6.2	4.9	5.0	5.0	5.2	4.9	6.9
Hungary	4.6	4.1	4.3	4.5	3.2	4.5	4.5	4.3
Bulgaria	5.6	x	5.8	6.2	6.0	6.4	4.6	x
Romania	8.6	x	11.6	8.3	6.6	4.4	3.5	x
Croatia	3.8	x	3.6	3.6	1.8	5.1	5.2	x

Source: Eurostat, national statistics offices.

¹ Preliminary figures.

¹ Hungary's data on growth in private consumption during the third quarter of 2005 are not yet available.

While growth in gross fixed capital formation was lower in Slovenia in the third quarter than in the first half of 2005, the Czech Republic, Hungary, Poland and especially Slovakia saw higher growth rates. Slovenia's slowdown in investment activity was primarily a result of sluggish growth in housing construction and equipment investments. In Slovakia, investment growth jumped from 8.6% in the first half of 2005 to 16.5% in the third quarter. The erection of two automobile factories as well as road construction projects are probably among the reasons behind this development. In the three nonmember countries, gross fixed capital formation also rose – in some cases substantially – compared to the first half of 2005. Due to reconstruction efforts after the flood disaster, investment growth in Bulgaria was especially high (25.4% in the third quarter compared to 13.4% in the first half of 2005).

In the third quarter of 2005, the contributions of net exports to growth were clearly positive in all new EU

Member States under review here. At the same time, these contributions were generally lower than in the first half of the year; only in Slovakia did the growth contribution rise from –1.0 to 4.1 percentage points, which can be put down to the acceleration of export growth to 16.1% in the third quarter. In contrast, import growth was generally higher than in the first half of 2005, with the exception of Poland. Among the EU acceding countries, Romania and Bulgaria both recorded a negative growth contribution. In Romania, however, this contribution improved from –6.7 percentage points in the first half of 2005 to –3.5 percentage points in the third quarter of the year. In contrast, Bulgaria's net contribution deteriorated from –6.8 to –15.4 percentage points. Here the growth rate in exports dropped by some 10 percentage points to almost 1%, while imports grew by 19%. In Croatia, slightly increased exports coupled with declining import growth brought about a contribution of 2.0 percentage points.

Box 1

Economic Outlook for Central and Eastern European Countries

The OeNB compiles on a biannual basis forecasts of economic developments in the Czech Republic, Hungary and Poland and as well as Russia. Taken together, the three new EU members account for more than 75% of the ten new EU Member States' overall GDP and are thus representative of trends in this region of the EU.²

In the **three new EU Member States discussed here**, GDP growth for 2005 overall ranged from just over 3% (Poland) to 6% (Czech Republic). Compared to 2004, growth for the year 2005 overall was substantially lower in Poland and slightly lower in Hungary, while it was markedly stronger in the Czech Republic. In all three countries, annual growth in GDP and in domestic demand – for both consumption and investments (excluding inventory changes) – accelerated noticeably from quarter to quarter in the course of 2005. At the same time, all three countries recorded high positive growth contributions from net exports in 2005, ranging from 1.5 percentage points (Poland) to some 4.5 percentage points (Czech

² These forecasts are based on preliminary global growth projections and technical assumptions about oil prices and USD/EUR exchange rates, which are prepared by the ECB for the Eurosystem by means of broad macroeconomic projection exercises. These assumptions are central to the current outlook for two reasons: first, the sizeable export links of these three new EU countries with the euro area, and second, the fact that Russia is one of the world's largest oil-producing nations and that energy sources account for some 60% of the country's total exports. (In the case of Russia, the forecast is established in collaboration with Suomen Pankki, Finland's central bank.)

Republic, Hungary). In reality, the contribution of net exports to growth was probably not that large: In all three countries, the contribution of inventory changes to GDP growth was highly negative in 2005.³ A substantial part of these inventory changes can probably be attributed to imports, which are not recorded as such due to data entry problems in connection with accession to the EU's Single Market. The (partial) inclusion of this value in overall imports would considerably reduce the positive growth contribution of net exports, especially in Hungary and Poland.

In 2006, the latest acceleration of growth in private consumer demand will be further stimulated by tax cuts as well as increases in minimum wages and social transfers (partly as a result of ex post indexing). The resulting expectations of higher demand among households as well as higher projected foreign demand (resulting from an acceleration of import growth in the euro area) are likely to boost companies' sales expectations and thus also growth in fixed investments in 2006. The acceleration of investment growth is also supported by the cost side (declining unit labor costs in manufacturing) as well as the financing side. The latter is characterized by transfers from the EU's Structural Funds, strong growth in housing loans to households and in business loans (with the exception of Poland), as well as the inflow of direct investments. In Hungary, investment projects reorganized as public-private partnerships in 2005 will add to gross fixed capital formation growth also in 2006. This higher growth in investment should sustain the rise in employment which began in 2005. The improved employment situation, the absence of high inflationary pressure in the Czech Republic and Poland, as well as the temporary further decline in inflation in Hungary will provide additional stimuli for growth in consumer spending. The acceleration of growth in domestic demand – and especially in potentially import-intensive gross fixed capital formation – will boost imports substantially. Given the strengthening of exchange rates in recent months (with the exception of the Hungarian forint) and the abatement of the EU accession effect, the contribution of net exports to growth is thus likely to drop slightly despite expectations of higher demand from abroad. Overall, GDP growth in Hungary and especially in Poland (mainly due to its relatively low starting point) can be expected to accelerate in 2006. In the Czech Republic, we can expect the high level of growth to decrease moderately, but it will still remain higher than in Hungary and Poland.

In 2007, the high levels of GDP growth in the Czech Republic and Hungary are likely to slacken, while further (albeit only slight) acceleration is most likely in Poland. Whereas GDP growth in the Czech Republic will be slowed by another decline in the (still positive) contribution of net exports, Hungary's growth in domestic demand is likely to be subdued by moderate steps toward fiscal consolidation. In contrast, we can expect an additional (slight) acceleration of growth in consumer spending in Poland. Together with increased growth in public spending, this will probably more than compensate for the fact that the growth contribution of net exports is likely to be negative.

The risks in the outlook for these three new EU members include deviations from assumptions regarding growth in the euro area and regarding oil prices, as well as more severe exchange rate fluctuations, which would affect foreign demand. Beyond that, uncertainty still prevails about the speed and design of planned budget consolidation measures, despite the convergence programs presented.

In **Russia**, economic growth slipped from 7.2% in 2004 to 6.4% in 2005, as growth in gross fixed capital formation declined in 2005 despite high energy prices, which usually favor investments and consumption in Russia. Real net exports are still positive, but they fell even faster in 2005 than in 2004, thus generating a stronger negative contribution to GDP growth. The deceleration of investment and export growth can mainly be attributed to uncertainties in the investment climate arising from the persistent intervention of tax and justice authorities, to the drastic tightening of the tax regime for the energy sector, and to growing bottlenecks in capacity. At the same time, consumer spending, which is still developing dynamically and supported by a boom in lending, represents the driving force behind the economy. Under this forecast's assumption that the price of oil will not rise substantially, one can expect annual GDP growth to edge down again in 2006 and 2007. While investment growth will probably recover slightly, expansion in

³ Inventory changes in these three countries in 2005 made negative contributions to GDP growth in the amount of 1 to 5 percentage points. If inventory changes are added entirely to domestic demand (as is the usual practice), then the growth contribution of overall domestic demand (including inventory changes) is only between 0 and 2 percentage points, with the remaining part of GDP growth arising from the contribution of net exports.

consumer spending is likely to lose some momentum compared to its currently high level. On the other hand, an easing of fiscal policy is likely – especially in 2007 – in the run-up to the elections in 2008. Major efforts to revitalize bogged-down structural and institutional reforms cannot be expected before the elections. A persistently high inflation differential compared to other countries as well as nominal upward pressure will lead to another real strengthening of the ruble, which will impair the competitiveness of manufactured goods. Coupled with the import pull generated by growth in domestic demand, this will squeeze net exports even further and dampen GDP growth.

The risks in this outlook include the increased dependence of the Russian economy on energy sources (and thus on the price of oil), a higher real strengthening of the Russian ruble, and continued uncertainty about the course of reform policies and its effects on the overall economy.

Table 2

Three New EU Member States and Russia: March 2006 Forecast

Annual change at constant prices (%)

Gross domestic product	2002	2003	2004	2005 ¹	2006 ²	2007 ²
Poland	1.4	3.9	5.3	3.2	4.4	4.6
Czech Republic	1.5	3.2	4.7	6.0	5.0	4.6
Hungary	3.8	3.4	4.6	4.1	4.5	4.1
Russia	4.7	7.3	7.2	6.4	6.2	5.5

Source: Eurostat, national statistics offices, OeNB, Soumen Pankki.

¹ Estimate.

² Forecast.

3.2 Inflation Rates Still Declining

In all new EU Member States in Central and Eastern Europe, inflation for the overall year 2005 decreased in comparison to the previous year. This decline was most pronounced in Slovakia (−4.7 percentage points) and in Hungary (−3.3 percentage points). This can be explained in part by a positive base effect, as inflationary factors related to EU accession (e.g., the adjustment of value-added tax rates) were eliminated. Moreover, stronger currencies, high competition in retailing as well as low inflation expectations (among other things) had a dampening effect on prices. Over the year as a whole, inflation rates were relatively stable in most countries. The fourth quarter of 2005 brought increased acceleration especially in Slovakia,

while the inflation rate declined steadily in Poland. The increased inflation in the Slovakian economy, which is especially energy-intensive, can largely be attributed to an increase in gas prices by some 20% in October 2005 and to higher prices for other energy supplies.

In the Southeastern European countries, inflation in 2005 ranged from a relatively moderate 3.4% in Croatia to a comparatively high rate of 9.1% in Romania. However, the disinflation process in Romania continued in 2005, falling just short of the inflation target for the year (7.5% ±1 percentage point). In Bulgaria, inflation accelerated substantially in the fourth quarter, mainly as a result of the floods in the summer of 2005 and the resulting increases in food prices.

Table 3

Development of Inflation in Central and Eastern Europe

Annual change of HICP (%)

	2004	2005	Q1 05	Q2 05	Q3 05	Q4 05
Poland	3.6	2.2	3.6	2.2	1.7	1.2
Slovakia	7.5	2.8	2.8	2.6	2.2	3.7
Slovenia	3.6	2.5	2.8	2.2	2.3	2.6
Czech Republic	2.6	1.6	1.4	1.2	1.6	2.2
Hungary	6.8	3.5	3.5	3.6	3.5	3.2
Bulgaria	6.1	5.0	3.8	4.9	4.8	6.6
Romania	11.9	9.1	8.9	9.9	9.0	8.5
Croatia	2.1	3.4	3.1	3.1	3.5	4.0

Source: Eurostat.

3.3 Continued Relief on Most Labor Markets

The situation on the labor markets has been influenced by sustained economic expansion, the success of structural reforms, as well as high foreign direct investment, which results in job creation. At the same time, enhancing productivity by labor shedding appears to have reached its limit, which has also brought about increases in overall employment. However, unemployment is still high. While the rate of unemployment in Slovenia (6.5%)

was well below the euro area average in the third quarter of 2005, unemployment in Poland was 17.6%. Nevertheless, positive developments can be identified. Compared to the reference quarter in 2004, all of these countries except Hungary and Slovenia were able to reduce their unemployment rates. Unemployment is also declining or stable in the other countries. In Croatia, the unemployment rate dropped over the year 2005, but compared to the reference period it remained at roughly the same high level.

Table 4

Unemployment in Central and Eastern Europe

% of labor force

	2003	2004	Q3 04	Q4 04	Q1 05	Q2 05	Q3 05
Poland	20.0	19.3	18.5	18.3	19.1	18.3	17.6
Slovakia	17.6	18.3	17.6	17.3	17.6	16.3	15.7
Slovenia	6.8	6.5	6.1	6.6	6.9	5.9	6.5
Czech Republic	7.9	8.4	8.3	8.2	8.4	7.8	7.8
Hungary	5.9	6.1	6.1	6.3	7.1	7.1	7.3
Bulgaria	13.9	12.2	11.1	12.0	11.5	10.1	9.3
Romania	7.5	8.5	8.0	8.5	8.9	7.5	6.5
Croatia	19.5	18.2	17.3	18.4	19.2	18.0	17.0

Source: Eurostat.

3.4 2005: Bulgaria's Rating Upgraded

Both Moody's and Standard & Poor's upgraded their ratings of the security of Bulgaria's long-term foreign-currency debt. Both rating institutions still assign Slovenia the best rating in the group of countries in question, followed closely by the Czech Republic and Hungary. However, the two agencies have determined divergent ratings for Poland and Slovakia. While Moody's places the two countries at the same level, Standard & Poor's

assigns Slovakia a better rating. Among the three candidate countries, Croatia and Bulgaria have been in the same category since Bulgaria's upgrade, while Romania is still bringing up the rear.

On March 9, 2006, Moody's announced a positive outlook for the future ratings of five ERM II participants (Estonia, Cyprus, Latvia, Malta and Slovenia) as well as a review of the ratings assigned to Lithuania and Slovakia.

Table 5

Ratings of Long-Term Foreign-Currency Debt				
Currency	Moody's		Standard & Poor's	
	Current rating ¹	Last change (old rating)	Current rating ²	Last change (old rating)
Polish zloty	A2	Nov. 2002 (Baa1)	BBB+	May 2000 (BBB)
Slovak koruna	A2	Jan. 2005 (A3)	A-	Dec. 2004 (BBB+)
Slovenian tolar	Aa3	Nov. 2002 (A2)	AA-	May 2004 (A+)
Czech koruna	A1	Nov. 2002 (Baa1)	A-	Nov. 1998 (A)
Hungarian forint	A1	Nov. 2002 (A3)	A-	Dec. 2000 (BBB+)
Bulgarian lev	Baa3	March 2006 (Ba2)	BBB	Oct. 2005 (BBB-)
Romanian leu	Ba1	March 2005 (Ba3)	BBB-	Sep. 2005 (BB+)
Croatian kuna	Baa3	Jan. 1997	BBB	Dec. 2004 (BBB-)

Source: Bloomberg.

¹ Aaa (best), Aa, A, Baa, Ba, B, Caa, Ca, and C (worst); 1, 2 and 3 are used to subdivide each grade.

² AAA (best), AA, A, BBB, BB, B, CCC, CC, C and D (worst); + and - are used to subdivide each grade.

4 Austria: Economic Growth More Broad-Based

4.1 Gradual Acceleration of Growth, Domestic Demand Gains Momentum

In 2005, Austria's seasonally and work-day adjusted real GDP rose by 2.0%. After slowing down in the first quarter due to weak demand for exports,

Austria's economic growth gradually accelerated over the rest of the year. Starting in the second quarter of 2005, export activities recovered in line with the improved foreign demand, and domestic demand also regained momentum. Austria's growth, which had primarily been supported by exports in 2004, is therefore enjoying an increasingly broad basis.

Box 2

2005 Current Account (on a Cash Basis)**Balanced Despite Higher Oil Expenditure**

The OeNB's current account statistics show a slight improvement in the 2005 current account compared to the previous year. Austria's current account balance went from EUR –0.8 billion in 2004 to EUR +0.3 billion in 2005, meaning that it can be described as balanced.

The deficit recorded for trade in goods increased by EUR 0.8 billion as a result of high energy prices. A similar development can be derived from the foreign trade statistics compiled by Statistics Austria, which reports an increase of EUR 0.25 billion in Austria's import surplus compared to the previous year. Imports of oil and natural gas alone increased by EUR 2 billion in 2005. This is also reflected in the regional composition of trade in goods. The surplus vis-à-vis countries outside the EU declined by EUR 0.75 billion despite high export growth rates, while the deficit in trade with EU-25 countries dropped by EUR 0.50 billion.

The higher deficit in the trade of goods was more than compensated for by the EUR 1.8 billion increase in the services account surplus. Approximately half of the improvement in the services account can be explained by higher surpluses in tourist travel.

The other subaccounts showed no major changes. The slightly higher deficit in the income account was offset by reduced outflows in the transfer account. Overall, this resulted in an improvement of EUR 1.1 billion in the current account balance (on a cash basis) in 2005.

The most pronounced improvement can be found in the investment activities of businesses. While investments still stagnated in early 2005 due to the discontinuation of Austria's special investment tax credit and due to declining capacity utilization levels, investment activities already exceeded their long-term average in the second half of the year. The available leading indicators justify expectations of another noticeable revival in the first half of 2006. According to the WIFO

investment test, manufacturing companies plan to increase their investments by 8.3% (in nominal terms) in 2006. In light of the currently only average assessment of capacity utilization (81.9%), replacement investments and streamlining measures are probably the main motive behind a vast majority of these investment projects. With additional impetus from the government's growth packages, the outlook for construction investments remains positive.

Table 6

Results of the National Accounts (in real terms)

	2004	2005	Q1 05	Q2 05	Q3 05	Q4 05
	Change from previous year in % (seasonally adjusted)		Change from previous quarter in % (seasonally adjusted)			
Gross domestic product	2.6	2.0	0.2	0.5	0.6	0.7
Consumer spending	1.0	1.4	0.4	0.4	0.4	0.4
Public spending	1.0	1.3	0.3	0.4	0.4	0.4
Gross capital formation	1.9	1.7	0.0	0.4	0.7	0.8
Exports	8.6	4.1	0.6	1.2	1.2	1.0
Imports	6.4	2.8	0.2	0.5	0.7	0.8

Source: WIFO (quarterly SA data).

Despite relief provided in the second stage of Austria's tax reforms, recovery in private consumer spending is still relatively moderate. Growth in consumer spending accelerated from

1.0% in 2004 (real, seasonally adjusted) to 1.4% in 2005, but the trend in the course of the year remained fairly weak. Quarterly growth rates stagnated at around 0.4% compared to

each previous quarter. The still-low propensity to consume also manifests itself in consumer confidence, which has not shown a clear upward trend due to persistently high unemployment. However, retail sales recently saw a robust increase (fourth quarter of 2005: +2.1% year on year in real terms), and the mood in retailing – which is a sound leading indicator for consumer spending – has improved continuously since mid-2005. The fact that quarterly growth rates for consumer spending did not accelerate in

the course of 2005 was mainly due to disappointing results in car sales. New car registrations stagnated in 2005, even showing a decline of 9% in the fourth quarter of the year. For the first half of 2006, however, one can expect a further gradual revival in consumer spending. The fact that price pressure has abated continuously since reaching a high in September 2005 supports the purchasing power of households, and persistently robust lending growth should also have a stimulating effect on demand.

Box 3

Results of the OeNB Economic Indicator, March 2006:

Economic Growth Gaining a Broader Basis⁴

According to the current OeNB economic indicator, growth in Austria's real GDP (seasonally adjusted, compared to the previous quarter) will accelerate to 0.8% in both the first and second quarters of 2006. Compared to the last economic indicator results published in January 2006, the growth forecast for the first quarter of 2006 was raised by 0.2 percentage point.

Table 7

Austria's Short-Term Real GDP Outlook for Q1/Q2 2006

(seasonally adjusted)

	2004	2005	Q1 05	Q2 05	Q3 05	Q4 05	Q1 06	Q2 06
Quarterly year-on-year change (%)	x	x	2.6	1.9	1.6	1.9	2.5	2.9
Change from previous quarter (%)	x	x	0.2	0.5	0.6	0.7	0.8	0.8
Change from previous year (%)	2.6 ¹	2.0 ¹	x	x	x	x	x	x

Source: OeNB - Results of OeNB Economic Indicator, March 2006; Eurostat.

¹ Statistics Austria reports 2.4% real GDP growth for 2004 and 1.9% for 2005 (nonseasonally and working-day adjusted data).

With the transmission of foreign trade stimuli to domestic demand, economic recovery is expected to become increasingly self-perpetuating. This scenario also underlies the OeNB's short-term outlook based on the OeNB economic indicator for the first half of 2006 (see Box 3). Uncertainties with regard to the extent and sustaina-

bility of transmission represent the main risk in this forecast. Moreover, whether or not the nascent recovery in Germany materializes as expected will also influence the further development of the Austrian economy. In the short term, oil prices will remain the primary risk on the supply side in this forecast.

⁴ Since the first quarter of 2003, the economic indicator of the OeNB has been published four times a year. It forecasts real GDP growth for the current quarter and the next (in each case, on a quarterly basis, using seasonally adjusted data). The figures are based on the results of two econometric models: a stochastic state space model and a dynamic factor model. Further details on the models employed can be found at www.oenb.at in the Monetary Policy and Economics section. The next publication is scheduled for July 2006.

4.2 Waning Inflation Supports

Purchasing Power of Households

Inflation has weakened steadily in recent months. After 2.6% in September 2005, the increase in the HICP in February 2006 amounted to a mere 1.5%. The main driver of inflation was still the development of energy prices (+11.4%), whereas inflation in housing costs slowed down. Especially the development of prices for unprocessed foods (-1.0%) and for industrial goods excluding energy (-0.4%) had a dampening effect on prices. The inflation rate for processed foods including alcoholic beverages and tobacco saw a marked decrease in early 2006 due to a base effect. After averaging 1.5% in 2005, core inflation (excluding energy and unprocessed foods) dropped to 0.8% in February.

Given slackening inflation, we can expect 2006 to bring a noticeable increase in real wages, which have stagnated for the last two years. The index of agreed minimum wages rose 2.7% in each of the first two months of 2006, thus increasing by 1 percentage point more than prices. This unexpected level of growth in real wages will provide an important stimulus for the revival of consumer demand.

4.3 High Unemployment despite Increasing Employment Rates

The situation on the Austrian labor market remains ambivalent: Payroll employment has attained record highs, but so has unemployment. In 2005, the number of employed people rose by 35,843 to 3,236,343 (+1.1%), but at the same time the number of people registered as unemployed increased by 8,774 to 252,654 (+3.6%). Under

the Eurostat definition, the rate of unemployment came to 5.2%. This trend continued into early 2006, but the increase in unemployment slowed in February. The number of people registered as unemployed increased by 1,736 compared to the same month in the previous year, thus reaching the lowest value since late 2004. In February, the rate of unemployment came to 5.0%. However, it is still too early to speak of a reversal in this trend.

The increasing figures for payroll employment may well exaggerate growth on the Austrian labor market. Currently no reliable data are available on hours worked in Austria. Part-time employment probably accounts for a substantial share of the newly created jobs, as suggested by above-average growth in the employment of women and in the service sector. In contrast, employment is stagnating or declining slightly in those industries where jobs are predominantly full-time, such as manufacturing and construction.

The increase in unemployment stems from the sharp rise in the labor supply, which was largely generated by the pension reforms of 2000 and 2003 (i.e., the increased early retirement age), demographic effects, increasing levels of employment among women, and the inflow of workers from abroad.

The number of job openings – which is a sound indicator of future employment developments – points to continuously high employment growth in 2006. However, as the labor supply is also likely to see considerable growth again, we cannot expect to see noticeable relief on the labor market in 2006.

The Potential Growth Prospects of the Austrian Economy – Methods and Determinants

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In this paper we discuss issues related to the longer-run growth prospects of the Austrian economy. We briefly survey methods commonly applied to estimate the growth potential of an economy. According to currently available estimates, the growth rate of Austrian potential output is roughly 2%. We observe that potential growth has slowed down slightly over the past two decades. Turning to prospects for total factor productivity growth, there have been significant improvements over the last ten years with respect to R&D and trade openness. The impact of dynamic agglomeration gains also depends on the transport infrastructure. Product market competition and entry have markedly improved. Austria still has deficits in the areas of higher education and venture capital. By and large, most indicators – at least their growth rates – point towards good prospects for total factor productivity (TFP) growth. As regards labor supply, we show that demographic projections point to a slowdown in the growth of the working-age population, which in turn may lead to declining growth rates of actual and potential output. Such results are often achieved by using growth equations. This approach probably overestimates the negative effect on total GDP growth. The slowdown of labor supply growth can be mitigated by increasing participation rates. Austria has undertaken significant steps to increase the labor market participation of older workers by a series of pension reforms. After a decline in 2002 labor force growth has been rising steadily since 2003. Moreover, female labor supply has been increasing considerably more strongly than male labor supply.

JEL classification: E0, J0

Keywords: potential growth, TFP, labor market.

1 Introduction

Policymakers usually pay substantial attention to estimates of potential growth, that is the growth rate of potential output, when evaluating the overall cyclical position of an economy and also when assessing the macroeconomic performance. Comparably low GDP growth and high unemployment in many European countries have spurred an intensive discussion on economic policy reforms targeted primarily at utilizing the innovative potential of economies as well as to increasing the flexibility of labor markets, which are commonly regarded as too rigid. Moreover, many fear that future growth prospects may also be hampered by the slowdown of population growth and the expected decrease in the working-age population, which is associated with demographic transition.

For all these reasons, potential growth prospects rank high on the economic policy agenda. In this paper we consider a variety of related issues in the context of the Austrian economy. The purpose is to provide an introductory overview of some issues relating

to the concept of potential growth. First, we give a definition of potential output and explain methods which are used by applied economists to estimate potential GDP. The next section is devoted to productivity growth, which is generally considered to be the main driver of economic growth. It gives an overview over recent developments in research and development, venture capital, education and other determinants of total factor productivity (TFP) growth. Next we discuss labor market aspects, focusing on the evolution of future labor inputs with a special emphasis on demographic aging and the related need for increasing the participation of older workers. The final section contains a short summary.

2 Estimating Potential Output

Although potential output can be defined in numerous ways, the most relevant definition used in the context of monetary policy is based on the idea that output above a certain level is likely to be associated with inflationary pressures. Put differently, potential

Refereed by
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output is defined as the maximum level of GDP that is consistent with a stable rate of inflation. The output gap, defined as the deviation of actual from potential output, provides an indicator of the balance between supply and demand influences and hence inflationary pressures.

An estimate of potential output allows us to distinguish between transitory influences and structural imbalances in the economy. This distinction appears to be particularly important for the analysis of fiscal policy and the assessment of fiscal balances. Over the medium and long run, potential output is a proxy for the aggregate supply capacity of the economy and helps assess the sustainability of output and employment growth paths.

However, potential output cannot be observed and therefore has to be estimated. Various estimation methods have been proposed. Most studies of potential output rely at least to some extent on the so-called “production function approach.” The popularity of this approach stems at least partly from the fact that it allows to conduct growth accounting exercises, that is, it allows us to obtain estimates of how individual factors contribute to potential growth. Moreover, organizations and institutions such as the European Commission, the OECD and the IMF regularly apply the production function approach for policy evaluation.

Basically, this approach relies on the assumption that the supply side of the economy can be modeled as a neo-classical aggregate production function. Alternatively, regression and filtering methods have been applied to extract low-frequency movements in the data. These methods can be characterized as purely statistical and rely on a related but different

definition of potential output. Here, it is assumed that potential output is identical to the trend or smooth component of actual output.

The production function approach can – in principle – also be used as a starting point for a growth accounting exercise that splits the observed growth rate into contributions from labor, capital and TFP. Moreover, if additional assumptions are made, growth contributions can also be linked to the “deeper” determinants of growth, as for instance Research and Development (R&D), human capital etc.

Based on such a growth accounting analysis, Gnan et al. (2004) conclude that Austria’s per capita GDP growth was mostly driven by the growth of TFP. In particular, they report that the average growth rate of per capita GDP was 2.75% in the period from 1960 to 2002 and the contribution of TFP amounted to 2.37% on average. Thus, technological progress appears to be a major source of growth in Austria.

In principle, this kind of analysis also allows to consider the growth effects of various policy measures or changes in the economic environment. For instance, assuming that one is willing to make rather strong assumptions about the exact relationship between a policy measure under consideration and its impact on TFP, labor supply and capital stock, it would be possible to perform a kind of “scenario analysis.”

As an example consider demographic changes and their impact on growth. Basically, it would be possible to obtain longer-term forecasts for the evolution of the working-age population, the participation rate and the unemployment rate, which could be taken as exogenous. Using these variables for the calculation of the potential

labor input for the growth accounting exercise, it should be possible to calculate the growth effects of different demographic developments. (See the labor market section of this article for more details.)

However, this approach suffers from various shortcomings and inconsistencies. First, this approach is completely atheoretical; it imposes no cross restrictions on the inputs. Hence, assumptions have to be made on how labor supply developments affect the capital stock and TFP. One may start with the assumption that only the labor force changes, but capital and technology are not affected. This is highly implausible since a reduction in the labor force (and the associated increase in wages) is likely to lead firms to substitute capital for labor. In addition, suppose the world is correctly described by the Solow model, then the capital stock is an endogenous variable that will react to changes in labor in a

way so that the capital labor ratio is constant in the long run. Put differently, assuming the inputs are independent of each other goes against even the simplest growth model. Moreover, (semi-) endogenous growth models¹ link demographic developments to TFP growth. Thus, the inconsistency becomes even more pronounced. A simple growth accounting exercise would miss this effect completely. Thus, it would be necessary to specify exactly how demographic changes affect all inputs of the production function in order to obtain a meaningful result. However, such exact specifications do not appear to be available, since modern growth models are too stylized and abstract for this purpose.

In short, using growth accounting exercises for simulation purposes provides a flexible framework that allows analyzing basically any question as long as rather heroic assumptions are made.

The Production Function Approach

With very few exceptions, a Cobb-Douglas production function exhibiting constant returns to scale is chosen mainly because it is easy to implement and analyze. It has to be noted, however, that several studies argue that a CES production function might be a better description of the data, since factor shares appear to vary over time.² In particular, growth accounting exercises are rather straightforward with a Cobb-Douglas function. In general, the production function maps the inputs labor (L), capital (K) and some measure of the overall state of technological progress into aggregate output (Y). Thus, aggregate output takes the form:

$$Y = F(E_L L, E_K K) = (E_L L)^\alpha (E_K K)^{1-\alpha},$$

where $\alpha \in (0, 1)$ and E_L, E_K denote the efficiency of labor and capital, respectively. This production function can be rewritten as

$$F(TFP, L, K) = TFP(L)^\alpha (K)^{1-\alpha},$$

where $TFP = E_L^\alpha E_K^{1-\alpha}$ is conventionally defined to be total factor productivity.

Using this specification implies that the elasticity of substitution is assumed to be unity and output. Elasticities with respect to labor and capital are given by α and $1 - \alpha$, which can be estimated by the wage share under the assumption of constant returns to scale and perfect competition. The unitary elasticity of substitution also implies that factor shares remain constant over time.

Potential output, Y^ , is defined as:*

$$Y^* = F(TFP^*, L^*, K^*) = TFP^* (L^*)^\alpha (K^*)^{1-\alpha},$$

¹ See Jones (2004).

² See, among others, Willman (2002).

where stars denote the “potential” levels of utilization of the respective input factor. After the specification of a production function, the next step is to obtain estimates of the potential levels of the inputs. As in the case of potential output itself, these potential input levels cannot be observed. Hence, additional assumptions are necessary to render this approach operational.

For the capital stock this problem is rather straightforward to solve since the potential contribution of the capital stock is given by the full utilization of the existing capital stock. This argument together with the fact that the actual capital stock series is rather smooth shows that there is no need to smooth the capital stock series. It has to be kept in mind, however, that the measurement of the capital stock entails rather severe data problems. Although data reliability is also problematic for other series used in the production function approach (e.g. hours worked), it appears to be particularly severe for the capital stock.

Finding potential labor supply is somewhat more involved since the “normal” degree of utilization of this factor is not as clearly defined as in the case of capital. The definition that is usually applied is based on the non-accelerating inflation rate of unemployment (NAIRU). However, since the NAIRU cannot be observed in the data, econometric methods have to be applied here. Commonly used methods include filtering techniques, structural labor market models (e.g. based on wage bargaining) and unobserved component models.

Total factor productivity is usually calculated as the so-called Solow Residual, and the potential TFP contribution is proxied by the smooth component of the Solow Residual.

The purely statistical approach to the estimation of potential output consists of the extraction of the low-frequency component of GDP. An important advantage of these methods is that filtering techniques are simple to implement and usually not restricted by limited data availability.

The simplest approach in this category is based on the assumption that the trend component of GDP is a linear function of time. This trend can be extracted via a simple regression, and an estimate of the output gap can be obtained as the difference between actual and trend GDP.

A widely used method is the Hodrick-Prescott filter. This method is slightly more involved since it requires a parameter that summarizes the trade-off between the fit and the smoothness of the trend component. Note that for the extreme case where all the weight is put on smoothness, the Hodrick-Prescott filter converges to a linear trend. Thus, the choice of the “smoothing parameter” is rather crucial, albeit arbitrary. However, the most important drawback of the Hodrick-Prescott filter appears to be its rather poor performance at the

end of the sample. Since policymakers are usually concerned with current developments, this drawback appears to be particularly relevant. This has been proposed to eliminate the so-called end-of-sample bias by applying the Hodrick-Prescott filter to a GDP series with incorporated forecasts. Although this remedies the end-of-sample bias, the estimate of the trend component becomes rather sensitive to the forecast.

To sum up, it appears that the various methods frequently used for the estimation and calculation of potential output do not differ greatly.

The various methods to estimate potential output have in common that they are designed to obtain real-time estimates. Put differently, they should provide an answer to the question how much of the latest movement in GDP is due to the underlying trend as opposed to cyclical factors. However, it appears that the available methods to estimate potential output are not able to completely eliminate the cyclical component. To some extent, this observation can be explained by the end-of-sample bias of the Hodrick-Prescott filter. Even the pro-

duction function approach relies to some extent on filtered series as inputs; hence, results turn out to be similar to those obtained by the purely statistical approach. To conclude, it appears that despite rather frequent debates in policy circles on the relative advantages of the production function approach compared with the purely statistical approach, both methods are likely to yield rather similar results. Moreover, discussions focus exclusively on the point estimates for the potential growth rate without taking into account that estimates are probably subject to a non-negligible amount of uncertainty.

2.1 Overview of Recent Estimates for Austria

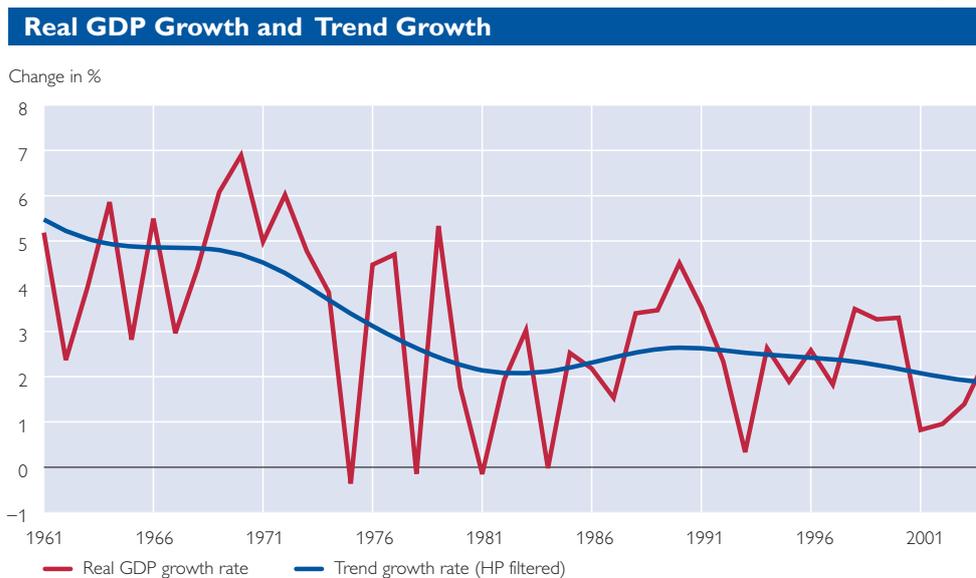
Chart 1 shows growth rates on real GDP and trend GDP from 1960 to 2004. The Hodrick-Prescott filter is used to extract the trend component. Overall, the figure shows that potential

growth rates declined from 1960 to 1980. Moreover, potential growth has remained rather stable at slightly above 2% afterwards. For the period 1980 to 2004 the average growth rate of trend GDP has been 2.3%.

Estimates of growth and potential growth are provided by the IMF, the OECD, the European Commission and the OeNB on a regular basis. Table 1 displays recent estimates obtained from these organizations.

Available estimates for 2006 indicate that the growth rate of Austria's potential output should currently lie in the range between 1.8% and 2.2%. The OECD is slightly more optimistic than the other institutions and estimates potential growth to be 2.2%. Currently, only the European Commission and the OeNB provide forecasts for 2007: the OeNB expects a potential growth rate of 2.0%, whereas the European Commission forecasts 1.8%.

Chart 1



Source: OeNB.

For slightly longer time periods, the table shows that potential growth rates are likely to have been declining over the last years. For the year 2000 all available estimates lie above 2.2%,

whereas for 2006 most estimates lie slightly below 2.0%. Thus, potential growth appears to have slowed down in Austria.

Table 1

Estimates of Potential Growth for Austria								
	2000	2001	2002	2003	2004	2005	2006	2007
European Commission	2.2	2.1	2.0	1.9	1.9	1.9	1.8	1.8
OECD	2.5	2.3	2.6	2.5	2.4	2.3	2.2	×
IMF	2.3	2.3	1.8	2.4	1.8	1.7	1.8	×
OeNB	2.5	2.3	2.2	1.6	2.0	2.0	1.9	2.0

Source: OECD Economic Outlook 2005, Ameco database, World Economic Outlook September 2005, OeNB fall 2005 outlook and own calculations.

In short, currently available estimates point towards potential growth rates of around 2% in the near future.

3 Prospects for Total Factor Productivity Growth

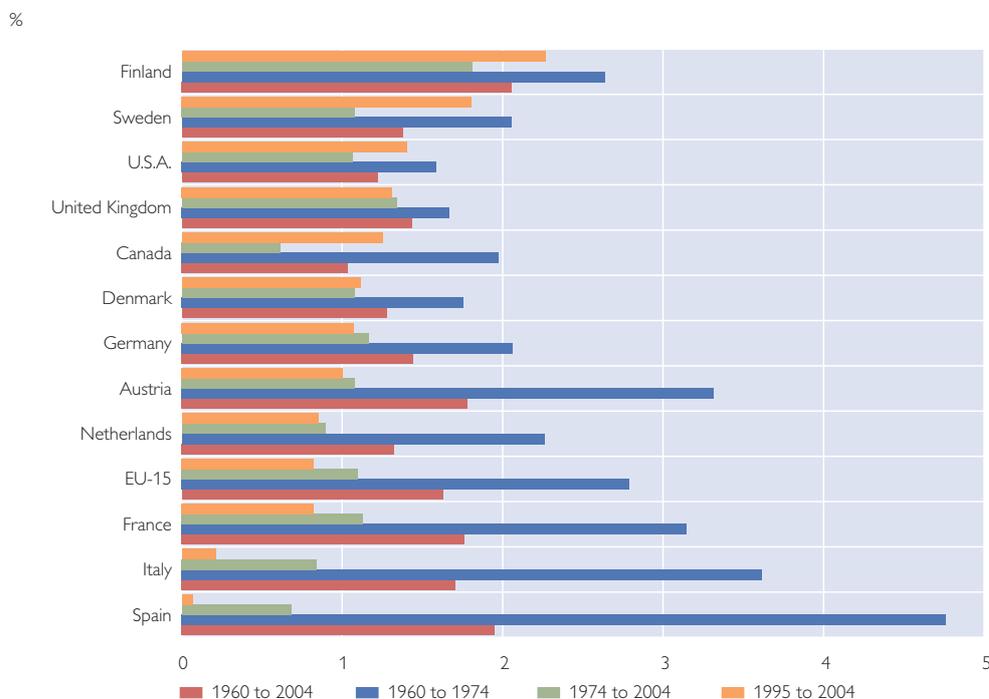
Total factor productivity is now seen as the main reason behind international income differences (Easterly and Levine, 2001). From 1960 to 2004, TFP grew faster in the EU-15 than in the U.S.A. This masks the divergence between very fast TFP growth from 1960 to 1974 and much slower TFP growth from 1974 to 2004. As regards the average TFP growth rate for the period 1995 to 2004, a differentiation should be made between two groups of countries. The first group experienced constant or falling TFP growth (e.g. UK, Denmark, Germany, Aus-

tria, the Netherlands, France, Italy and Spain as well as the EU-15 average), whereas the second group saw a pickup in TFP growth (e.g. Finland, Sweden, the U.S.A. and Canada). These diverging productivity growth patterns were part of the inspiration behind the Lisbon Agenda (the growth strategy of the EU) and also behind the term “New Economy.”

As a result, the acceleration of productivity growth has become a major economic policy goal for the countries which have not succeeded in (partly) reversing the productivity slowdown. Judging from the last 30 years, trend TFP growth in Austria oscillates around 1%. This compares favorably with the EU-15 average of 0.8%, which is kept low by Italy and Spain. Up to now, however, Austria has not seen an acceleration in its trend TFP growth.

Chart 2

Average TFP Growth Rates of Selected Countries between 1960 and 2004



Source: European Commission.

3.1 Drivers of TFP Growth

There is no full consensus on what drives TFP growth rates, many studies thus simply extrapolate current trend TFP growth.³ We make reference to the existing vast literature on possible determinants of TFP growth to give a tentative picture of the prospects for TFP growth in Austria. As a guiding framework, we use the one developed in Gnan et al. (2004) on the basis of the empirical literature while taking account of recent advances (chart 3). In this framework, direct sources of TFP growth (different kinds of innovative activity which depend on the available human capital) are supported or

shaped by indirect sources (rules and policies, such as product market regulation). The main determinants are shared with other exercises of this type (see also Gelauff et al., 2004). It is not clear how the labor market affects TFP growth. The relationship between labor market regulation and innovation seems to differ sector-wise, with considerable uncertainty as to the overall effect (see also Bassanini and Ernst, 2002).

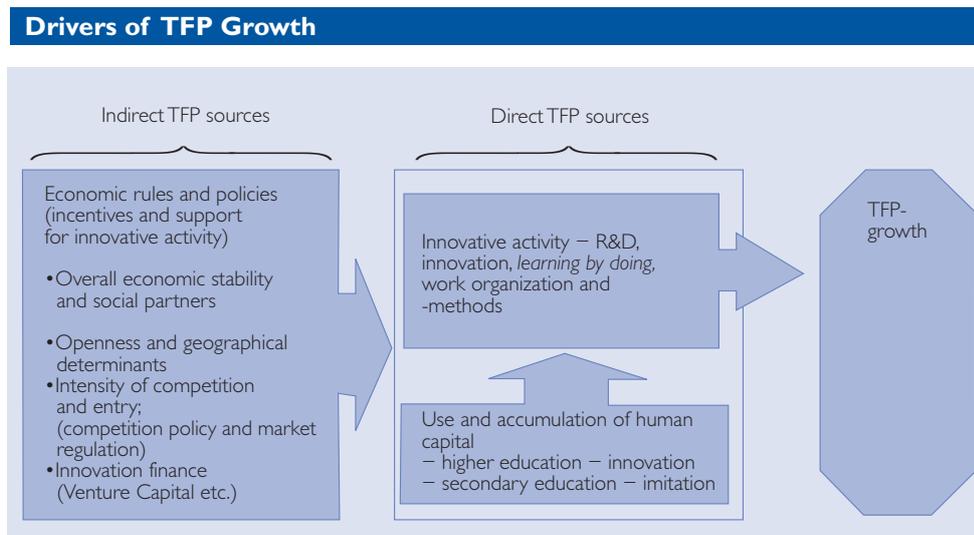
The sections 3.2 and 3.3 will follow the structure of chart 3, first turning to the direct drivers of TFP growth and then addressing the indirect drivers. Policymakers need to remember that

³ This is partly due to the fact that TFP is an unobservable “statistical residual,” depending on the specified production function. In particular, TFP growth captures the part of real GDP growth unexplained by labor and capital inputs. For instance, if the measurement of labor input relies on persons employed rather than hours worked, TFP growth will include changes in average hours worked. Measuring the growth of capital input using the available capital stock will lead to TFP growth tracing the changes in capital utilization, a highly cyclical variable. TFP growth rates should thus be averaged over several years.

any improvement in one or several TFP drivers will not automatically lead to higher TFP growth, as they are the result of empirical cross-country regressions, which may not necessarily materialize in every country at every time. Moreover, there is often a black box between the change in input (e.g.

R&D) and output (aggregate measured TFP growth). Because of the role of TFP growth in explaining international income differences and because of the lack of consensus on drivers of TFP growth, we will subsequently often draw comparisons between Austrian figures and international figures.

Chart 3



Source: OeNB.

3.2 Direct Sources of TFP Growth

3.2.1 R&D, Innovation

The positive impact of the innovation input indicator R&D expenditure on productivity growth is among the most safely established results of the empirical literature (e.g. Griliches, 1995). The R&D intensity of the Austrian economy has been rising steadily since the 1980s, from 1.13% in 1981 to 2.35% in 2004. On average, it increased by 0.05 percentage point per year over the period 1981 to 2004. The average annual rise in the R&D ratio picked up speed from 1994 on, amounting to 0.08 percentage point in the period from 1994 to 2004 and to 0.09 percentage point in the last

five years of this period.⁴ As a small open economy, Austria is particularly sensitive to R&D spillovers from Germany (Coe and Helpman, 1995). Germany's R&D ratio increased at a much lower rate, from 2.31% to 2.51% between 1993 and 2003, and remained stable over the last five years. The Italian R&D ratio has remained unchanged over the last ten years at around 1.1%. However, for a country trailing the worldwide technology frontier, the more domestic research and development activities there are, the higher should be the absorption of foreign knowledge (Griffith et al., 2004). Even if the foreign creation of knowledge remains constant, the rise

⁴ There remains some doubt on the statistical validity of the sharp rise in the Austrian R&D ratio.

in the Austrian R&D ratio should foster the absorption of international knowledge and create an additional impact on productivity, as long as Austria's TFP level remains behind the world frontier.

Before R&D impacts on productivity, it should show up in *patents and innovation measures*. Turning first to patents, Bloom and Van Reenen (2000) find that a doubling of the citation-weighted patent stock increases total factor productivity by 3%. However, it takes time until a patent translates into productivity because the new products and processes have to be embedded into new capital equipment and training. In Austria, between 1991 and 2001, the number of patents per million population registered at the European Patent Office (EPO) rose at a compound growth rate of 6.1% from 91 to 175, whereas the respective number of patents registered at the US Patent and Trademark Office (USPTO) increased more slowly, by 3.2% from 46 to 65. This rise has to be seen against the background of a general surge in patenting in the industrialized countries. It contrasts somewhat with the observation of stagnating R&D ratios in many OECD countries. The *level* of patents per million population in Austria at the USPTO is the same as the level of the EU-15 and slightly above the EU-15 at the EPO.

Based on the findings of the Community Innovation Survey (CIS II and III), the innovation performance in relation to R&D funding of Austrian companies can be analyzed and compared across EU countries (Falk and Leo, 2004). According to the CIS, Austria's innovation ratio ranks fifth in the

EU: 43% of the Austrian companies included in the survey stated that they had launched innovations in the past three years. At 54%, Germany takes the lead, followed by Belgium, Luxembourg and Portugal. In terms of innovation output, i.e. the proportion of innovations relative to total sales, Austria came in third at 21%, behind Germany (37%) and Finland (27%). The share of new-to-market products in Austrian firms' sales remained constant at 7.6% from 2000 to 2002 (CIS II and III); positive signs are the increased percentage of Small and Medium-Sized Enterprises (SMEs) innovating in-house (from 35% to 44%) and that more innovative SMEs are now cooperating with other firms (from 8% to 13%).

While patent and innovation performances have been less impressive than the growth of R&D expenditure, the overall productivity of Austria's research system should be at least average (Janger, 2005; similar EU Innovation Scoreboard, 2005).⁵ Thus, additional R&D expenditure should indeed lead to higher productivity growth. Not only the *efficiency and the effectiveness* of the research and innovation system should be considered when reflecting on prospects for TFP growth, but also the *time lag* necessary to transform research and innovative activities into real output. In a survey among American firms, Mansfield (1991) puts the mean time lag between R&D and innovation at seven years. In a survey of evaluations of research promotion funds, Burger and Felderer (2005) reach the conclusion that commercial applications resulting from research efforts usually take four to eight years to reach the market. The lag structure

⁵ This is a field of ongoing research, with more sophisticated tools hopefully soon available, see e.g. Mairesse and Mohnen (2002).

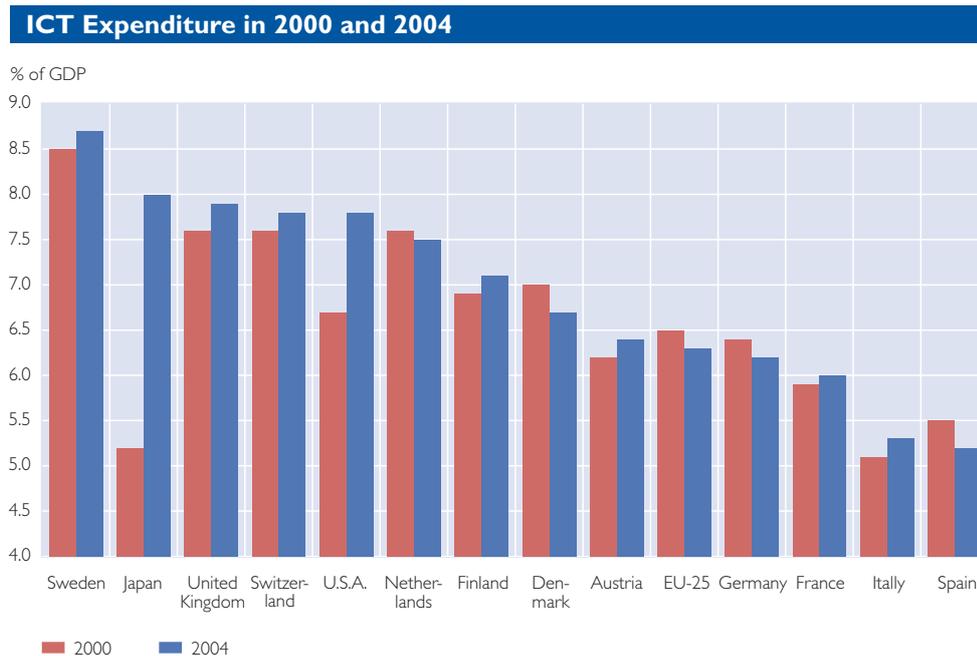
from science to markets differs from sector to sector. On average, it seems to take more than four years before R&D results in innovation, and before innovations show up in measured aggregate TFP growth, it may take some more years.

3.2.2 Expenditure on Information and Communication Technologies (ICT)

The general purpose technology character of ICT led to many studies investigating the productivity effects of ICT on the *total* economy. The outcome of these studies is inconclusive. While there are certainly productivity-en-

hancing effects at the micro- and meso-level, such as in ICT-producing and -using industries (see Bartel et al., 2005, and European Commission, 2004b), there remains doubt as to what extent ICT has spurred TFP growth in the *overall* economy (Vijselaar and Albers, 2002). In Austria, ICT expenditure as a percentage of GDP remained broadly stable at 6.2% to 6.4% of GDP from 2000 to 2004. This corresponds to the EU average. In general, ICT expenditure peaked in 2002 and has come down since then. Only the U.S.A. and Japan have experienced sizeable increases.

Chart 4



Source: European Innovation Scoreboard 2005.

3.2.3 Human Capital

De la Fuente and Domenech (2002) find evidence of a strong positive correlation between human capital and productivity at the macroeconomic level. According to their estimates, raising the average period of schooling by one year will increase productivity by

around 6% in the EU-15. Looking at the average level of educational attainment may not be enough to judge the prospects for TFP growth in Austria. More recent research focuses on productivity growth effects of higher education in countries close to the technological frontier. The European growth

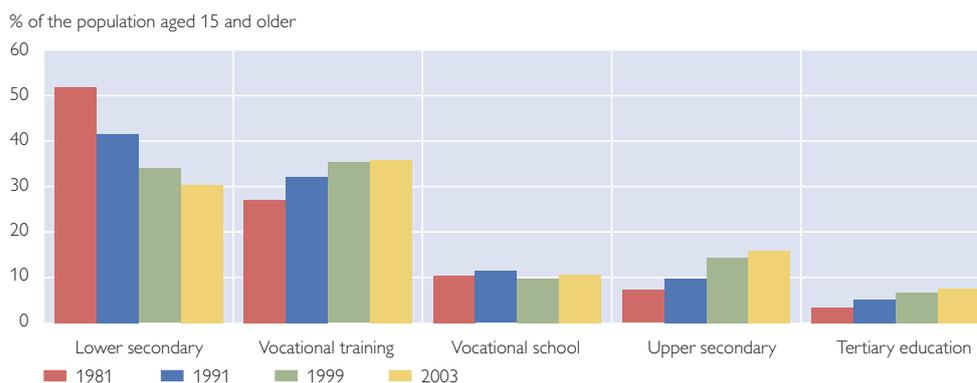
report by Sapir et al. (2004) argues that the relative importance of innovation as opposed to imitation increases as a country moves closer to the technological frontier. Vandenbussche et al. (2004) show that human capital does not affect innovation and imitation uniformly – primary and secondary education tend to produce imitators, while tertiary education tends to produce innovators. Aghion et al. (2005a) estimate that 1,000 USD per person in additional spending on research-type education raises an at-the-frontier state’s annual per employee growth

rate by 0.269 percentage point but raises a far-from-the-frontier state’s per employee growth rate by only 0.093 percentage point. Thus, as a country moves closer to the worldwide efficiency frontier, higher education should become increasingly important for productivity growth.

Average years of schooling in Austria have been stable at 11.3 years, slightly below the OECD average of 11.8 (2002) over the past decade. There was a pronounced shift toward higher-level education types from 1981 to 2003.

Chart 5

Educational Attainment in Austria



Source: Statistics Austria.

The share of the population with tertiary education has been rising but remains well below the level of the EU-25 and below the level of countries with similar R&D ratios. The growth rate is high by international comparison (between 1998 and 1999, there was a break in the data, the growth rate is calculated for the period 1999 to 2004). It is doubtful that this rate of growth can be sustained over the medium term, as the entry rates into tertiary education in Austria are at the lower end of the OECD spectrum at around 30% (e.g. Finland and Sweden attain entry rates above 70%). The low share of tertiary graduates is

partly due to the education system, which leads to professional qualifications at the secondary level whereas in other countries tertiary-type education programs are more widespread. Whether secondary and tertiary-type programs can be functional equivalents remains to be seen, i.e. whether the Austrian system can be as productivity enhancing as systems more focused on higher education, regardless of what the available cross-country empirical literature indicates.

According to Aghion et al. (2005a), one should also look at spending per student. Austria is well above the OECD total as regards spending per

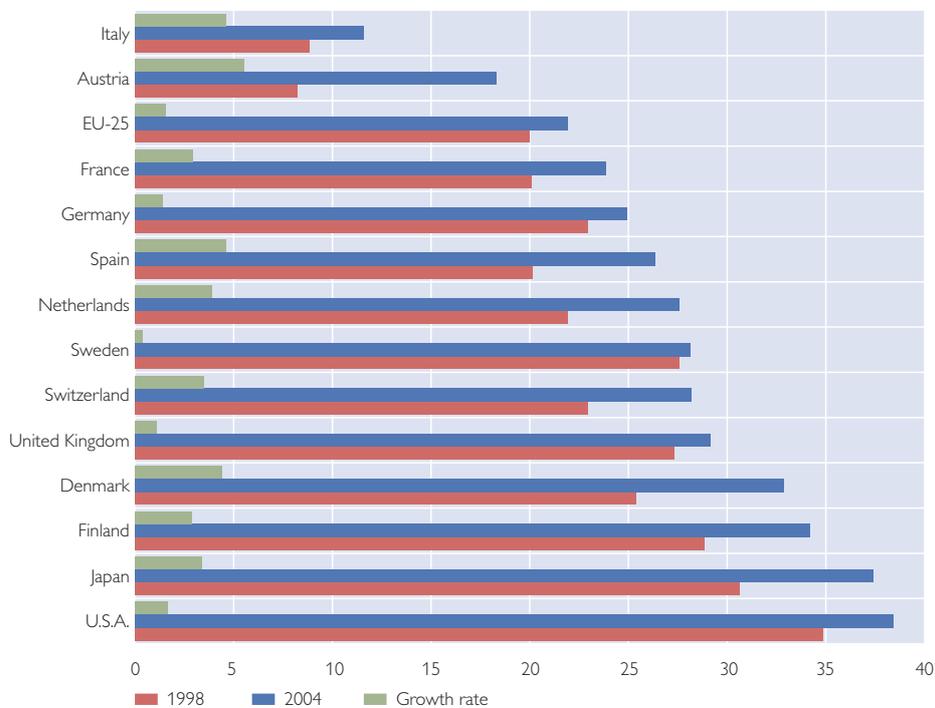
student in primary and secondary education, but below the OECD total as regards tertiary-type spending. However, the OECD total is rather high due to the contribution from the U.S.A. For efficiency considerations of the Austrian university research system, see Janger (2005). In terms of the

frequency of citation of a country's literature, Austria ranks eighth among the EU-15, behind Germany. Switzerland has by far the highest relative citation index value for science and engineering articles, followed by the U.S.A. and the Netherlands (OECD, 2005).

Chart 6

**Share of Tertiary Graduates in the Total Population Aged 15 to 64,
Compound Growth Rates from 1998 to 2004¹**

%



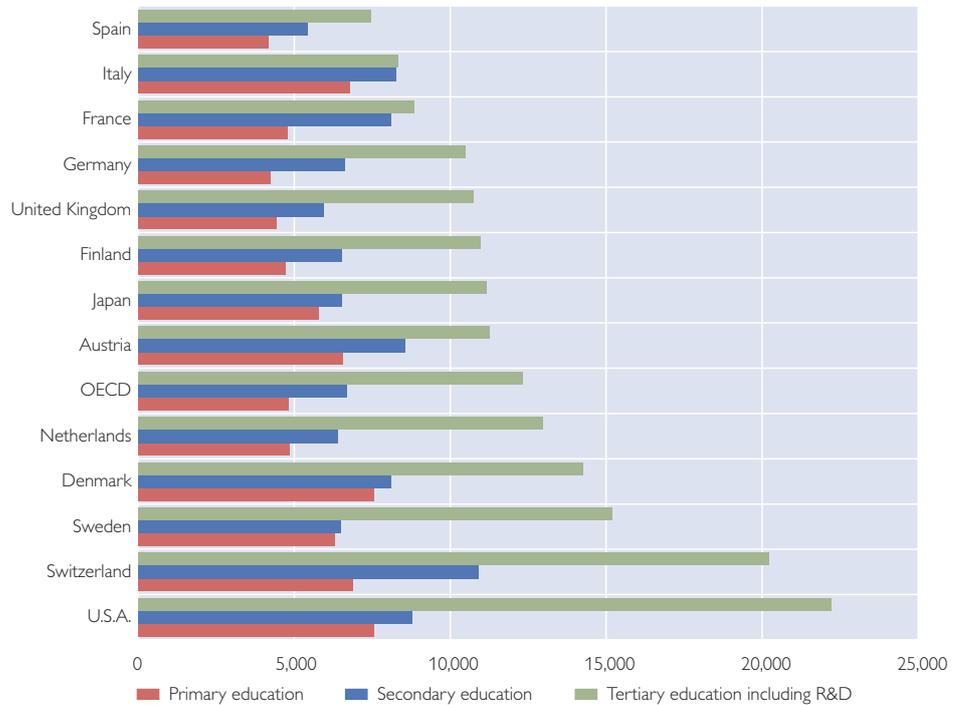
Source: European Innovation Scoreboard 2005.

¹ Austrian growth rate from 1999 to 2004, EU-25 average growth rate from 2000 to 2004.

Chart 7

Spending per Student and Level of Education

in constant USD and in purchasing-power parity

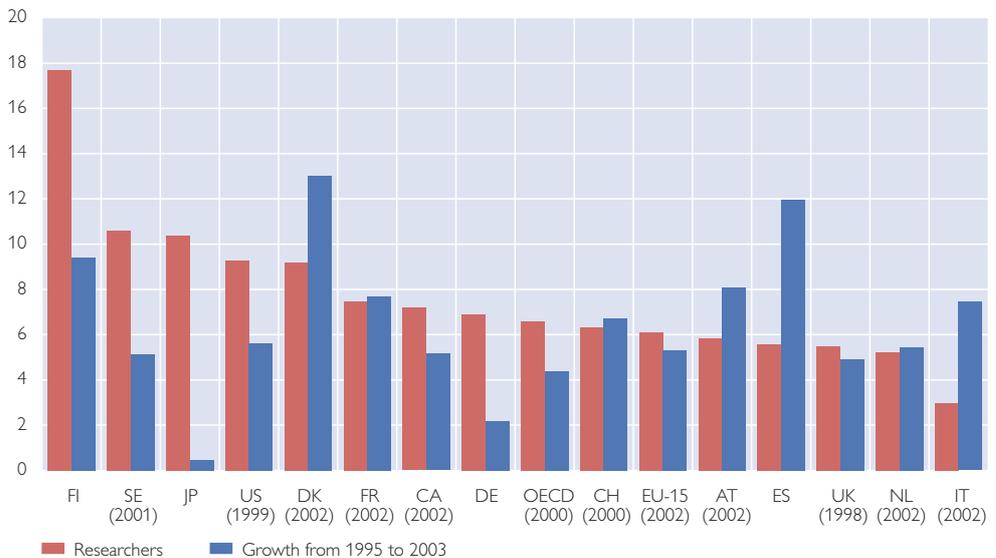


Source: OECD Education at a Glance (2004).

Chart 8

**Number of Researchers per 1,000 Employees in 2003
and Growth from 1995 to 2003**

Growth in %



Source: OECD.

In terms of GDP, Austrian spending on tertiary education decreased slightly from 1.2% of GDP in 1995 to 1.1% of GDP in 2002. Spending has also fallen in the U.S.A. and Finland, while Sweden, Denmark and Canada have experienced a rise.

The number of researchers per 1,000 employees is below the EU-15 and OECD average, but their average annual growth rate is well above the EU-15 and the OECD average.

3.3 Indirect Sources of TFP Growth

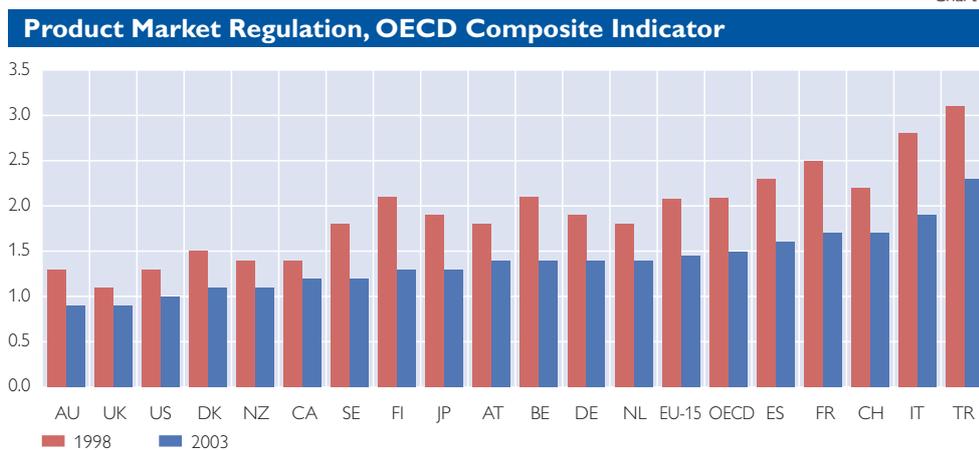
3.3.1 Domestic Competition

Much of the empirical OECD work (e.g. Nicoletti and Scarpetta, 2003) finds a uniform positive impact of increased competition on total factor productivity growth. The OECD uses indicators of product market regulation as proxies for actual competition intensity. Other work provides a more complex picture of the relationship between competition and productivity (Aghion and Griffith, 2005). The effects of competition on productivity seem to vary with the distance to the

worldwide frontier of efficiency (the highest level of TFP) and sectoral characteristics. However, for an advanced country like Austria, the overall effects of increased competition on productivity should be positive.

Regulation of product markets in Austria is within the OECD average and has decreased like in the other EU countries. Market concentration is above the OECD average, which is typical of a small open economy. Above-average mark-ups can be found especially in the service sector (hotels and restaurants, retail); in manufacturing (e.g. steel) they reflect a quality advantage. Mark-ups in gas and electricity as well as in telecommunications are below the OECD average (Aiginger et al., 2004). Due to EU directives, ongoing network industry liberalization (railways, certain postal services) can be expected. In subsectors of the service sector, such as the liberal professions, an above-average degree of regulation persists in Austria (European Commission, 2004a).

Chart 9



Source: OECD.

A special case of product market regulation is public ownership. The OECD estimates the positive effects

of privatization on productivity (Nicoletti and Scarpetta, 2003). Their privatization measure takes the 1975 value

of the privatization index of the Fraser Institute and updates this value with privatization receipts from the OECD privatization database and others. The most recent value dates back to 1998 and shows a rather high value for Austria. Since then, further privatization has been undertaken. It is likely that already in 1998 their indicator showed too high a value, because the receipts from privatization from 1990 to 2000 amounted to 3.9% of GDP, only slightly below the EU average of 4.2%. State-owned or partly state-owned firms in industry and infrastructure today account for roughly 5% of GDP (not including the government sector) (Aiginger, 2003). Many of these firms already face competition, so that the effects of state-ownership on productivity can be expected to be limited.

3.3.2 Foreign Competition and Embodied Knowledge Flows

The openness of an economy (measured basically by trade and FDI flows) affects TFP growth above all through two channels: An open economy may absorb foreign technologies (with imported goods often driving international spillovers) and ideas. Moreover, openness adds to the intensity of domestic competition, which, in turn, creates incentives for change and fuels productivity growth. Austria's trade openness measured as the average of exports and imports increased significantly by a full 12 percentage points from 30% in 1995 to 42% in 2004. In the period from 1980 to 1995, it remained roughly stable at 30%. This compares with similar values for Finland, Sweden and Denmark and higher values only for the Netherlands and Belgium.

FDI flows have also been growing considerably, with inflows and outflows now almost balanced. The aver-

age inflows and outflows from 2000 to 2003 were 2.5% and 2.6% of GDP, respectively. There is still room for further FDI growth, considering that Finland, Denmark and Sweden record FDI flows of 6% to 8% of GDP. One of the reasons for this might be the rather heavy restrictions on FDI inflows as measured by the OECD (Golub, 2003), placing Austria above the OECD average in terms of barriers to FDI inflows. This finding needs further research, though.

3.3.3 Entry and Business Start-Ups

Technology-oriented start-ups may also be regarded as a form of innovation and could thus be included in the direct factors determining TFP growth. We focus on all entries. Aghion et al. (2005b) provide evidence that the entry rate has a positive effect on total factor productivity growth for industries which are close to the technological frontier. However, productivity growth is not stimulated by the new entrants, whose productivity is known to be low at the beginning; rather, enhanced productivity growth is the result of an escape competition effect, whereby incumbent firms raise their productivity due to the threat of entry. High levels of entrepreneurship are also a condition for the rising R&D stock to translate into higher venture capital intensity (Romain and Van Pottelsberghe, 2004b).

Data on entry and start-ups are scarce and international comparison is often very difficult. The OECD is working on harmonized statistical methods to enable better comparison. However, entry and exit rates are fairly similar across industrial countries and show no particular volatility, while post-entry performance differs markedly between Europe and the U.S.A. (Bartelsman et al., 2004). The num-

bers of Austrian start-ups are based on data from the Austrian Federal Economic Chamber and are insufficient to perform an analysis on the lines of Aghion et al. (2005b). The number of Austrian start-ups has risen considerably, from an average below 10,000 in the mid-1990s to above 20,000 in the most recent years. This is mainly due to an increase in the number of self-employed, while the numbers of limited liability and of public limited companies have even come down slightly. The impact of the rise of the entry rate from 5.8% in 1993 to 8.9% in 2002 on productivity must thus be questioned. Austria's entry rate compares with, e.g., 12% in the UK or 7% in Finland and in Italy. The Austrian Institute for SME Research is doing a research project at the moment to analyze what really lies behind the numbers. An empirical study on Portuguese firms shows, for instance, that positive indirect supply-side effects from higher levels of new business formation take about eight years to materialize (Baptista et al., 2005). This is in line with the results on R&D and innovation obtained by Mansfield (1991).

Concerning the regulation of entry, there have been changes, e.g. the regulations on small business and trade have been somewhat liberalized and a one-stop shop for business creation has been introduced. The Doing Business (IFC, 2005) study on business start-up regulation places Austria well above the OECD average in terms of number of procedures, duration and minimum capital required to set up a company with limited liability. However, the study focuses on a very standardized example firm (a limited liability company) to enable cross-country compar-

ison, without mentioning the fact that limited liability companies only represent a small share of business start-ups in Austria (roughly 10%); it should be checked whether the result of this study is representative for limited liability companies in Austria.

3.3.4 Venture Capital

Venture capital may be considered not only a means to finance new businesses, but also a proxy for the amount of new, risky and possibly technology-oriented ventures, i.e. innovative activities. In a working paper – with results to be interpreted with caution – Romain and Van Pottelsberghe (2004a) find that a 1% increase of the venture capital stock leads to an increase of TFP by 0.009%; they find a social rate of return to venture capital of 3.33 (i.e. an additional EUR 1 of venture capital stock leads to EUR 3.33 of output growth, which is higher than the social rate of return to public R&D (2.69) and business R&D (1.99) as estimated by the same authors. Kortum and Lerner (2000) obtain a more robust result with regard to patenting. Higher venture capital activity in an industry is associated with a significant rise in patenting rates.

The Austrian venture capital stock rose by 50%⁶ from 2000 to 2003, albeit from low levels in 1998 (i.e. VC intensity is low in Austria); yearly venture capital investments have been falling since 2002. In absolute terms, the stock of venture capital is still very low, far below EU levels (which, in turn, are low compared with U.S. levels). The average amount of venture capital invested per year between 2000 and 2003 was only 0.057% of GDP in Austria, compared with

⁶ Computed by the method suggested by Romain and Van Pottelsberghe (2004a), i. e. perpetual inventory method with a rate of depreciation of 30%.

0.13% in the EU and 0.375% in the U.S.A. The current growth rates do not look promising either. There is some discussion on whether it is the lack of interesting ventures to finance or the framework conditions which hamper venture capital intensity.⁷ Overall, the rising liquidity of the Austrian exit markets (e.g. the Austrian stock exchange) should provide more exit options for venture capital, thus increasing venture capital intensity. The rising R&D stock and technological opportunities proxied by the number of patents should make venture capital investments rise as well (Romain and Van Pottelsberghe, 2004b). Thus, assuming that Austria does not fundamentally differ from other European countries in its ability to reap business opportunities – and innovation and patent data indicate no such anomaly –, there should be a positive outlook for venture capital intensity converging to the European average, provided that the framework conditions are right.

3.3.5 Economic Geography

Geographical determinants of productivity such as location and the degree of agglomeration could play a particular role for Austria. In conurbations, corporate productivity is boosted above all by local technological spillovers (Glaeser et al., 1992). Yet even without such spillovers, market mechanisms in small and large agglomerations (e.g. the “blue banana,” the central axis of the EU, which stretches from London to Milan) may create a dynamic virtuous circle between agglomeration and endogenous growth (Martin and Ottaviano, 2001). Higher productivity levels have been confirmed empirically

for cities and larger agglomerations (for the U.S.A., see Ciccone and Hall, 1996). In Europe, the influence of the national productivity regimes naturally prevails, but Geppert et al. (2003) find production levels to be significantly higher around larger agglomerations in Europe as well. It is not clear whether rates of growth of TFP would be affected permanently or whether there are level effects on labor productivity only. However, Acs and Varga (2005) find that after controlling for the stock of knowledge and research and development expenditures, both entrepreneurial activity and agglomeration have a positive and statistically significant effect on technological change in the European Union.

The opening up of Eastern Europe has propelled Austria from the rim to the center of the European economy. Given the dynamics of the axis Prague-Vienna-Bratislava-Budapest, the blue banana may henceforth stretch further east. With the increasing catching-up and opening-up of Southeastern Europe, yet another economic area will gain momentum and thus create a positive climate for productivity growth in Austria. This presupposes adequate transport and communications infrastructures, which are only partly in place.

4 Labor Market Aspects of Potential Growth

4.1 Labor Market Reform as a Priority of Economic Policy

The labor market is often seen as key to future growth prospects. In the discussion about economic policy reform there are two areas in which labor market aspects are prominent: First, there is the goal of increasing labor force par-

⁷ For an overview of different venture capital intensities explaining innovation differences between the U.S.A. and Europe, see Dosi et al. (2005).

ticipation, most prominently featuring in the EU's Lisbon strategy, which envisages quantitative employment targets the EU aims to reach by 2010: An overall employment rate of 70% (70 out of 100 in the working-age population, i.e. the population aged 15 to 64 years, should be employed), a female employment rate of 60% and an older workers' (aged 55 to 64 years) employment rate of 50%.⁸

What justification may be given for increasing employment rates? Economies with high GDP growth rates (such as the United States and some – especially northern – European countries) tend to have more people in employment. On the other hand, low employment rates in other countries do not reflect voluntary decisions to abstain from participating in the labor market: Many continental – in particular southern – European countries face high unemployment rates. Additionally, although the participation rates of men and women are converging, the lower female labor supply observed in most countries is another “untapped” labor force potential. For example, mothers of young children very often drop out of the labor force after unsuccessfully trying to re-enter the labor market. Austria already exceeds the quantitative goal of 60% but female employment is stagnating at this level and there are a number of examples of female employment rates of close to 70% or more (Denmark, Finland, Sweden and the United Kingdom).

Raising employment rates is also seen as necessary in the face of aging societies characterized by a declining labor force and an increasing average age of those working, which puts pres-

sure on social security systems. In Austria, the primary concern is to keep older workers longer in employment, because Austria has an extremely low older worker's labor force participation rate of less than 29% (contrary to its overall employment rate, which is clearly above the EU average and at almost 68% already close to the overall employment target of 70%). Like in other European countries, the low labor force participation of older workers is the result of policies aimed at fostering early retirement by creating opportunities and incentives for workers to leave the labor force before reaching the statutory retirement age. Many consider the employment prospects of women and older workers as the primary area of economic policy: For example, in a recent report by the OECD (2005a) it is recommended that Austria make further efforts in reforming its pension system as well as reducing inactivity traps for women with children.

There is a second reason why labor markets are considered important for restoring higher economic growth in Europe. High and persistent unemployment led many academics and policy institutions like the OECD to argue that far-reaching reforms of labor market institutions (e. g. reforms of tax and benefit systems, employment protection and wage setting procedures) are important elements in the solution of the unemployment problem. But while there is general agreement on this issue, the details – i.e. which labor market institutions are harmful and what actions should be taken – are subject to an intensive debate.

⁸ For information on the current state of these indicators, their evolution over time and the cross-country variation, see the “Employment in Europe” report of the European Commission (2005b).

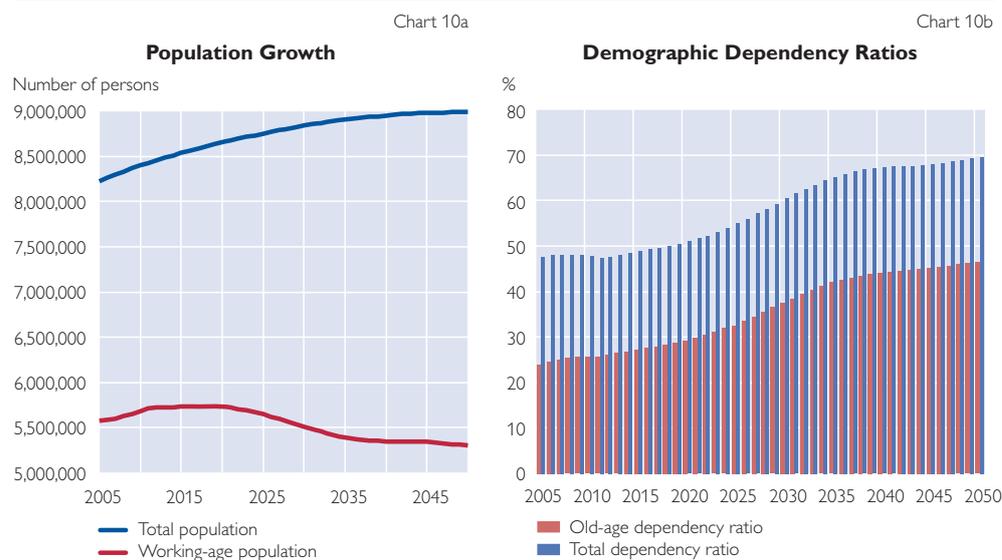
4.2 Increasing Labor Inputs and the Retirement Age

4.2.1 Demographic Transition

Due to increased life expectancies and the decrease of fertility rates after the baby boom of the 1950s and 1960s, the OECD countries will see a substantial ageing of their populations over the coming decades. This process will evolve slowly in the short to medium run but will accelerate in the 2020s, when the first baby-boom cohorts will retire. Whereas the number of the working-age population is going to

increase for approximately another ten years, it will start to decrease slightly afterwards and decline even more strongly in the 2020s (see panel (a) in chart 10).⁹ Because the total population continues to rise, demographic support ratios are going to increase (panel (b)). For example, the old-age dependency ratio (i.e. the ratio of the population aged 65 years or older to the working-age population) is expected to go up from 26% at present to 46% in 2050.

Population Projection for Austria (Autumn 2005)



Source: Statistics Austria.

The demographic developments affect future potential labor inputs. A shrinking population may lead to a decline of a country's total GDP.¹⁰ Perhaps the most important concern is the sustainability of pension systems, most notably pay-as-you-go systems, in which pension income is directly

financed by the social security contributions paid by those in employment. Thus, policies that boost labor-force participation attract considerable interest. Increasing labor force participation may offset demographic developments for a considerable time.

⁹ All statements on the expected population developments in Austria are based on the autumn 2005 population projection by Statistics Austria (Hanika, 2005).

¹⁰ However, a shrinking population does not necessarily lead to decreasing incomes per capita, which is the relevant measure for economic welfare. See also *The Economist*, January 7, 2006.

4.2.2 Growth Accounting Exercises and Their Limitations

Projection exercises of the magnitude of future labor forces in OECD countries are based on given population projections and typically consist of both the extrapolation of past trends of participation patterns (in particular the higher participation probabilities of younger female cohorts) and an attempt to quantify the future impact of policy measures on participation (most notably pension reforms, which were undertaken in virtually all OECD countries). Two recent working papers of the OECD (Burniaux et al., 2004) and the European Commission (Carone, 2005) are typical examples of studies using a rather high degree of disaggregation of the labor force components and country-by-country evaluations of pension reforms. They combine trends and assumptions of future participation rates, which include cohort effects and estimated effects of past pension reforms.

Aging undoubtedly constitutes a problem for social security systems and public budgets. Trends and scenarios of the evolution of the working-age population help to anticipate times of tighter labor markets and financial pressure on pension systems. Some obvious remedies for these problems are reversing the trend towards early retirement and creating demographic stabilizers in pension systems. In

Austria, significant steps have been taken in these directions.

However, some of the purported consequences of aging are untenable or exaggerated. There are a number of macroeconomic projections according to which aging leads to slower GDP growth. However, growth equations in which the growth of labor input is decreased and all the other determinants (capital, efficiency of input use) are held constant necessarily lead to this result. A typical example is a projection exercise by Musso and Westermann (2005), who – in different scenarios of slower working-age population and labor force participation growth – calculate decreasing GDP growth rates in the euro area.

The budgetary projections compiled by the Economic Policy Committee for the European Commission (Economic Policy Committee and European Commission, 2006) build upon similar growth accounting exercises (Carone, 2005). Table 2 lists some of the input variables for the growth equations, such as male and female labor force participation rates and employment growth for the Austrian economy. Although participation increases, employment growth eventually becomes negative (due to the projected shrinkage of the working-age population).¹¹ This leads to an expected real GDP growth rate of merely 1.1% in the mid-2020s.

Table 2

EPC Projections of Economic Growth: Results for Austria

	2005	2010	2015	2020	2025
Male participation rate (15 to 64 years, %)	80.4	82.2	82.9	83.3	82.6
Female participation rate (15 to 64 years, %)	66.2	70.1	71.9	72.9	72.8
Total participation (15 to 64 years, %)	73.3	76.1	77.4	78.1	77.7
Labor force (1,000s)	4,049	4,233	4,331	4,349	4,234
Employment growth (%)	1.1	0.9	0.2	-0.1	-0.7
Real GDP growth (%)	1.9	2.6	2.0	1.7	1.1

Source: Economic Policy Committee and European Commission (2006).

Such methods may be useful to isolate partial effects and draw attention to their potential magnitudes but ignore basic economic principles. Very likely, shortages of production factors will trigger substitution effects. If labor becomes scarce wages tend to rise, which will cause substitution towards less labor-intensive forms of production. Higher wages may also induce demand for less (or shorter) education and lead to longer working hours or longer working lives.

To get more realistic impressions of the economic impact of aging societies, models which allow for substitution and feedback effects are preferable. For example, in Börsch-Supan (2001) labor force growth scenarios are only a starting point. He then uses a calibrated overlapping-generations model of the German economy to study the effects of aging and the gradual introduction of a multi-pillar pension system to quantify increases in capital/labor ratios, wages and labor productivity. Hofer and Url (2005) use a similar model for the Austrian economy to study potential effects resulting from aging within the working-age population. They find that even under strong assumptions (i.e. drastically declining individual age-productivity profiles of workers) the adverse macroeconomic impact is very small. Although these models allow for a range of feedback and substitution effects, they are not without limitations. For example, in both papers labor supply is given exogenously.

4.3 Labor Market Policies, Structural Labor Market Reforms and Growth

Demographic transitions and policies increasing employment rates are frequently investigated within growth

accounting frameworks, mostly by adjusting the quantity of the labor input in the production function. By contrast, many labor market policies are, however, analyzed with completely different models and methods. Most approaches to study the effects of labor market policies and changes in labor market institutions focus on effects on the unemployment rate.

Nickell and Layard (1999) do not give a precise definition of what they mean by “labor market institutions:” *Inter alia*, they consider labor taxes, employment protection, trade unions and wage bargaining systems including minimum wage legislation, unemployment benefit systems and barriers to regional mobility. A widespread classification distinguishes between active and passive measures. Active measures are related to the functions of public employment services, for example assistance in job search and various training measures, but also employment subsidies. Passive measures are primarily unemployment benefit systems. Although this distinction is widespread, it is clear that the effects cannot always be neatly separated. For example, the effect of unemployment benefits on unemployment duration crucially depends on job search assistance and sanctions in case of non-compliance (see, for example, OECD 2005b).

In 1994, the OECD launched a comprehensive reform initiative, the “jobs strategy.”¹² Taken as a whole, this paper indicates that there is a positive association between the overall “reform intensity” and the changes in natural unemployment rates. (The OECD plans to publish an evaluation report of the jobs strategy in 2006.) The OECD recommendations recently have evoked a number of critical publi-

¹² See the OECD working paper by Brandt et al. (2005) for a summary of labor market reforms since then.

cations. The literature on the economic effects of labor market institutions is also inconclusive, and empirical results are often fragile (Cahuc and Zylberberg, 2004; OECD, 2004; Freeman, 2005). In a recent survey of the European unemployment problem, Blanchard (2005) holds the view that labor market institutions are only part of the story of low growth in Europe.

Statements on GDP growth effects of labor market institutions and their changes are rare. For example, Nickell and Layard (1999) discuss possible effects of labor market institutions on unemployment within an equilibrium unemployment model, but decide to discuss long-run growth effects separately (and informally). Even more common in labor economics are micro studies in which, for example, the effects of policy measures on employment probabilities, individual job careers or unemployment durations are investigated empirically (see Burgess and Garrett, 2005, for a recent survey). In this literature, there is no link to macroeconomic effects at all.

For these reasons, we do not discuss the growth effects of a number of policy measures and reforms related to the labor market. These include the reduction of the income tax in 2005 (which, however, was partly offset by higher social security contributions), the tightening of suitability criteria for unemployed workers receiving unemployment benefits in 2004 and the reform of the severance pay scheme in 2002. Finally, a range of active labor market policy measures has been introduced (especially in 2005) to tackle the increase of unemployment since 2001.

4.4 Recent Reforms Relevant for Labor Supply

In the recent years, the Austrian government has undertaken several policy reforms related to the labor market, most importantly a series of pension reforms.

4.4.1 Reforms of the Public Pension System

The Austrian government launched a series of legislative initiatives to implement far-reaching reforms of the public pension system in 2001, 2003 and 2004. From the viewpoint of labor market participation, the following aspects are probably the most relevant: (1) the gradual increase of the eligibility age for early retirement due to long insurance record; (2) the complete abolition of two other early retirement schemes (early retirement due to reduced work capacity and early retirement due to long-term unemployment); (3) a decrease in replacement rates by basing pensions on the total earnings history (and not only on those 15 years with the highest earnings); (4) the introduction of the freedom to choose the retirement age (between 62 and 68 years), with corresponding benefit deductions or delayed retirement credit.¹³

The reforms thus will clearly improve the fiscal sustainability of the pension system and result in higher labor supply. In the short to medium run, the effects on labor force participation and employment rates are less clear. Most importantly, most of the reforms are introduced gradually. For example, those born before 1955 will be exempt from most of the changes in the system. Moreover, although some early retirement routes were

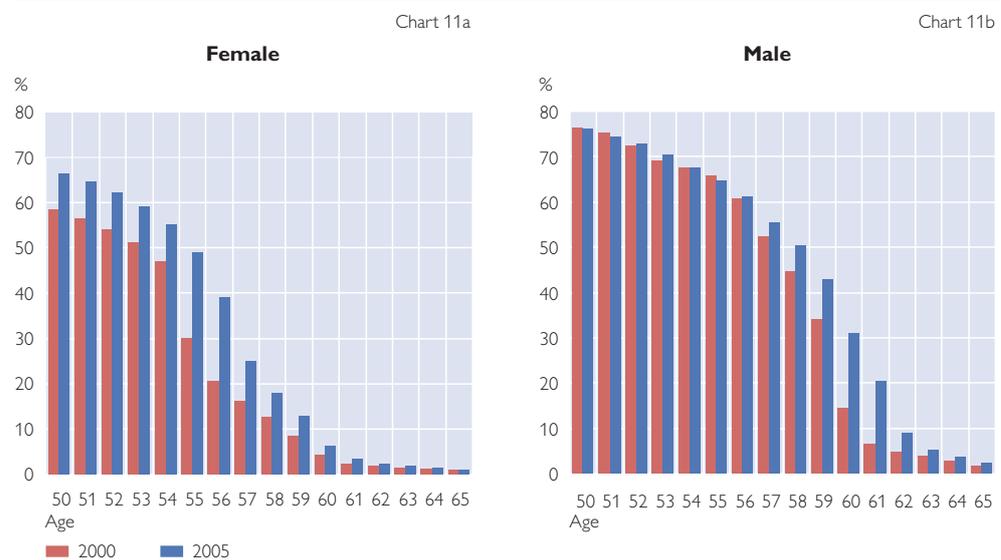
¹³ Currently, women's statutory retirement age (60 years) is lower than men's (65 years). Between 2024 and 2033 it will gradually be increased towards 65 years.

closed, there appears to be a high degree of substitutability of these routes. For example, the number of disability pension beneficiaries has increased, and participation in quasi-early retirement schemes (such as the phased retirement scheme; see OECD, 2005c) is widespread.

Therefore, the full labor market and growth potential effects of the pension reforms will unfold only slowly.

But as chart 11 – which compares male and female participation rates (from administrative data) in 2000 und 2005 – indicates, participation rates have already gone up, most likely due to increases in the early retirement age. (The general increase of female labor force participation, which is clearly visible in the left panel of the chart, is a cohort effect.)

Labor Force Participation Rates in 2000 and 2005



Source: Federal Ministry of Economics and Labour.

4.4.2 Reform of the Child Benefit System

The recent years saw the launch of a number of other labor market reforms (or reforms relevant from a labor market perspective). In 2002, a new child benefit system was introduced. Most importantly, the duration of entitlement was increased, and eligibility to

the benefits was extended to all parents of young children.¹⁴ Based on family policy considerations, this reform probably has negative consequences for female labor supply¹⁵ although there is also a countervailing effect because the amount of earnings allowed without loss of benefits has been liberalized (OECD, 2005c).

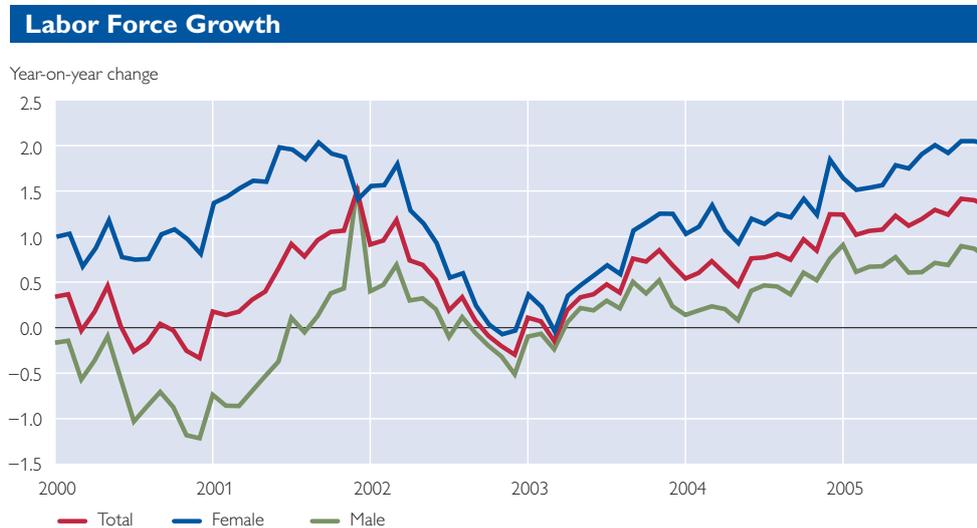
¹⁴ In the old system, only employees were entitled to child care benefits. Most recipients in the scheme are women.
¹⁵ See Lalive and Zweimüller (2005) for a careful empirical study on the fertility and labor supply effects of two changes in the duration of parental leave that happened in Austria in the 1990s.

4.5 Recent Labor Force Developments

How did the Austrian labor force develop in recent years? According to the harmonized employment and participation rates published by the European Commission (2005b), employment and labor force participation as a fraction of the total working-age population was stagnant between 1999 and 2004. Older workers' participation rates even decreased marginally, which

contradicts the administrative data shown in chart 11. However, one has to take into account that in the underlying labor force surveys yielding these data, a new methodology was applied, which resulted in a time series break in these data in 2004. This implies that survey data are not a good source for an analysis of recent trends in labor market participation.

Chart 12



Source: Social security registers ("active employment"), registered unemployment.

Alternatively, chart 12 plots relative year-on-year changes of total labor force participation as well as labor force growth by gender according to administrative data (social security data on registered "active" employed and registered unemployed). The chart shows that total participation increased in 2001, declined in 2002 and has been steadily rising since then. By the end of 2005, annual labor force growth stood at approximately 1.4%. Interestingly, the labor participation rates of men and women evolved differently: Wom-

en's labor supply growth rates were on average higher due to the cohort effect mentioned above, with younger women showing a higher propensity of participation than older ones. Especially in 2000, male participation was on the decline, probably because of the extensive use of early retirement options before they were tightened or closed. In the period between 2003 and 2005 both male and female labor supply were increasing, with female labor force growth being considerably stronger.¹⁶

¹⁶ These figures refer only to dependent employment and standard employment contracts. Total labor force growth has been probably even stronger because of the rising number of self-employed, but also due to the increase of non-standard employment contracts, such as marginal employment.

5 Summary

The literature offers a variety of methods for estimating potential growth. However, it seems that the different methods do not yield results that vary greatly. Moreover, it has to be kept in mind that real time estimates of potential growth are likely to be subject to substantial uncertainty, which warrants caution in their interpretation. According to currently available estimates, the growth rate of Austrian potential output is roughly 2%. We observe that potential growth has slowed down slightly over the past two decades.

Turning to the prospects for total factor productivity growth, there have been significant improvements in areas where there is broad consensus on their positive association with TFP growth (and a lot of empirical research has been done on this positive relationship), such as *R&D* and *trade openness*, over the last 10 years. High growth rates in these areas have now also led to levels above the EU average. Another very positive development for Austria has been the opening up of Eastern Europe and EU enlargement, even though there is less consensus on these developments' precise impact on TFP growth. The impact of *dynamic agglomeration gains* also depends on the transport infrastructure. In product markets, there have been improvements as regards *competition and entry*, but the exact impact is often difficult to judge because of imperfect data. Overall, product market regulation in Austria does not differ substantially from the EU average because of the Single Market regime. Differences in sub-sectors, such as the liberal professions, remain, however.

Two areas on which there is less empirical evidence but which are

rather widely held to be important for TFP growth – *higher education and venture capital* – show levels below the EU average. In both cases, stocks or levels rather than growth rates might be particularly important as to their ultimate impact on TFP growth. The two areas differ in their growth rates, rather surprisingly. Higher education as well as the number of researchers have experienced high growth rates, although the systemic conditions would actually discourage such a trend: in Austria, the entry rates into tertiary education are low. As regards venture capital, by contrast, many factors would suggest a pick-up, but up to now no significant improvement or catch-up to the European average has been observed.

By and large, most indicators – at least their growth rates – point towards good prospects for TFP growth. The efficiency and effectiveness of R&D, innovation and human capital systems show room for improvement, but nothing points towards an entirely wasteful or ineffective use of resources. The question remains as to when improvements in the underlying variables will show in TFP growth? Empirical firm level surveys indicate that it takes between four and eight years from R&D to innovation. More time will pass until innovation shows in measured aggregate TFP.

Demographic projections point to a decrease in working-age population growth, which may lead to declining growth rates of actual and potential output. This is often the outcome of growth equations in which labor force projections are used as inputs in a production function. We are skeptical about such approaches because they probably overestimate the negative effect on total GDP growth. The slow-

down of labor force growth can be mitigated by increasing labor force participation, especially of women and older workers. Austria has undertaken significant steps to increase older workers' labor market participation by a series of pension reforms. These effects will unfold only slowly. However, small positive effects on older worker's participation are already visible in administrative data. After a

decline in 2002 labor force growth has been rising steadily since 2003. Moreover, female labor supply has been increasing considerably stronger than male labor supply.

It is needless to say that this paper has left out many potentially interesting aspects of growth. A further discussion of issues related to economic growth will follow in a subsequent paper.

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Oil Price Shock, Energy Prices and Inflation – A Comparison of Austria and the EU

The marked increase in the price of crude oil has also affected the prices of motor fuels, heating oil and other forms of energy. The extent and speed of these price reactions have varied widely in EU countries, and the accompanying inflationary effects have differed accordingly. For monetary and economic policy, it is important to know the channels through which oil price fluctuations are transmitted in order to assess their effects on inflation, economic growth and employment.

This study presents a current overview of oil and primary energy markets worldwide and estimates the elasticities and the speed of adjustment parameters of motor fuel and heating oil prices in response to oil price fluctuations in the EU-25. In addition, we test whether prices react asymmetrically to increases and decreases in crude oil prices and examine their transmission to other forms of energy, such as natural gas, electricity, solid fuels and district heating. We highlight the effect of volume-based excise taxes, which have a strong differentiating as well as dampening effect on prices, and address the issue of whether fiscal policy should cushion the impact of price increases, for example by lowering energy taxes or by providing energy subsidies. Then we quantify the direct inflationary effects of an oil price shock in Austria in a simple simulation using the OeNB's inflation forecasting model. Finally, we derive conclusions for monetary and economic policy.

JEL classification: E31, E52, E62, Q43

Keywords: energy prices, energy markets, inflation, monetary policy.

1 Oil Price Development Reflects Worldwide Supply and Demand Situation

In the last few years, crude oil markets have mainly been characterized by a surge in the price of crude oil from approximately USD 10 per barrel of Brent in late 1998 to levels which sometimes exceeded USD 60 per barrel of Brent in the latter half of 2005. In real terms, the price of oil in Austria recently reached the highs seen in the first oil price shock of early 1974, but it is still considerably lower than the level after the second oil price shock in 1979 to 1980.

Price fluctuations on the crude oil markets are attributable to the interaction of supply and demand factors.

Geopolitical crises can also have a significant impact on crude oil prices, at least temporarily. The most recent increase in oil prices, which at times exceeded USD 60 per barrel of Brent, can mainly be interpreted as a demand shock. Robust growth in the world economy and a highly dynamic increase in global demand for oil – mainly in a number of emerging market economies (especially China) – have diminished available capacities among crude oil producers. Moreover, exchange rate developments such as the relative weakness of the U.S. dollar in recent years may also play a role, as petroleum producers – who did not want to see their rising revenues from oil exports reduced by the weak dollar – sought higher oil prices in U.S. dollars.³

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² The authors would like to thank Manfred Fluch (OeNB) and Michael Sattler (Austrian Energy Agency) for their valuable suggestions, as well as Friedrich Fritzer (OeNB) for providing the simulation results for Austria from the OeNB's short-term inflation forecasting model presented in section 5.

³ As many oil-producing countries have an exchange rate regime which pegs their currency firmly to the U.S. dollar, for example in the Middle East (Saudi Arabia, etc.), or at least a regime which is heavily oriented toward the U.S. dollar (e.g. Russia), a weak dollar mainly diminishes the positive terms-of-trade shock arising from higher oil prices, that is, the relationship between export prices (oil in U.S. dollars) and import prices (some of which are not denominated in U.S. dollars) becomes less favorable.

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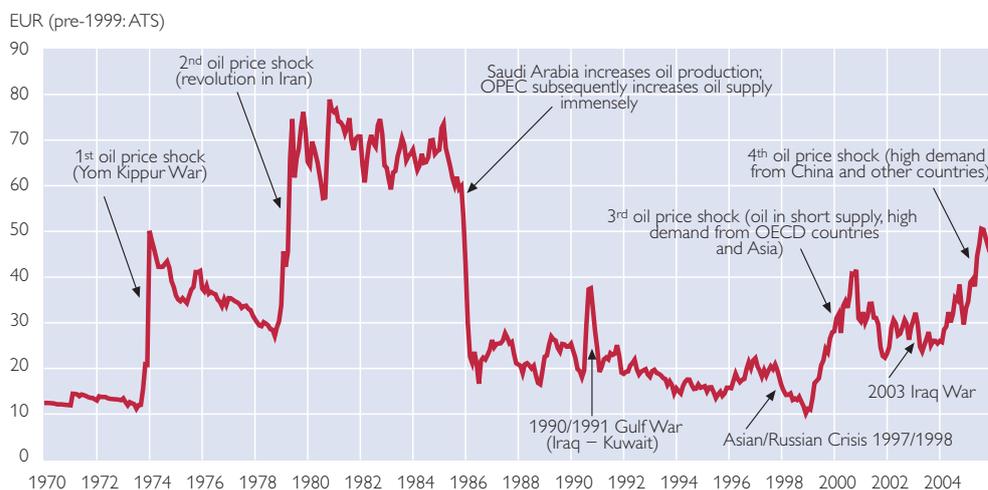
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Chart 1

Real Price of Crude Oil in Austria

Real values calculated using the Austrian consumer price index (base value: December 2005)



Source: WIFO, Thomson Financial, OeNB.

The future of oil markets will be marked by growing regional imbalances: While the International Energy Agency (IEA, 2005) forecasts that demand for oil in OECD countries will continue to rise slowly until the year 2030, the supply of oil from that region will shrink steadily. Whereas European OECD countries were able to cover some 41% of their oil demand themselves in 2004 (mainly with oil from the North Sea), this coverage level will plummet to approximately 15% by the year 2030. In many emerging market economies (especially in Asia), the gap between oil supply and demand will also widen owing to markedly rising demand coupled with largely stagnant or shrinking production. There-

fore, global dependence on major oil producers in the Organization of the Petroleum Exporting Countries (OPEC)⁴ and the Commonwealth of Independent States (CIS)⁵ will increase. Africa and Latin America (in particular Venezuela and Brazil) will also step up oil production. In the long term, non-conventional oil (e.g. tar sands in Canada) will gain greater importance. These growing regional imbalances will substantially intensify oil (and natural gas) trade among the regions of the world. The world's increasing dependence on crude oil from regions which are sometimes prone to crisis could point to persistently volatile oil prices.

⁴ Algeria, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates, Venezuela.

⁵ Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan.

Table 1

Global Oil Supply and Demand						
	2004		2030		2004 to 2030 ¹	
	Demand	Supply	Demand	Supply	Demand	Supply
	Millions of barrels (Brent) per day				%	
OECD	47.6	20.2	55.1	13.5	0.6	-1.5
OECD North America	24.9	13.6	30.6	10.8	0.8	-0.9
OECD Europe	14.5	6.0	15.7	2.3	0.3	-3.7
OECD Pacific	8.3	0.6	8.8	0.4	0.3	-1.4
Transition Economies (including Russia)	4.4	11.4	6.2	16.4	1.3	1.4
Developing Countries	27.0	15.2	50.9	16.3	2.5	0.3
China	6.2	3.5	13.1	2.4	2.9	-1.5
India	2.6	0.8	5.2	0.6	2.8	-1.2
Rest of Asia	5.4	1.9	9.9	1.3	2.3	-1.7
Latin America	4.7	3.8	7.5	6.1	1.9	1.8
Africa	2.6	3.3	5.7	4.7	3.0	1.4
OPEC	x	32.3	x	57.2	x	2.2
Non-conventional oil	x	2.2	x	10.2	x	6.1
World	82.1	82.1	115.4	115.4	1.3	1.3

Source: International Energy Agency.

¹ Average annual growth.

Refineries play a key role in pricing petroleum products such as gasoline and diesel fuel. Demand for higher-quality petroleum products (which has increased markedly in recent years) as well as persistently low levels of investment in refineries in the past (owing to relatively small profit margins at that time) have brought about diminished surplus capacities, low flexibility in production, as well as rising margins and prices for petroleum products. This can lead to substantial price hikes, especially in the case of unexpected refinery downtime (e.g. due to hurricanes in the U.S.A. or geopolitical events).

The worldwide capacity utilization of around 85% in the refining sector (2004) will probably remain at this high level until increased investments in refineries will help to mitigate the problem of refinery bottlenecks toward the end of this decade (IEA, 2005). This expansion of surplus capacity is only expected in the medium to long term for various reasons, such as higher environmental

standards for refineries, rising demand for higher-quality petroleum products and the tendency of crude oil supplies (especially from the Middle East) to be heavier and have a higher sulphur content. This makes investments technically more complex and cost-intensive, as well as delaying them. Business-related uncertainties regarding the future profit margins of refineries are also making investors wary.

However, the future development of refinery investments will not only have an impact on profit margins for petroleum products, it will also affect the price of crude oil itself. On the one hand, the increasing demand for higher-quality petroleum products is accompanied by rising demand for light, higher-quality crude oils (such as Brent or West Texas Intermediate) which are easier to refine, and on the other hand it places increasing demands on refining technology, as more sophisticated refineries can produce high-quality petroleum products from all types of crude oil more efficiently. When the capacity available at

modern, sophisticated refineries is low, this results in disproportionately high increases in demand and rising crude oil prices, especially for high-quality crude oils.

The IEA (2005) estimates that investments of nearly USD 500 billion will be necessary in the refining sector between 2004 and 2030; almost half of this amount would have to be invested by 2010 in order to upgrade existing refinery facilities and expand capacity to meet increasing demand. The largest investments are expected in emerging market economies (especially China), in the Middle East and in North America.

According to the IEA, the following trends in primary energy demands (oil, natural gas, hydropower, etc.) can be identified for the period leading up to 2030:

- Worldwide primary energy needs are predicted to continue rising by approximately 1.6% per year, with the demand for renewable energy forms⁶ (especially considering their very low current basis) and for natural gas increasing most sharply. Oil will remain the main source of energy, and coal will only lose its place to natural gas as the second most important energy source by the end of the forecast period. The demand for hydropower is predicted to grow some-

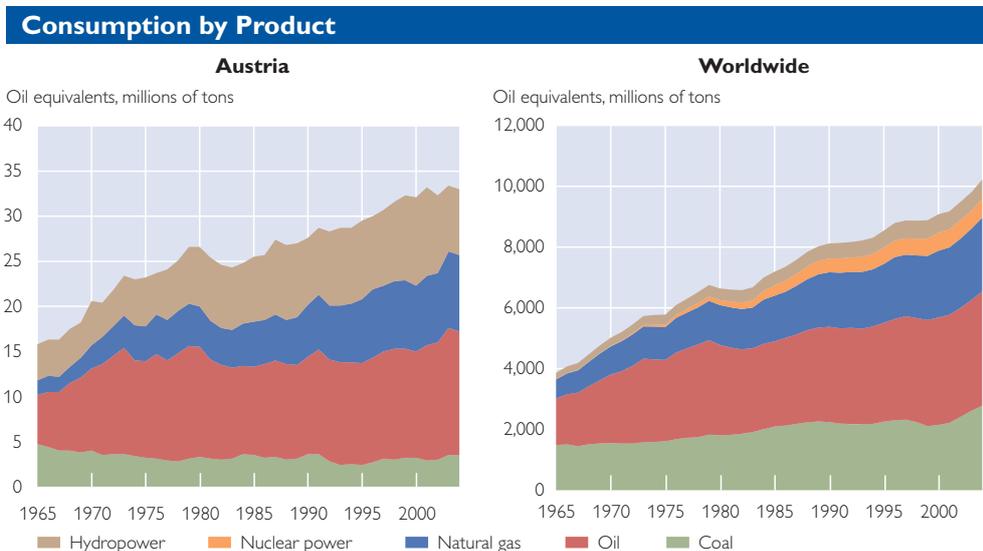
what faster than global primary energy needs, while demand for energy from biomass and waste incineration will be somewhat weaker.

- The currently known and proven oil reserves exceed the oil demand forecast by the IEA until the year 2030. This surplus is even larger for known natural gas reserves. Nevertheless, significant investments will be necessary in the overall energy sector (IEA estimate: USD 17 trillion by 2030) in order to cover expanding energy requirements. While investments in OECD countries will mainly target the electricity and natural gas sectors, the largest investments in the oil sector can be expected in Asia (especially China), the Middle East, CIS countries as well as Latin America and Africa.

Regional differences in the composition of primary energy needs can be quite pronounced. For example, Austria shows a large share of hydropower, which is linked to the country's topography and abundant water resources. In contrast, the share of coal used in Austria remains stagnant at a low level. Oil and natural gas dominate primary energy needs worldwide – and in Austria – and are still gaining in importance.

⁶ Including geothermal, solar and wind energy.

Chart 2



Source: BP Statistical Review of World Energy, June 2005.

The development of consumer prices for energy is significantly impacted by the factors mentioned above and in particular by national factors such as economic structures, tax systems and legal frameworks.

Energy intensity, which is an important factor in oil dependence, has exhibited a downward trend in OECD countries since the first oil

price shock.⁷ Within the OECD, there are relatively large (albeit decreasing) differences in energy intensity which can mainly be attributed to differing climatic conditions, (production) structures and incentive systems (e.g. taxes). Austria's energy intensity is relatively low, but – against the overall trend in the EU – it has increased since the 1990s.

Table 2

Energy Intensity of the Economy

Gross domestic consumption of energy as a share of GDP (at constant prices, 1995 = 100)

kg of oil equivalents per EUR 1,000

	AT	DE	IT	CZ	SK	HU	SI	EU-25	EU-12	US	JP
1993	146.44	183.36	193.92	1,134.12	1,289.74	758.84	391.39	239.89	203.62	381.52	117.11
2003	150.53	159.50	192.61	889.59	937.33	581.99	338.14	209.49	188.18	313.83	118.61
% change	+2.8	-13.0	-0.7	-21.6	-27.3	-23.3	-13.6	-12.7	-7.6	-17.7	+1.3

Source: Eurostat.

⁷ In recent years, energy productivity has not made a great deal of progress in certain countries; Austria's energy intensity has even increased. To date, this development has only been researched to a limited extent.

2 Considerable Differences in the Reactions of Motor Fuel and Heating Oil Prices to Crude Oil Prices Across EU Countries

2.1 Prices of Petroleum Products Show Only Partial and Delayed Reactions to Crude Oil Price Fluctuations

The development of crude oil prices is only transmitted in part and with a time lag to the prices of petroleum products such as gasoline, diesel or heating oil. The extent and speed of transmission varies from product to product and from country to country over time.

In general, the selling price of petroleum products consists of input costs (material input, labor and other production costs) and a profit markup. Input costs explain a majority of product-specific price differences. In the case of gasoline, the share of costs which can be attributed to crude oil (relative to other production costs) is lower than in the case of diesel or heating oil. Therefore, gasoline prices should be less sensitive to developments in crude oil prices. Bottlenecks in refinery capacities can accelerate the speed at which price fluctuations are transmitted. In view of internal production and sophisticated stock management, the daily spot prices of crude oil do not represent the actual operating costs of motor fuel or heating oil production. However, the raw materials costs are passed on quickly, as they serve as an indicator of future costs.

The intensity of competition in the energy sector as well as location factors (such as transport costs or commissions for filling station operators) determine the profit markup and can be responsible for product-specific as well as regional price differences. The higher the competitive pressure, the lower the extent to which oil price increases can be passed on to consumer prices, which reduces markups. A large share of non-oil components in the retail price of a petroleum product means that an increase in the final product's price in response to a rise in the crude oil price is lower than that of the raw material. Similarly, volume-based excise taxes (which are not proportional to the price) also dampen fluctuations in the retail prices of petroleum products.

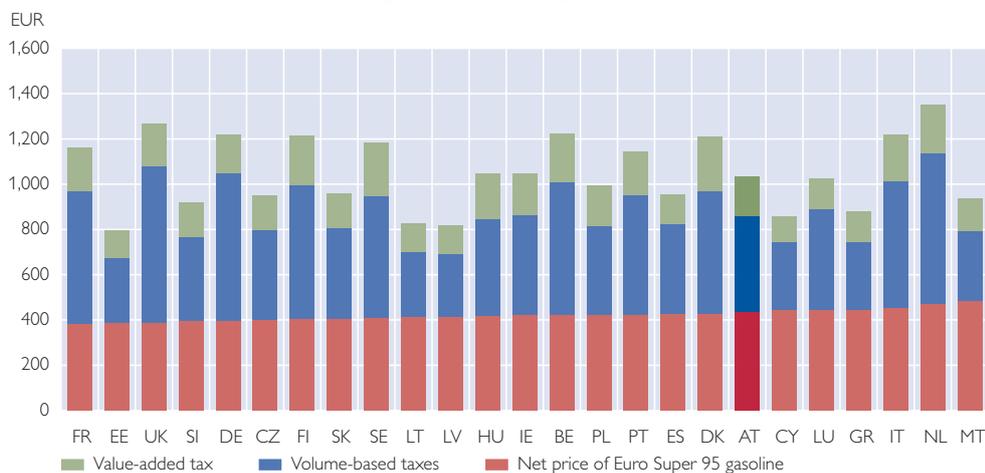
2.2 National Taxation Creates Differences in Retail Prices of Petroleum Products within the EU

This section presents an investigation of how strongly and quickly the prices of petroleum products in EU countries react to developments in crude oil prices on the basis of price data for gasoline, diesel and heating oil. This study is based on European Commission data collected from EU-15 countries on a weekly basis since the mid-1990s using a largely comparable method; for the new EU Member States, these figures are available from mid-2004 onward. Data are available on energy prices both including and excluding taxes.

Chart 3

Components of Gasoline Prices in the EU-25

Prices of 1,000 liters Euro Super 95 gasoline on average in 2005



Source: European Commission Oil Bulletin.

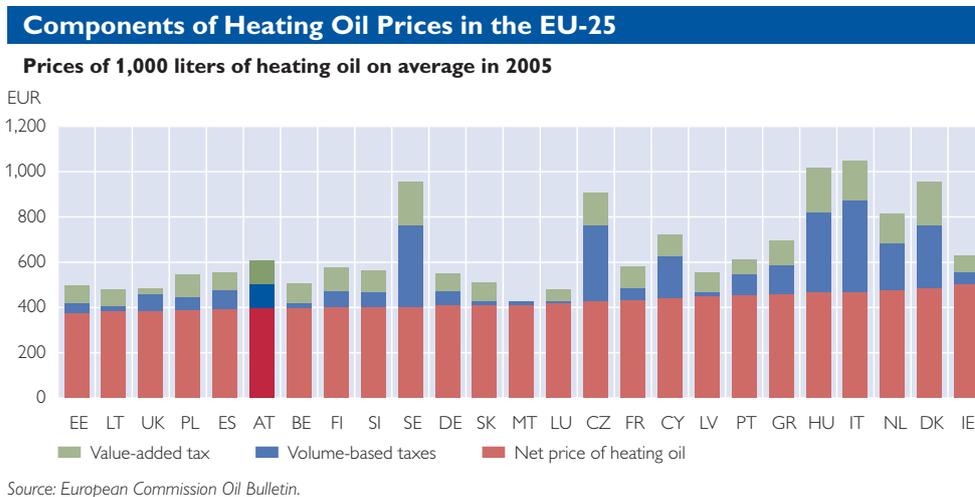
The net prices of Euro Super 95 gasoline are fairly homogeneous across EU countries (see chart 3). However, the deviations in gross prices are considerable. In France, Finland, Germany and the United Kingdom, energy taxes accounted for more than 67% of gross gasoline prices on average in 2005, whereas in Malta and Cyprus this share was only 48%. In general, the tax burden is especially low in the new EU Member States as well as in Greece and Spain. With taxes accounting for 58% of the price, Austria is slightly below EU-25 average.⁸ In all countries, volume-based taxes account for the largest share of energy taxes.⁹ The net gasoline price in Austria is rather high compared with the EU-25, but as a result of the country's relatively low motor fuel taxation, the gross prices are average compared with the other EU countries and thus slightly higher than in Austria's neighboring countries

in Central Europe. A study by the oil brokers and consultants PVM (2005) identifies the following main reasons for the fact that the net gasoline price in Austria is in the top third of the EU-25 range: a relatively high concentration on the filling station market, legal restrictions such as the Trade Code (*Gewerbeordnung*, regulations on small business and trade) and comparatively strict environmental requirements (which both make filling stations more expensive to operate) as well as Austria's rather unfavorable location in terms of logistics (hardly any pipelines, low significance of transport by ship). Puwein and Wüger (1999) see location factors as partly responsible, but mainly regard competition – which focuses less on prices than on advertising, service quality, product design and new products – as the decisive pricing factor in Austria.

⁸ EU-25: 59% (unweighted average of national tax shares in gross gasoline prices).

⁹ On the basis of the available data, the conjecture that higher taxation goes hand in hand with lower net prices (and vice versa) cannot be confirmed empirically in a country comparison for motor fuels or heating oil.

Chart 4



In the case of diesel, the situation is similar to that of gasoline: The tax share in the overall price is generally lower, but volume-based taxes account for the bulk of the price in this case as well. Net prices for diesel in Austria are again in the top third of the EU-25. The situation is different for heating oil: The EU-25 countries apply a wide range of reduced value-added tax (VAT) rates and lower duties to heating oil (see chart 4). For example, the VAT rate in Malta is 0%, and volume-based taxes are minimal in Luxembourg. In other countries, such as Italy, Hungary or the Czech Republic, the taxation of heating oil is quite similar to that of diesel. In Greece, the volume-based tax is approximately 50% higher in the summer months than in the winter. The net price of heating oil in Austria is very low, while the price including taxes is close to the EU average.

2.3 Heating Oil Prices React More Strongly to Oil Price Fluctuations than Diesel and Gasoline Prices

Our estimation of the long-term elasticities of motor fuel or heating oil prices to developments in crude oil prices is based on net prices. In the model used, the percentage changes in motor fuel and heating oil prices depend on their past rates of change, current and past rates of growth in the crude oil price as well as deviations from the long-run equilibrium.¹⁰

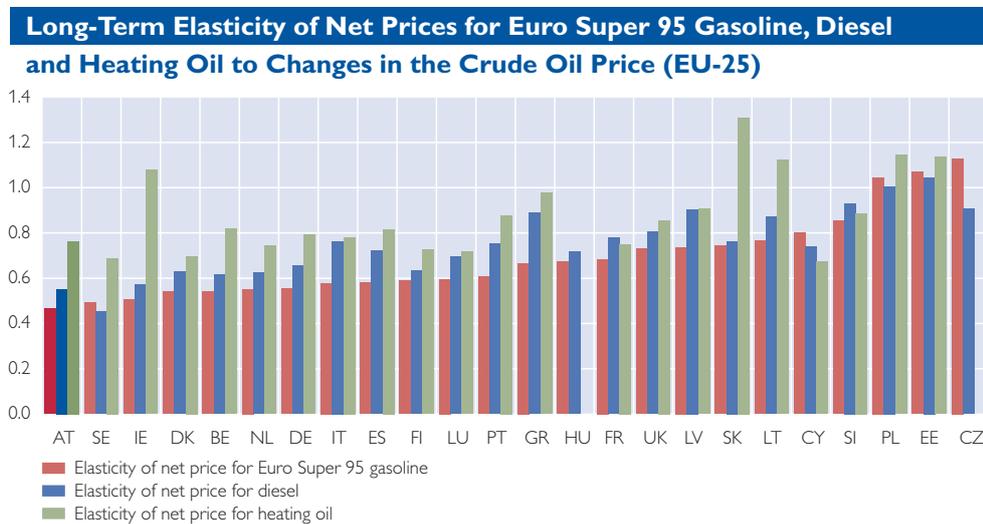
On the one hand, the estimation results reveal the long-term elasticity of motor fuel and heating oil prices in response to developments in crude oil prices. A value of 0.9, for example, means that an increase in the crude oil price by 1% will bring about a long-term rise of 0.9% in a country's motor fuel or heating oil price. In other

¹⁰ The model used is an autoregressive distributed lag model with an error-correction mechanism: $\Delta p_{it} = \lambda_{i0} + \delta_i(p_{it-1} - \theta_i o_{t-1}) + \sum_{k=1}^p \beta_{ik} \Delta p_{it-k} + \sum_{k=0}^q \varphi_{ik} \Delta o_{t-k} + \varepsilon_{it}$ where p_{it} denotes the log of motor fuel or heating oil price, o_t is the log of crude oil price, and ε_{it} is an uncorrelated error term. The subindex i stands for the various crude oil products (gasoline, diesel and heating oil). The long-term elasticity of fuel and heating oil prices in response to developments in crude oil prices is θ , and $-\delta$ represents the speed of adjustment to the long-run equilibrium ($p_{it-1} - \theta_i o_{t-1}$). θ is estimated using a Bewley transformation (Bewley, 1979).

words, 90% of the crude oil price increase is passed on to the final consumer. On the other hand, the results also indicate how quickly the motor fuel or heating oil price approaches the long-run equilibrium after a deviation. For instance, a value of -0.1 implies that the deviation from the long-run equilibrium is reduced by 10% per period (in this case per week).

The model is estimated separately for each EU country and each of the petroleum products in our sample. In almost all countries, the long-term elasticity of heating oil prices is highest, followed by the prices of diesel and Euro Super 95 gasoline (see chart 5).¹¹ Therefore, the elasticity is lowest for high-quality petroleum products, as crude oil accounts for a smaller share of their cost structure.¹²

Chart 5



The elasticities tend to be especially high in the new EU Member States and in Portugal, Greece and – in the case of heating oil – Ireland. Different elasticities of energy prices to developments in crude oil prices may well be linked to location factors and varying regulatory regimes or the intensity of competition. However,

the elasticity estimates for the new EU Member States should be interpreted with caution, as data on these countries have only been available since May 2004, and even in that period the weekly collection frequency was not always completely observed. This particular period has also been characterized by drastic increases in energy

¹¹ Malta is not shown in the chart because price data have only been collected for that country three times since mid-2004.

¹² As is evident in chart 5, some countries show estimated elasticities above unity for certain petroleum products. This means that more than 100% of a change in crude oil prices is transmitted to the net prices of petroleum products. One explanation for such a scenario is presented in a Working Paper by National Resources Canada (2005). Its authors maintain that refineries cannot produce one barrel of gasoline directly from one barrel of crude oil because the production process generates numerous lower-quality byproducts (e.g. heavy fuel oil) which have to be sold at discounted prices. The refineries attempt to recover the losses incurred here by charging higher prices for gasoline, diesel and heating oil. In our sample, however, a *t*-test shows that the estimated elasticities do not deviate significantly from 1 in any of these cases.

prices, which could also lead to biased results. If price reactions are asymmetric (i.e. different for increases in crude oil prices than for decreases), then a sample which is not representative over the long term can produce distorted results. These asymmetries in price adjustment are discussed in greater detail below. Last but not least, the new EU Member States have also exhibited dynamic economic growth. In stages of rapid growth, increases in input prices can be passed on to the final consumer more easily and rapidly. The catching-up process can, however, hardly be responsible for the high elasticity because – as shown in charts 3 and 4 – the net prices of motor fuels and heating oil are not systematically lower in the new Member States than in other EU countries.

2.4 Country Differences in the Speed of Price Adjustments Point to Low Market Integration

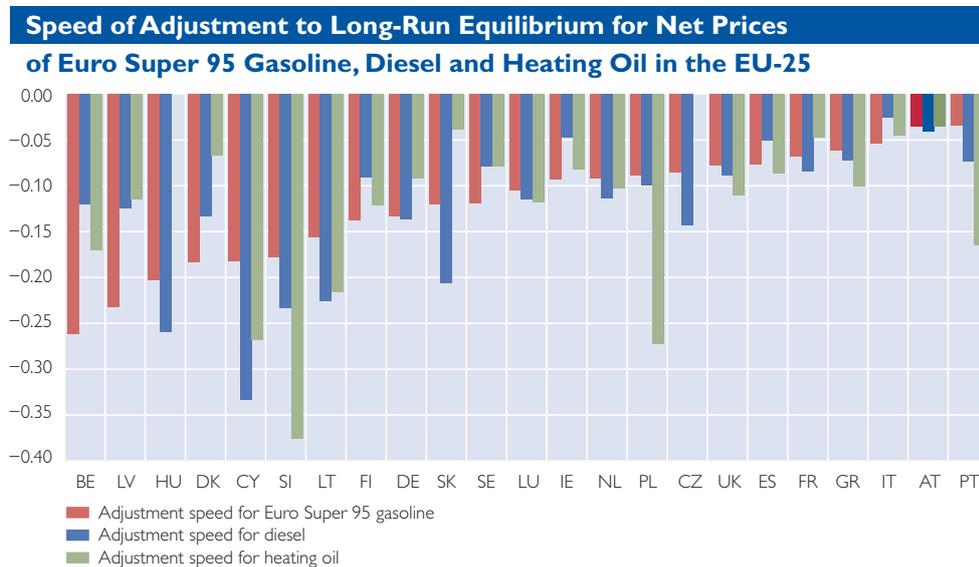
The new EU Member States also stand out in terms of their high adjustment speed to the long-run equilibrium (see chart 6); however, the above-mentioned qualifications regarding the short period of data availability still apply. The estimated speed of adjustment parameters exhibit very large differences among EU countries. In connection with the substantial price

differences discussed above, we can regard this as another indication of these markets' low level of integration in the EU.

Austria's elasticity and adjustment speed are among the lowest by international comparison. At 0.46 for super gasoline and 0.55 for diesel, however, these elasticity estimates for Austria are markedly higher than those found by Puwein and Wüger (1999), who estimate the elasticities at around 0.3. The low elasticity and speed of adjustment in Austria, which are presumably linked to the temporary contraction/expansion of margins on the Austrian filling station market, may also be affected by the relatively high level of concentration on this market. According to PVM (2005), the four major chains of filling stations in Austria controlled almost 60% of the market in 2004, indicating that the concentration on this market "borders on a tight oligopoly".¹³ At the same time, the menu costs can probably be disregarded as a justification for slow price adjustments: Price changes at filling stations have even been observed multiple times in a single day. As stock levels in Austria are relatively low compared with those of its neighboring countries (PVM, 2005), these stocks probably cannot serve as a buffer for price adjustments either.

¹³ Puwein and Wüger (1999) mention a "dominant oligopoly".

Chart 6



Source: European Commission Oil Bulletin, OeNB.

2.5 Asymmetric Price Reactions to Increases and Decreases in Oil Prices as an Indicator of Pricing Latitude

One possible explanation for differences among various countries in both estimated elasticities and speed of adjustment parameters is the intensity of competition on petroleum product markets. The link between crude oil prices and those of petroleum products can be asymmetric. If competition on energy markets is intense, then retailers will lower motor fuel and heating oil prices quickly when crude oil prices fall. Likewise, under intense competi-

tion, an increase in crude oil prices will be absorbed in the short term by squeezing the (already tight) profit margins and delaying a hike in final retail prices. In this scenario, the downward adjustment speed is faster than its upward counterpart. If competition is weak, however, retailers can temporarily expand their profit margins when oil prices drop, while preventing margins from contracting temporarily when oil prices rise. In such cases, the speed of adjustment for an increase in crude oil prices is higher than for a decrease.

Asymmetric Pricing Behavior on Motor Fuel Markets¹⁴

Why do motor fuel prices react more quickly or to a greater extent when crude oil prices rise than when they decline? In principle, prices should react symmetrically on competitive markets without distortions. However, menu costs and the definition of accounting valuation rules (e.g. LIFO or FIFO procedures) can delay price adjustments even in the case of perfect competition.

Most theoretical arguments for asymmetric pricing behavior are based on the market power of individual retailers. In this context, companies try to preserve their profit margins when prices increase and to retain the additional profits (at least temporarily) when prices decrease. On the one hand, this may be possible because comparing prices is time-consuming and cost-intensive for the consumer, so that competitive conditions are not restored until the end of the comparison stage.

On the other hand, such a situation can arise when a group of companies tacitly agree to maintain stable profit margins. When prices rise, the companies will then quickly pass on the increases in input prices, as delaying their reaction might signal a breach of the tacit agreement. When input prices decline, however, these companies will pass on the savings to the consumer as late as possible to avoid signalling that they are violating the agreement by narrowing their margins.

Another explanatory approach assumes that the refineries wish to keep production stable whenever possible. However, if the crude oil supply suddenly contracts, the refineries have to curtail production, thus causing gasoline prices to rise rapidly. In the reverse case, production would only be stepped up slowly and prices would only decline with a delay.

Galeotti et al. (2001) provide an overview of empirical investigations on asymmetries in pricing behavior. Most studies address the motor fuel markets in the U.S.A. and the United Kingdom, while a few works also deal with other European countries and Canada. They differ greatly in terms of methodology, statistical approaches, the time periods they cover and the type of asymmetries they address (adjustment speed, short-term and long-term elasticity). The studies also focus on different stages of the transmission process (i.e. from crude oil prices to refinery prices, from refinery prices to final consumer prices or the entire chain). The results of these studies are also highly varied.

Bacon (1991) and Manning (1991) find signs of asymmetric price reactions on the British motor fuel markets. Price increases are passed on more quickly and to a greater extent than price reductions. Similar findings are reached by Karrenbrock (1991), Duffy-Deno (1996) and Borenstein et al. (1997) for the U.S.A., by Lanza (1991) for Germany and by Galeotti et al. (2001) for five large EU countries. In contrast, Kirchgässner and Kübler (1992) find more rapid adjustments to falling input prices in Germany. The findings in Shin (1994) for the U.S.A. and in Berardi et al. (2000) for Italy provide no indications of asymmetries at all.

2.6 No Asymmetric Price Reactions to Rising/Falling Oil Prices in Austria

The hypothesis of asymmetric pricing behavior can be tested using our weekly data set on motor fuel and heating oil prices. Once again, we focus on net prices here, as companies only have

direct control over this price component. We repeated the previously described regression analysis for EU-15 countries,¹⁵ now drawing a distinction between the situations of rising and falling crude oil prices.¹⁶

¹⁴ For a more detailed summary of theoretical arguments, see Balke et al. (1998) or Galeotti et al. (2001).

¹⁵ The new EU Member States are not investigated here, as the available data only go back to May 2004 and this period is almost exclusively characterized by rising crude oil prices.

¹⁶ Specifically, the hypothesis of an asymmetric adjustment speed is tested on the basis of the following specification: $\Delta p_{it}^P = \lambda_{i0} + \delta_{i1}(p_{it-1} - \theta_i o_{t-1})I(\Delta o_{t-1} \leq 0) + \delta_{i2}(p_{it-1} - \theta_i o_{t-1})I(\Delta o_{t-1} > 0) + \sum_{k=1}^P \beta_{ik} \Delta p_{it-k} + \sum_{k=0}^Q \varphi_{ik} \Delta o_{t-k} + \varepsilon_{it}$ where the parameters for decreases in the crude oil price are associated with subindex 1 and those for increases are associated with subindex 2. If $\delta_{i1} = \delta_{i2}$ cannot be rejected using an F-test, the model is considered symmetric.

In Belgium, Germany and Sweden, gasoline prices respond to crude oil prices significantly faster when oil prices rise than when they fall. The same pattern can be identified for diesel prices in Ireland. On these markets, competition may not be sufficiently developed in order to ensure symmetric pricing behavior. The differences in adjustment speed are statistically significant at the ten percent level, but they are extremely low (0.2% to 0.3%) and thus bear little economic relevance. In Finland, by contrast, decreases in crude oil prices are passed on to motor fuel consumers more quickly than increases. The difference is also very small in this case (approximately 0.2%). In Austria, there is no significant difference between the speed of adjustment to the long-run equilibrium in the case of rising and falling crude oil prices.¹⁷

3 Oil Price as Varied Impact on Other Energy Prices

Oil prices can also affect the prices of other forms of energy. This is possible through multiple channels.

Electricity, for example, is produced in part by means of oil or natural gas combustion, with vast differences among countries with regard to the share of electricity produced in this way. The price of oil thus affects the

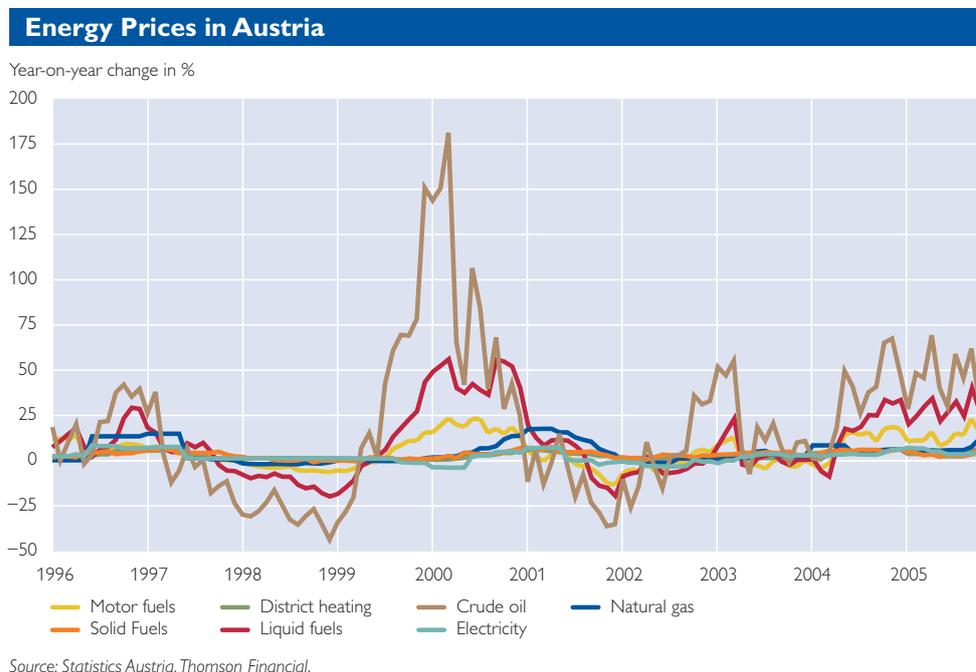
electricity price via production costs. Another channel is transport costs, which depend on oil prices and therefore affect the prices of solid fuels such as coal and wood.

A third transmission channel arises in the possibility of substituting different energy sources. When oil becomes more expensive, other forms of energy become more attractive, which can increase demand for these forms of energy. Thus, crude oil prices can affect the prices of other energy sources, depending on how fierce competition is in these energy markets and how elastic the supply of these energy forms is in the short term. Natural gas was originally exploited in combination with oil and therefore has traditionally had a close connection with oil prices; in fact, many long-term supply contracts stipulate (partial) indexation of natural gas prices to oil prices, meaning that natural gas prices follow fluctuations in oil prices with a certain time lag.

However, it is also conceivable that a high oil price will help spur the advance of alternative energy sources by enabling them to reach lower, more competitive prices through technological innovation and mass production. In this special case, a negative price link between the oil price and that of alternative energy would also be thinkable in the medium to long term.

¹⁷ Using a different definition of asymmetry, PVM Vienna (2005) concludes that there are certain asymmetries in pricing behavior on the Austrian motor fuel markets. According to the PVM study, price decreases are passed on more quickly than increases in the case of diesel, which would indicate a high degree of competition among petroleum companies. No asymmetries were found for gasoline. Owing to the fundamentally different definition used in that study, however, its results are not directly comparable with the findings of this study.

Chart 7



As shown in the rates of change in the subindices of the Harmonized Index of Consumer Prices (HICP) for various forms of energy compared with the development of crude oil prices (chart 7), the prices of liquid fuels and motor fuels are closely linked to the price of oil. As presumed, the price of natural gas tracks the crude oil price with a muted effect and a clear time lag. The prices of district heating, electricity and solid fuels only react relatively weakly to oil prices.¹⁸

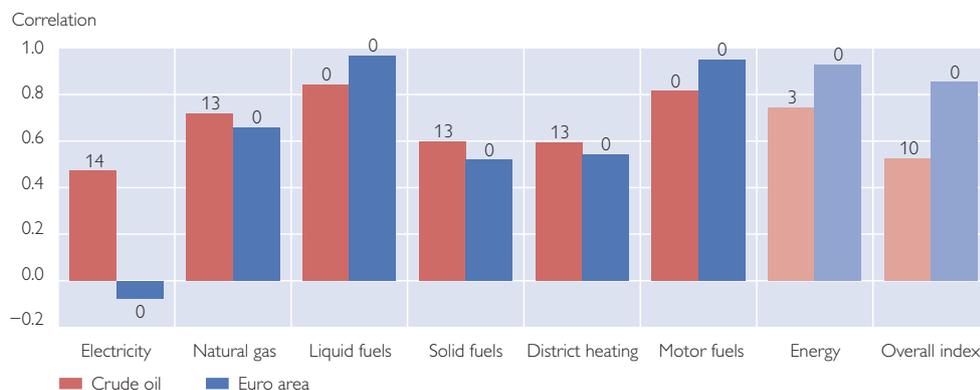
For each energy subindex, the overall energy index and the HICP, chart 8 shows the relationship between annual inflation rates and the annual

growth rate of crude oil prices, as well as the connection between annual inflation rates in Austria and annual inflation rates of the same index in the euro area. The prices of liquid fuels and motor fuels move very closely and largely simultaneously with the crude oil price (surveyed in the same monthly consumer price index). Natural gas and (to a lesser extent) solid fuels, district heating and electricity track the crude oil price with a delay of just over one year. The overall energy index shows a relatively high level of dependence on oil prices with a delay of one quarter.

¹⁸ In the EU, the lagged price fluctuations of natural gas are on average more pronounced. Similarly, the price index for district heating across the EU shows a largely similar development to that of natural gas, which points to different production sources and contractual price clauses to the ones in Austria.

Chart 8

**Correlation of Changes in Austria's HICP Subindices for Energy
to Changes in Crude Oil Prices and HICP Subindices for Energy
in the Euro Area**



Source: OeNB.

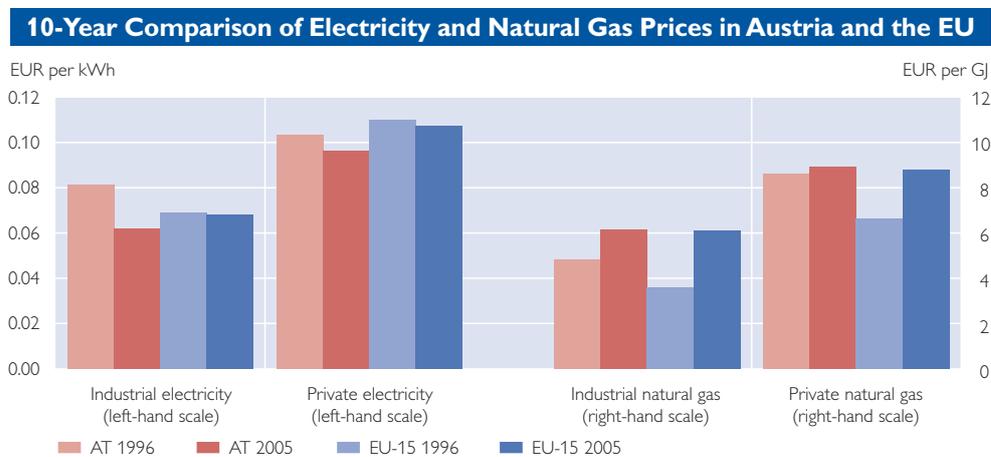
Note: The figures above the bars indicate the time lag in months for which the correlation coefficient is shown; in each case, the time lag with the highest correlation coefficient for the period January 1996 to November 2005 was selected.

The correlation between price developments in Austria and the average for euro area countries is very high (close to 1) for liquid fuels and motor fuels, followed by markedly weaker correlations for natural gas, district heating and solid fuels. While in the latter two cases this can be explained by transport costs and a possibly greater weight of biomass and wood products in Austria, the relatively moderate price link for the highly standardized product of natural gas reflects the continued existence of pricing latitude in this market segment and/or tax changes in individual countries over time. It is conspicuous that electricity prices in Austria show no connection

to the (highly heterogeneous) electricity prices in other euro area countries. This may reflect the different energy sources used to generate electricity (i.e. the large share of hydropower in Austria) as well as the continued existence of national market segmentations.

A 10-year comparison of electricity and natural gas prices in Austria and the EU yields interesting results. Whereas the price of crude oil more than doubled in the period from January 1, 1996, to January 1, 2005, from just over USD 20 per barrel of Brent to more than USD 50, natural gas prices only rose slightly and electricity prices even declined (see chart 9).

Chart 9



Source: Eurostat.

Note: All prices shown without taxes.

The decline in electricity prices in Austria was more distinct, while the increase in natural gas prices was lower compared with the EU-15. The liberalization of Austria's electricity market was especially favorable for industrial customers: While industrial electricity prices were far higher than the EU-15 average in 1996, they were markedly lower in 2005. Private electricity consumers in Austria have also benefited from prices falling below the EU-15 average. Natural gas prices for both industrial and private customers were well above the EU average in 1996. By 2005, however, Austria's natural gas providers had absorbed the effects of increases in international oil and natural gas prices to such an extent that natural gas prices in Austria and the EU were roughly at the same level. This favorable development in Austria may well be attributed to changes in the suppliers' pricing behavior owing to liberalization in network industries.

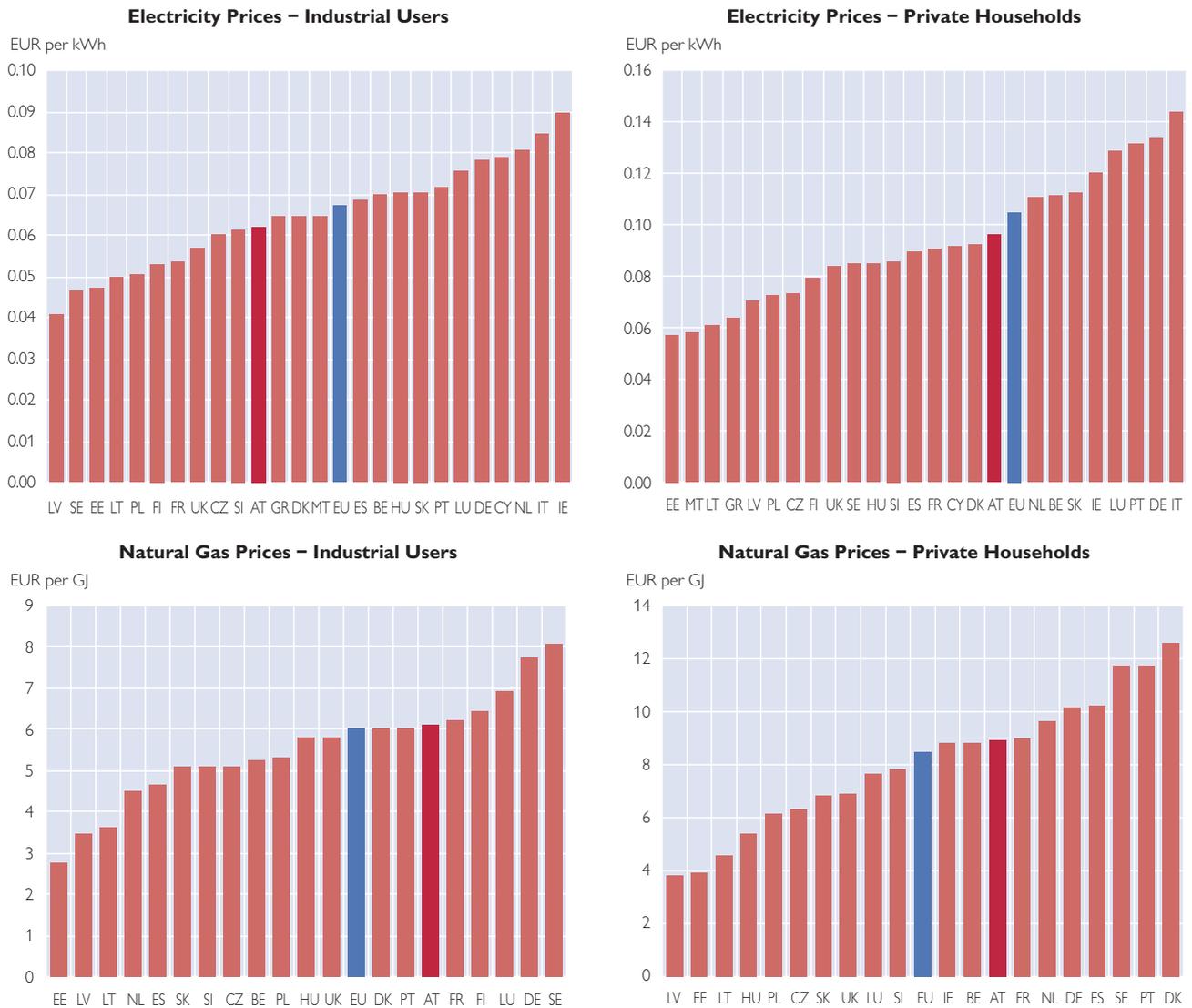
Austria fully liberalized its electricity and natural gas markets in 2001 and 2002, ahead of the schedule prescribed by the EU.¹⁹ As Kratena (2004) shows, the effects of liberalization offset the upward price pressure created by regulations, premiums and taxes on electricity and natural gas introduced in 1999.

Natural gas and electricity prices still show marked differences among EU countries (see chart 10). The highest price level is 2 to 2½ times the lowest price for electricity, and 3 times the lowest price for natural gas. Especially in several new EU Member States the price of natural gas for both industrial and private customers is as low as half the price in Austria, and electricity prices in some countries are more than one third lower than in Austria. In the countries with high prices, electricity is as much as 50% more expensive, and the price of natural gas is around one third higher than in Austria.

¹⁹ For more detailed information, see also Fluch and Rumler (2005) as well as Janger (2005).

Chart 10

Electricity and Natural Gas Prices (EU Comparison) as of January 1, 2005



Source: Eurostat, Key indicators on EU policy – structural indicators.
Note: All prices shown without taxes.

4 Energy Prices, Taxes and Government Policies

In many countries, energy is subject to high taxation. In addition to VAT, which is charged as a percentage of the price, most countries also levy volume-based taxes (such as the mineral oil tax in Austria). Energy taxes can pursue multiple goals: to generate tax revenues for the general budget, to

collect at least partly consumption-based charges for transport activities, to cover part of the negative externalities (such as noise, exhaust, dangers) created by transport, to provide incentives to conserve energy and to finance the development of innovative, environmentally friendly forms of energy as well as means of public transportation. Energy taxes are also credited

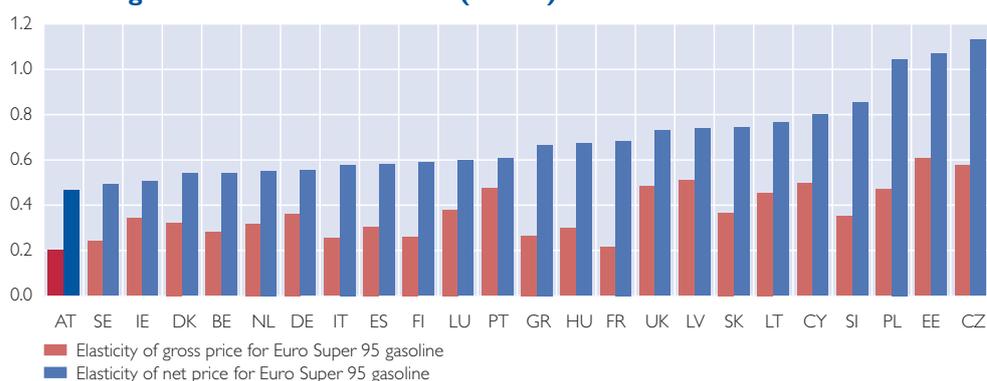
with the advantage of low administrative collection expenses, and – given certain government revenue requirements – their collection also makes it possible to reduce other, possibly more distorting taxes.²⁰

Moreover, volume-based taxes dampen the percentage reaction of the relevant energy prices in response to oil price increases, as the fixed tax component is not affected by changes in the price of crude oil. This price-dampening effect can be illustrated by a simple comparison of the elasticity of gross and net prices for Euro Super

95 gasoline. As shown in chart 3, volume-based taxes account for most of the taxation of super gasoline, but the differences among EU countries are considerable. As expected, chart 11 shows that the net price of super gasoline in all EU countries is far more elastic to the development of crude oil prices than the gross price. Within the EU-25, Austria's net and gross prices for Euro Super 95 exhibit the second-lowest elasticity to oil prices after Malta, which is a special case as a small island country.

Chart 11

Long-Term Elasticity of Gross and Net Prices for Euro Super 95 Gasoline to Changes in the Crude Oil Price (EU-25)



Source: European Commission Oil Bulletin, OeNB.

Given the current high in oil prices, there have been discussions as to whether governments should cushion the effects of high energy prices through special measures, not least because VAT revenues also rise with energy prices – at least in the short term and as long as the demand for energy is rather price-inelastic.²¹ Such discussions have addressed topics such as reducing energy taxation, providing

financial relief for the needy or for companies, as well as measures with longer-term effects to reduce oil dependence (e.g. increasing energy efficiency, faster and larger-scale exploration of alternative energy sources). In recent months, the governments of certain EU countries (in particular France and Belgium) have taken measures to cushion the increase in energy prices.²²

²⁰ For a detailed description of current transport taxes and their steering control effects, see Puwein (2005).

²¹ In the medium term, however, higher energy prices have a dampening effect on energy demand and economic growth, which in turn reduces revenues from various excise taxes as well as income tax and profit-based taxes. The net effect of an increase in energy prices on tax revenues is therefore uncertain.

²² Many developing countries with less developed market economies also intervene directly in motor fuel pricing by way of government price regulations or energy distribution monopolies.

Such measures may seem enticing in the short term, especially as they mitigate the acute effects of energy inflation (i.e. reduced purchasing power, increased costs and dampened growth and employment). However, they also have a number of drawbacks:

- First of all, these measures place a burden on the fiscal budget – be it through lost revenues or subsidies expenditures – if they are not offset by other fiscal measures; this can have negative effects on the sustainability of government budgets and on growth and inflation expectations. The political economy of fiscal budget decision-making processes suggests that measures to cushion increases in oil prices would generally increase the budget deficit.
- Second, it is unclear at the outset whether the rise in oil prices is temporary or permanent. At present, a great deal of evidence points to the latter. In such a case, it would be desirable for the economy to adapt to the changed price situation quickly in order to avoid resource misallocations. Measures to cushion prices delay the desirable transition to energy-saving technologies and prolong an excessive dependence on oil. In the long term, economic growth as well as the rate of inflation would then be more susceptible to future oil price shocks.

- Third, if many countries cushion oil price increases with government measures, this will reduce the price-induced dampening of global demand for oil, thus encouraging oil-exporting countries to increase prices even further.

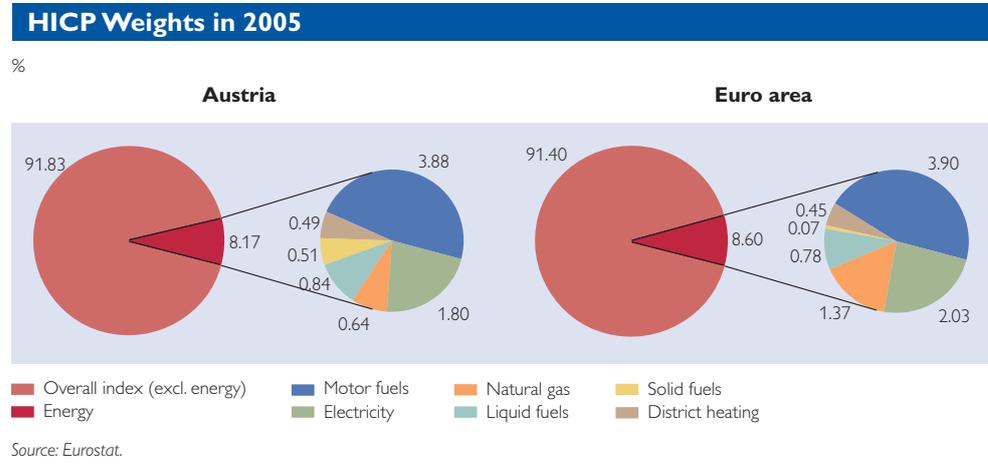
If oil prices are high over an extended period of time, economic actors will show adaptive responses (energy-saving measures, substitution with other energy sources) that can be actively supported by economic policy (as has often happened in the past), for example by introducing stricter thermal insulation regulations, subsidizing energy-saving measures, increasingly scaling motor vehicle taxation by fuel consumption, etc. In any case, such measures should be planned with careful consideration of their effects in the short and long term (reduction of oil dependence, ecological effects, budgetary effects, complex effects on growth and employment in the short to long term).

5 Oil Price Shock and HICP Inflation

A substantial part of the increased HICP inflation rate in Austria and the euro area in recent months can be attributed to energy prices. The HICP energy component (electricity, natural gas, liquid and solid fuels, heat energy as well as motor fuels and lubricants)²³ is assigned a weight of 8.17% in Austria's HICP and 8.60% in the HICP for the euro area (see chart 12).

²³ The HICP does not include jet fuel, which depends heavily on oil prices and affects e.g. airline ticket prices.

Chart 12



Owing to the surge in this component, energy prices also have a strong effect on the overall HICP aggregate. Core inflation rates without energy prices have shown greater continuity.

In those countries where energy has shown especially drastic price increases since early 2002, the overall rate of inflation has also been high. In Austria, the inflation rate for energy prices as well as the overall rate of inflation were just below the EU average (see chart 13).

A comparison with the U.S.A. (chart 14) shows that the energy price component of the inflation rate has

reacted to the increase in crude oil prices to a far greater extent than in the euro area and Austria. In principle, the development of the USD/EUR exchange rate could be of central importance here, but especially since 2004 the exchange rate has only played a minor role.

One of the main reasons for the stronger reaction of the energy price component is the markedly higher volatility of motor fuel prices in the U.S.A. compared with euro area countries; this can be put down to temporary regional events (e.g. natural disasters) and especially to the much lower level

Chart 13

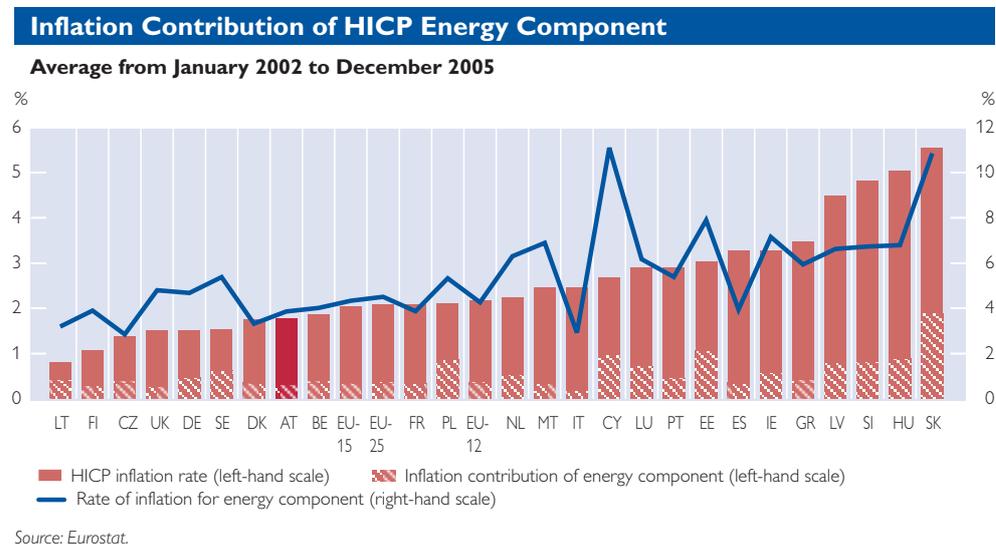
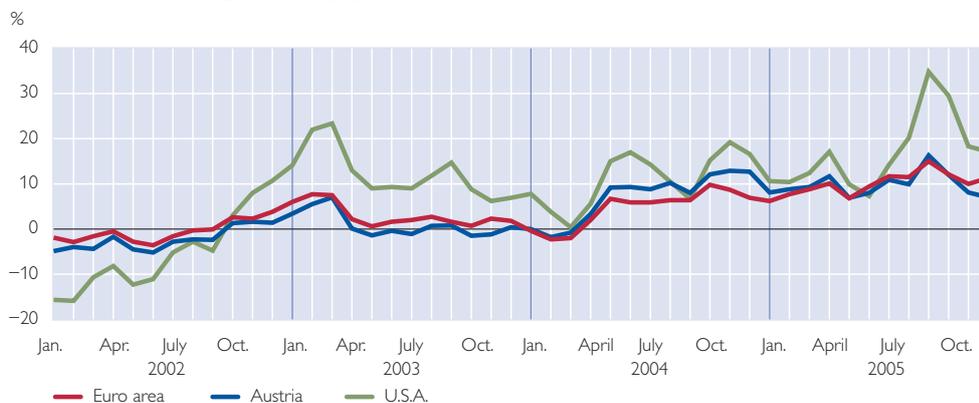


Chart 14

Energy Price Increases in the Euro Area, Austria and the U.S.A.

Annual rate of change of energy price component in HICP/CPI



Source: Eurostat, BLS.

of fixed, volume-based energy taxation in the U.S.A.²⁴ Moreover, natural gas and electricity markets in the U.S.A. are more competitive compared with those in euro area countries, and electrical power generation depends more heavily on combustion power plants (which account for 71% of overall electrical power generation in the U.S.A., compared with 52% in the euro area; IEA, 2005). Ultimately, this means that oil prices have a greater impact on consumer price inflation in the U.S.A. compared with the euro area, although the weights of motor fuel prices (approximately 4%) and the overall energy component (approximately 8%) are roughly the same in the U.S. Consumer Price Index as in euro area countries.

A simulation with the OeNB's short-term inflation forecasting model²⁵ shows that a 10% increase in the oil price in November 2005 would raise annual inflation for the energy

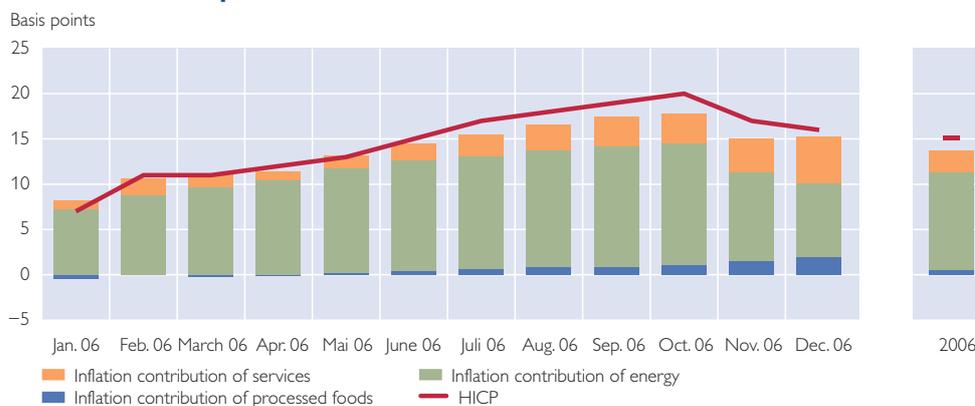
component by 1.33 percentage points in 2006 and the inflation rates for processed foods and services by 0.05 percentage point each. Moreover, the model shows that – owing to delayed pass-through effects – an increase in the oil price would also continue to have effects far into the future. In the energy component, the inflationary effect would materialize more or less immediately, reach a peak after slightly less than one year and then begin to subside. For unprocessed foods and (to a lesser extent) services, the increase in oil prices would only bring about clear inflationary effects after approximately one year, but these effects would continue to intensify in the ensuing months. The effect on the overall HICP would reach its peak after nearly one year, and over the entire year 2006 Austria's rate of HICP inflation would climb by 0.15 percentage point as a result of the simulated shock.

²⁴ The overall taxation of gasoline in the U.S.A. (including state taxes) is approximately 8 euro cents per liter, whereas taxes in euro area countries range from 40 to 65 euro cents per liter.

²⁵ The authors would like to thank Friedrich Fritzer for providing the simulation results.

Chart 15

**Effects of a 10% Increase in Oil Prices on the HICP
and Its Subcomponents in Austria**



Source: OeNB.

Note: In the simulation, oil prices in USD were raised by 10% starting in November 2005.

6 Summary and Conclusions

The latest oil price hike is mainly associated with robust world economic growth and surging demand for oil, especially in a number of emerging market economies (most notably China). In addition, further bottlenecks in crude oil production capacity may be expected to occur in the coming years. Therefore, *crude oil prices cannot be generally expected to decline markedly*. In addition, the future development of global supply and demand for oil will be characterized by increasing regional imbalances, which will intensify global oil trade – especially with OPEC, but also with CIS countries. Low refinery investments in the past have also diminished reserve capacities and sharply increased the susceptibility of world market prices for motor fuel and heating oil to natural disasters. In the next few years, very high investments will be necessary worldwide in order to cover the forecast continued growth in energy demands for oil and its derivative products as well as other forms of energy. With its large share of hydropower

generation, Austria is in a more favorable situation; however, *Austria's dependence on oil and natural gas has also increased substantially* and continuously over the last few decades.

What is important for the development of the economy and inflation is not so much the price of crude oil itself, but rather the development of prices for motor fuels and heating oil produced from crude oil. The *price level for motor fuels* in EU countries is dominated by high excise taxes (mainly fixed, volume-based taxes and VAT); the substantial price differences within the EU are mainly attributable to different levels of taxation. In most countries, the tax burden on *heating oil* is considerably lower than that on other petroleum products, but there are also considerable differences within the EU. Austria's net gasoline prices are quite high compared with the other EU countries, but owing to the country's relatively low motor fuel taxation, the gross prices are average compared with other EU countries and thus slightly higher than in Austria's neighboring countries in Central Europe. According to a study by PVM (2005),

the rather *high net gasoline price in Austria* could be related to the relatively high concentration on the filling station market,²⁶ to legal restrictions (e.g. the Trade Code) and relatively strict environmental requirements (which both make filling stations more expensive to operate) as well as to Austria's rather unfavorable location in terms of logistics (hardly any pipelines, low significance of transport by ship). Puwein and Wüger (1999) see these location factors as partly responsible but mainly regard competition – which focuses less on the price than on advertising, service quality, product design and new products – as the decisive pricing factor in Austria.

The extent and speed of the *transmission of crude oil price fluctuations to the prices of petroleum products* vary considerably from country to country and product to product. Various levels of competition intensity as well as location factors may also be responsible for this phenomenon. *Austria's elasticity and adjustment speed are among the lowest*, which may be attributable to the relatively high level of concentration on the filling station market. According to our estimates, there is *no significant difference between the speed of adjustment for rising and falling crude oil prices in Austria*.

Oil prices also impact the *prices of other energy sources*. The price of *natural gas* tracks that of crude oil with a muted effect and a pronounced time lag – which is the result of contractual clauses which index natural gas prices to the price of oil or oil products. In Austria, this pricing link is weaker than the EU average; the HICP for natural gas follows the price of crude oil with a delay of just over one year. The *prices*

of district heating, electricity and solid fuels in Austria react only rather weakly to the crude oil price; in the EU, district heating prices track that of natural gas more closely, which indicates different generation sources and price clauses than in Austria as well as existing market segmentations. The relatively weak pricing link between Austria and the rest of the euro area with regard to natural gas (a highly standardized product which can be transported efficiently) points to the continued existence of pricing latitude and/or to tax changes in individual countries over time. *Electricity prices* do not display any discernible links among euro area countries. This may reflect the different energy sources used to generate electricity (i.e. the large share of hydropower in Austria) as well as the continued existence of national market segmentations.

Despite the doubling of the crude oil price, the price of natural gas in Austria has only increased slightly – and less distinctly than the EU-15 average – over the past ten years; the observed *drop in electricity prices in Austria was more pronounced than the EU-15 average*. Electricity prices for industrial consumers are now significantly lower in Austria than the EU-15 average, and prices for private consumers have also fallen below the EU-15 average. *The previously higher price of natural gas in Austria is now in line with the EU-15 average*. This favorable development is probably attributable to the liberalization of Austrian network industries, which was carried out fairly early compared with the rest of the EU.

In recent months, there have been discussions about whether the high energy prices should be cushioned by

²⁶ According to PVM (2005), the four largest filling station chains in Austria dominated almost 60% of the market in 2004.

government measures such as reducing energy taxes or subsidizing energy expenses. As enticing as such measures may seem in the short term to ameliorate the problems of diminished purchasing power as well as reduced growth and employment resulting from increased oil prices, they also involve a number of drawbacks. Given the already precarious budget situation in many EU countries, they would endanger the sustainability of fiscal budgets. Moreover, as the increased oil prices are likely to endure, such measures would delay the inevitable transition to energy-saving technologies, prolong an excessive dependence on oil and increase susceptibility to future oil price shocks. At the global level, they would enhance the incentives for oil-exporting countries to raise prices even further. Governments should carefully consider the manifold short- and long-term effects when deciding whether to accelerate the long-term adaptive responses of economic actors toward energy-saving measures, substitution with other energy sources, etc., by means of legal regulations and/or subsidies.

The surges of the energy price component in the HICP have a strong short-term impact on the current inflation rate in the euro area, which reflects, among others, the close link between energy prices in the euro area countries. Still, as long as the inflation expectations of economic actors remain in line with price stability, the medium-term *monetary policy of the Eurosystem* need not immediately tighten in response to sudden, short-term transgressions of the definition of price stability resulting from energy price surges. By contrast, monetary policy action would be warranted in the case of an increase in inflation expectations and/or second-round

effects of an inflation shock, for example in the development of wage levels.

The large portion of fixed, volume-based taxes in European energy prices means that motor fuel and heating oil prices – and thus also the overall rate of inflation – in the euro area react far more sluggishly to oil price fluctuations than in the U.S.A. Therefore, the euro area should not deviate from its low inflation rates as quickly as the U.S. economy, where prices are more flexible. At the same time, Eurosystem analyses indicate that after a shock, *inflation in the euro area returns to its previous level more slowly than in the U.S.A. Therefore, it is especially important for the Eurosystem's monetary policy to anchor inflation expectations at a low level which is in line with the ECB's goal of price stability.*

The distinct differences identified among euro area countries with regard to the pricing links between crude oil and petroleum products as well as other energy products (along with other factors, such as differing economic structures in individual countries) mean that an oil price shock may have asymmetric effects within the euro area. This can also lead to a *temporary expansion of inflation differentials within the euro area*, which may make it more difficult to communicate monetary policy.

The variables which influence the energy component's contribution to inflation are subject to change over time. *The further decoupling of oil consumption from GDP growth, among other things, will determine how sensitively the inflation rate, growth and employment react to future oil price shocks.* Factors which can contribute to a decoupling include the increasing tertiarization of the economy, technological advances and energy-saving measures. A country's energy mix can also be diver-

sified by promoting alternative sources of energy. *Energy policy* thus influences strategic and structural policy relationships as well as the *macroeconomic functioning* of a country and currency area.

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The objective of the Stability and Growth Pact is to secure sound fiscal policies, which have remained a national responsibility in Economic and Monetary Union. Ever since it first took effect, the Stability and Growth Pact had been subject to a reform debate, ultimately leading to its redesign in 2005. The debate intensified in 2002, when several European countries suffered from growing budgetary problems, and culminated in November 2003, when the Ecofin Council decided not to act upon European Commission recommendations to move to the next steps of the excessive deficit procedure for France and Germany and instead adopted conclusions putting the procedures in abeyance subject to certain undertakings by the countries concerned. Consequently, the Commission brought an action before the European Court of Justice. The conflict surrounding the correct procedure in line with the provisions of the Treaty establishing the European Community (the Treaty) and the Stability and Growth Pact, i.e. the correct interpretation and implementation of the procedural and factual steps laid down therein, brought to light differences of opinion between the EU Member States and the European Commission as well as among the Member States themselves.

Against this background, the European Commission presented concrete proposals to reform the Stability and Growth Pact in the fall of 2004. At an extraordinary Ecofin meeting on March 20, 2005, the EU finance ministers reached a compromise on the reform of the Stability and Growth Pact. The reform includes measures applicable to both the preventive and the corrective arms of the Stability and Growth Pact. The top priority of the reform was to enhance Member States' national ownership of the fiscal framework and hence to safeguard the sustainability of public finances in the Economic and Monetary Union in the long run.

Experience to date does not allow for a final assessment, but from the vantage point of monetary policy, certain weaknesses remain that had already been pointed out during the reform debate.

JEL classification: E61, H3, H6

Keywords: fiscal policy, fiscal rules, stability and growth pact reform, european monetary union.

1 Introduction

At an extraordinary Ecofin meeting on March 20, 2005, the EU finance ministers reached a compromise on the reform of the Stability and Growth Pact (SGP). At its Spring Summit of March 22 and 23, 2005, the European Council endorsed these fundamental changes to the SGP.

The SGP is considered a crucial coordination element for sustaining and preserving sound national fiscal policies within Economic and Monetary Union (EMU). Next to a stability-oriented monetary policy, the maintenance of budget discipline in EMU member countries is considered to be an essential prerequisite for a well-functioning monetary union. Hence, the Maastricht Treaty (Treaty on European Union – TEU) contains provisions for the surveillance and coordination of EU Member States'

fiscal policies. First of all, it commits all Member States to avoid excessive public deficits (i.e. deficits exceeding 3% of GDP). In this respect, the Treaty establishing the European Community (the Treaty) contains provisions both to prevent excessive deficits from arising and to initiate a procedure to correct any excessive deficits which do arise. Second, the TEU commits Member States to strive for government debt ratios below 60% of GDP. The SGP, which originally consisted of two Council Regulations and a European Council Resolution adopted in 1997, sought to strengthen the fiscal framework of the Treaty by laying down more detailed rules and procedures for budgetary surveillance, and by speeding up and clarifying the implementation of the excessive deficit procedure (EDP).

Referred by
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of Finance.

¹ The authors would like to thank Alfred Katterl (Austrian Federal Ministry of Finance) for valuable suggestions and comments.

Policymakers, academic circles, the European Commission and the European System of Central Banks (ESCB) each had very different opinions about the original design of the SGP. Academic researchers, in particular, sharply criticized the objectives and the sanctions contained in the SGP. Hence, from the very outset, there were calls to reform the SGP, which became louder in 2002 (only three years after the full provisions had taken effect) when a number of European countries – notably Portugal, Germany and France – experienced growing budgetary problems. In the course of this debate, both the effectiveness and the very substance of the SGP’s design were questioned, and the competent EU bodies, the Economic and Financial Committee and the Ecofin Council, discussed first concrete reform measures.

The growing crisis of the European fiscal framework became starkly evident when the economy began to slow down in 2001. To reach the medium-term budget objectives prescribed by the SGP, countries whose consolidation efforts in the preceding high-growth years had been insufficient would have had to undertake increased fiscal retrenchment measures with a procyclical effect. Yet France and Germany, above all, were not willing to take measures that would have reinforced the impact of the economic downturn in the short run. The conflict culminated in November 2003, when the Ecofin Council decided not to act upon European Commission

recommendations to move to the next steps of the EDP for France and Germany. Instead of giving these two countries notice² pursuant to Article 104 (9) as a necessary prerequisite for implementing excessive deficit procedures, the Ecofin Council adopted “conclusions” putting the procedures in abeyance subject to certain undertakings by the countries concerned. Consequently, the Commission brought an action before the European Court of Justice challenging procedural aspects of the Ecofin Council’s conclusions. The European Court of Justice indeed annulled said conclusions in July 2004, but at the same time confirmed the prerogative of the Ecofin Council to exercise discretion in the implementation of the procedure. The conflict surrounding the correct procedure in line with the provisions of the Treaty and the SGP, i.e. the correct interpretation and implementation of the procedural and factual steps laid down therein, brought to light differences of opinion between the EU Member States and the European Commission as well as among the Member States themselves.³

Against this background, the European Commission therefore made concrete proposals to reform the SGP in the fall of 2004. These proposals were aimed primarily at preventing procyclical fiscal policy, allowing for more country-specific circumstances in defining medium-term budget objectives, giving increased attention to debt levels and economic developments and clarifying the implementation of the

² Article 104 (9) states that “[i]f a Member State persists in failing to put into practice the recommendations of the Council, the Council may decide to give notice to the Member State to take, within a specified time limit, measures for the deficit reduction which is judged necessary by the Council in order to remedy the situation. In such a case, the Council may request the Member State concerned to submit reports in accordance with a specific timetable in order to examine the adjustment efforts of that Member State.”

³ In particular, the conflict laid open the differences of opinion between small countries applying strict fiscal discipline and the large Member States Germany, France and Italy.

SGP. One often cited goal of the reform was also to strengthen the economic underpinnings of the SGP and enhance “national ownership,” i.e. the Member States’ identification with the European fiscal policy framework, in order to prevent the SGP from being sidelined as increasingly politically meaningless.

Conversely, the ESCB saw no fundamental need to reform the SGP, just a need to improve implementation. From the vantage point of monetary policymakers, the changes to the SGP represent quite a substantial weakening of the EU’s fiscal policy framework, together with the danger of jeopardizing the long-term sustainability of the national fiscal policies and of complicating the stability-oriented monetary policy.

In section 2, the original setup of the SGP is presented. Section 3 discusses the advantages of sound public finances and the rationale for a rules-based fiscal policy. Section 4 deals with the criticism leveled at the EU’s fiscal policy framework. Section 5 evaluates the effectiveness of the original SGP. Sections 6 and 7 present the reform of the SGP adopted in 2005. Section 8 rounds off the study with a critical assessment of the reformed SGP taking into account the experience up to now.

2 Original Design

On June 17, 1997, at the Amsterdam Summit, the European Council adopted the SGP by resolution. The new framework substantiated and

strengthened the Treaty provisions on fiscal discipline foreseen by Article 99 (coordination and multilateral surveillance of the national fiscal policies) and Article 104 (corrective measures and sanctions). With this initiative the European Council responded to concerns about the inadequacy of the existing legal instruments to guarantee compliance with the fiscal criteria quantified by the TEU⁴ and thus to safeguard the sustainability of public finances after the introduction of the euro.

As it would have been too complicated to amend the TEU – any amendments would have required unanimity and, depending on national rules, ratification by an act of parliament or by national referendum – the SGP was implemented on the basis of Articles 99 and 104 of the Treaty by means of detailed secondary legislation (Council Regulation (EC) No 1466/97 of 7 July 1997 on the strengthening of the surveillance of budgetary positions and the surveillance and coordination of economic policies, Council Regulation (EC) No 1467/97 of 7 July 1997 on speeding up and clarifying the implementation of the excessive deficit procedure, and Resolution of the European Council on the Stability and Growth Pact Amsterdam, 17 June 1997). The SGP defines the objective of sound public finances in detail and basically serves to accelerate or clarify the EDP. To do so, the SGP contains a “preventive early warning mechanism” and “corrective and dissuasive elements” (Bayer et al., 2000; Part, 1998).

⁴ TEU provided for maintenance of fiscal discipline for all Member States by introducing two quantitative reference values that both reflect policy choices: as a rule, the general government deficit ratio of a Member State was to be below 3% of GDP, and the government debt ratio was to be below 60% of GDP (or to be sufficiently diminishing and approaching the reference value at a satisfactory pace). Moreover, the TEU enshrined the prohibition of monetary financing of government debt and a “no bailout” clause in order to prevent moral hazard behavior. It was agreed that only those countries would be able to move to the third stage of EMU that actually met the Maastricht criteria.

To better enforce fiscal discipline, the instruments and the procedures of the SGP were successively refined from the time the SGP went into effect (Singer, 2005, p. 47f). These refinements applied among other things to the format and content of the stability and convergence programs (establishment of a code of conduct), a clarification of the medium-term objective of achieving a budgetary position (“close to balance or in surplus”)⁵ and the determination of a uniform method to measure cyclically adjusted budget balances. Additionally, the EU began to deal systematically with the consequences of aging populations on the long-term sustainability of public finances within the existing EU framework for budgetary surveillance. However, the European Council’s requirement for the surveillance of the quality of public finances has not been met yet.

3 The Objectives of the SGP – Fiscal Discipline and Sound Public Finances

The objective of the original SGP was to continue to guarantee sound public finances and hence fiscal discipline in the Member States after the introduction of the euro. Sound fiscal policy secured by a rules-based fiscal policy framework fosters macroeconomic stability and creates favorable framework conditions for sustainable high economic growth. It strengthens market participants’ trust and reduces the risk involved in long-term decision-making, e.g. for investment. Moreover, lower budget deficits and the achieve-

ment of primary surpluses make it possible to reduce the debt ratio; the lower interest payments they entail broaden the scope for fiscal maneuver.

Conversely, permanent structural budget deficits exercise upward pressure both on short-term interest rates (if the central bank feels compelled to counteract inflationary effects by raising interest rates) and on long-term interest rates (as a result of changes in inflationary expectations) and, in a regime of flexible nominal exchange rates, push currency appreciation. While the resulting appreciation dampens export demand, high interest rates affect private investment demand above all and also detract from the long-term income outlook for an economy as a result of reduced capital accumulation.

Fiscal discipline helps improve the economic environment in the short term by creating the proper framework conditions which allow for the full operation of the automatic stabilizers and which provide for sufficient fiscal policy leeway for anticyclical action during an economic slump. In this manner, it supports short-term economic growth without risking a breach of the 3% reference value.

The pursuit of a stability-oriented monetary policy is only possible if budget policy is geared toward fiscal discipline. High or growing debt ratios involve the risk that central banks are forced to follow a more accommodative monetary policy to reduce the real value of outstanding government debt through higher inflation.

⁵ See Part (2000).

In a monetary union, the arguments in favor of rules-based fiscal policies become even stronger, as the deficit incentives for fiscal policymakers change. The incentive to take deficit-financed measures rises, exacerbating what is referred to as the deficit bias of fiscal policy.⁶ The “sanctioning” effects of deficit-financed national policies disappear, as exchange rate developments and short-term interest rates are geared to the economic conditions prevailing throughout the entire monetary union. Moreover, the costs of deficit spending are spread among all monetary union member countries, whereas the advantages are not equally distributed.⁷ Should any doubts about a monetary union member country arise, the risk premia increase for every member country, especially if the financial markets question the credibility of no bailout clauses.

Consequently, the original and the reformed SGP aim at preventing such negative spillover effects on Member States bound to fiscal discipline. The SGP is additionally aimed at protecting the Eurosystem from having to answer a call for an ex ante bailout by loosening monetary policy or for an ex post bailout by monetary financing of government debt. Hence, European fiscal policy rules are designed to reduce the danger that countries simply reap the

benefits of other countries’ good behavior without following the rules themselves, and above all the danger of moral hazard practices.

4 Criticism of the Fiscal Framework

From the outset, the fiscal criteria quantified by the TEU and the design of the SGP were subject to lively discussion and criticism, which intensified in the wake of the slowdown in economic growth from 2001 onward.

Since the quantification of the fiscal rules in the TEU, the criticism has focused mainly on two issues, namely the lack of a theoretical basis for politically determined fiscal reference values and the lack of enforceability of these rules. When the SGP was introduced, this criticism intensified. In particular, the critics questioned whether uniform quantitative rules were suited to preventing a rise in public debt. Moreover, they pointed out that the quantitative rules had a detrimental impact on the economy.⁸

The criticism that the chosen fiscal rules lacked a foundation in economic theory applies to both the politically determined general government deficit and gross debt ceilings (Buiter et al., 1993; Wyplosz, 2002) and to the definition of the medium-term objective of a budgetary position close

⁶ However, in line with the tax-smoothing theory (Barro, 1979), it makes economic sense to accept deficit spending to finance temporary increases in expenditure (e.g. military spending occasioned by an international conflict) rather than to raise taxes abruptly, which would entail high welfare losses. It also makes economic sense to pursue an expansive fiscal policy during phases of pronounced or protracted capacity underutilization to reduce the deviation of actual from potential output. Permanent structural deficits and the rapid rise in European countries’ debt ratios in the 1980s and at the beginning of the 1990s cannot be seen simply as a result of anticyclical budget policy and tax-smoothing efforts, though. Much rather, they were the outcome of a budget policy with an immanent deficit bias for which there are numerous reasons (Calmfors, 2005). Fiscal policy rules are aimed at reducing or getting under control the deficit bias of fiscal policy to all Member States’ advantage and to secure the stability orientation of monetary policy. See also Beetsma (2001).

⁷ However, growing integration also lets trade partner countries benefit from deficit-increasing demand-stimulating discretionary measures.

⁸ However, by drawing up a list of arguments, we do not intend to compare the given fiscal framework in Europe with an ideal model.

to balance or in surplus. The critics argue that since there is no generally accepted theory stating the optimal level of public debt, the convergence of the debt ratio toward zero implied by the medium-term objective lacks theoretical justification.⁹ Furthermore, one cannot deduce from economic theory exactly how large a debt ratio is no longer sustainable in the long run.¹⁰ The acceptance of temporary deficits in times of an economic downturn or of temporary expenditure hikes (tax smoothing) may, moreover, be welfare enhancing.

Moreover, critics argue that the demand for attainment of specific annual deficit targets forces Member States to resort to one-off and temporary measures more frequently. Allsopp and Artis (2003, p. 29) assert that the target implies that “the SWP may force adjustments that are not necessary for sustainability and that it may rule out policies that are desirable for the functioning of the system as a whole.”

Critics also questioned the choice of gross debt standards, which only take into account general government financial liabilities, i.e. overstate total public sector liabilities by not correlating them with the public sector’s assets (Buiter, 1985). At the same time, this approach understates the true extent of public debt because it does not consider future “implicit” expenditure,

such as future pension payments or government guarantees.

The impact of a uniform deficit target for all Member States on debt levels attracted especially great criticism. With the growth performance differing among Member States, the uniform deficit target results in completely different debt dynamics (Buiter et al., 1993). While targeting the uniform deficit ratio, the new Member States in particular will achieve debt ratios substantially lower than 60% of GDP, given comparatively high output growth rates (Buiter and Grafe, 2004). Critics challenged the rationale of having a uniform deficit target also with reference to the wide range of debt ratio. Member States with lower debt ratios should be conceded more generous deficit targets (EEAG, 2003; Pisani-Ferry, 2002) and hence greater room for budgetary policy maneuver.¹¹ This consideration, as well as the consideration of taking into account differences in growth performance, have been integrated into the reformed SGP by allowing for more country-specific circumstances in defining the medium-term objective.¹²

Other experts (IMF, 2001; European Commission, 2003) would choose expenditure rules over deficit rules, as the emergence of budget deficits that would not be sustainable in the long run could be ascribed mainly to uncontrolled expenditure growth.

⁹ De Grauwe (2004), Canzeroni and Diba (2001) and Pisani-Ferry (2002) argue that it would make more economic sense to focus on a debt ratio target rather than a specific debt ceiling to be reached every year. To secure the long-term sustainability of public finances, Member States should be obligated to comply with a specific debt ratio whose size is determined commensurately with the implicit obligations the respective countries have.

¹⁰ Basically, the accumulation of public debt presents no problem as long as the debt can be assumed to be repaid with future income (primary surpluses). However, even the achievement of a low deficit or a low debt at a particular time does not guarantee the future long-term sustainability of fiscal policy.

¹¹ Conversely, considering that high deficits have a certain inertia, as their reduction involves high political costs, the emergence of structural deficits should be prevented as a matter of principle.

¹² The critics also proposed linking the deficit ceiling to the debt levels (EEAG, 2003; Walton, 2004; Calmfors and Corsetti, 2003). Another strand of the discussion was to allow countries with a low debt ratio more time to correct excessive deficits.

Admittedly, in a supranational context, such rules would tie individual Member States' hands even more than deficit rules. Furthermore, uniform expenditure rules for all Member States would be accompanied by substantial welfare losses, if the Member States had very different preferences regarding the composition of their expenditure.

Academics and policymakers alike also pointed out the negative side effects of quantitative fiscal rules and the rigid requirements of the SGP, such as a lack of flexibility, the dampening of government investment,¹³ the hindrance of structural reforms – which entail short-run costs and long-run benefits – and the relinquishment of the stabilization function of the state as well as the prevention of a tax-smoothing strategy of benefit to the economy.

The cutback of investment expenditure is associated with temporarily lower political costs than a cut in social security payments, subsidies or spending on public employment.¹⁴ Inasmuch as cutbacks of public investment spending would impair Member States' long-term growth prospects, fiscal policy targets under the SGP would contradict the other policy goals of the EU which are aimed at making the EU the most competitive region in the world by 2010. Therefore, academics (Blanchard and Giavazzi, 2004; Creel, 2003) suggested the introduction of a "golden rule" according to which the

medium-term deficit target of the SGP should refer to current government expenditure including depreciation and maintenance costs and excluding net public investment. The amount of government borrowing would be limited to net government capital formation. The intergenerational advantage of this approach would support the financing of government capital formation by borrowing, as future generations would benefit from the higher productivity and the higher per capita income generated by current public investment.¹⁵ Buiter and Grafe (2004), in turn, draw attention to the special position of the new Member States, where public investment is in fact associated with an even higher rate of return than in the EU-15.

The TEU take account of the golden rule only insofar as it states that an EDP report prepared under Article 104 (3) has to take into account whether the government deficit exceeds government investment. However, this note in the original SGP never really had any weight in the decision about the existence of an excessive deficit. Arguments against the application of a golden rule included data definition problems, the increased possibility of "creative accounting," the unequal treatment of expenditure on human and on physical capital and the economically unwarranted preference for real capital investment. At the same time it should be noted that there is no conclusive empirical evidence

¹³ In fact, public investment (gross fixed capital formation) declined sharply in the course of 1990s – albeit not just in the EU Member States, but in all OECD countries. However, it has to be born in mind that sector reclassifications in ESA 95 also distorted downward public investment expenditure data considerably.

¹⁴ The literature shows, however, that the most successful consolidations were based on reducing employment spending and transfers (Alesina and Perotti, 1995).

¹⁵ A textbook on public finance theory authored by Lorenz von Stein as early as 1878 noted: "Ein Staat ohne Staatsschuld tut entweder zuwenig für seine Zukunft oder er fordert zu viel von seiner Gegenwart." ("A country that has no public debt is either doing too little for its future or is placing too high demands on its present;" German as cited in Nowotny, 1999, p. 428).

supporting the proposition that public investment and infrastructure spending actually increase long-term growth (Easterly and Rebelo, 1993; Balassone and Franco, 2001; Perotti, 2005).

Another criticism stated that the SGP prevented governments from taking adequate measures to counteract cyclical fluctuations (Canzeroni and Diba, 2001). The SGP is focused primarily on the effect of the automatic stabilizers, which can operate fully when Member States observe the medium-term targets of achieving a budget close to balance or in surplus (Buti and Giudice, 2002; European Commission, 2002a; Artis and Buti, 2001; Buti and Franco, 2005). However, the automatic stabilizers can achieve only a certain amount of cyclical stabilization.¹⁶ Tax reforms and reforms of the unemployment benefit systems may have reduced the effectiveness of the automatic stabilizers in the past decades. The concentration primarily on the automatic stabilizers has been identified as problematic above all because the single monetary policy of EMU has made fiscal policy more important (HM Treasury, 2003; Feldstein, 2002). The exceptionality condition allowing a temporary breach of the 3% GDP threshold during a severe economic downturn – defined as an annual fall of real GDP growth of at least 2% in the original SGP – was criticized as too harsh.

This criticism is closely linked to the reproach that the SGP has an asymmetric effect and does not provide any incentives for stepped-up fiscal consolidation during good times (Bean, 1998). As a result, Member States thus have to consolidate during downturns to comply with the deficit targets. This implies that the SGP was not suited to prevent procyclical behavior. In fact, from the public choice perspective, one could even draw the conclusion that the SGP tended to reinforce governments' deficit bias:¹⁷ Greater consolidation efforts during high-growth phases not only reduce a government's chances of reelection, it also eases a new government's workload by sparing it the need to act procyclically if a downturn occurs.

Moreover, critics charged that as an instrument to coordinate European fiscal policy, the SGP did not guarantee an optimal fiscal stance for the euro area (Wyplosz, 2002; Casella, 2001). This charge has to be seen above all against the background of the juxtaposition of a single monetary policy with a fiscal policy that obeyed the subsidiarity principle and was thus still a national responsibility. According to Begg and Schelkle (2004, p. 90ff), "*...the Pact is a weak or even ill-conceived substitute for a central fiscal authority acting as a politically legitimate counterweight to the ECB. ... There is no means of targeting the aggregate*

¹⁶ *The concentration on the automatic stabilizers as a matter of principle must be interpreted against the background of the paradigm shift in fiscal policy. The ability of discretionary fiscal policy to stabilize output and employment was increasingly challenged on the one hand by the appearance of permanent structural budget deficits in the second half of the 1970s and in the 1980s and on the other hand by new economic theory findings (Barro, 1974). The discussion about possible non-Keynesian effects reinforced the doubts that had arisen (Blanchard, 1985, 1990; Giavazzi and Pagano, 1990; Bertola and Drazen, 1993; McDermott and Westcott, 1996; Sutherland, 1997; Perotti, 1999; Alesina et al., 2002). Taylor (2000) argues that monetary policy should principally be used for stabilization purposes.*

¹⁷ *However, critics of the SGP and of rules-based fiscal policy consider the deficit bias and the tendency of governments to accumulate debt far less important than the need to react flexibly to short-term cyclical fluctuations and medium- to long-term challenges.*

fiscal stance and thus of establishing an appropriate policy mix to assure the macroeconomic stabilisation of the Euro area." Collignon (2003, p. 17) therefore concludes that "only a full, democratic constitutional consensus would be able to give European stabilisation policies the coherence they need."

The political experience gained since 1999 clearly revealed the weak enforceability of the SGP; the sanctioning mechanism also suffered from insufficient credibility.¹⁸ The cascading procedure based on Council regulations is controlled by decision-making at the Ecofin Council level, which is characterized by an asymmetric incentive structure. The finance ministers who have to account for an excessive deficit and face possible sanctions have a greater interest to join forces to prevent sanctions than those of the other Member States do. However, in deciding on whether to impose sanctions, Member States which are not threatened by sanctions may take into account the possibility that they could

in the future exceed deficit limits themselves.¹⁹ Moreover, large countries have a greater incentive than small ones to join forces, because discretionary fiscal measures are much more effective in large and fairly closed economies than in small, open economies (Buti and Pench, 2004), where much of the impact of fiscal measures is channeled abroad through high imports. Hence, expansionary fiscal policy measures have a much lower impact on domestic production and employment in small, open economies than in large economies. In addition, the rigorous imposition of sanctions on a Member State raises the question of whether these sanctions might not detract from the political support of the EU itself, because the sanctions increase the fiscal problems of the countries concerned even more. "The objective of heavy sanctions is to deter undesirable behaviour, but if the sanctions are too draconian, political decision makers will never dare employ them" (Calmfors, 2005, p. 56).

¹⁸ When the original SGP was negotiated, in particular German experts pointed out that a lack of an automatic response to an existing excessive deficit could contribute to this problem (Stark, 2001; Costello, 2001).

¹⁹ This problem became clearly apparent in the decision about whether to issue a notice to France and Germany in 2003. Here, France and Germany supported each other; Portugal and Greece, Italy (EU presidency) and the United Kingdom were also against issuing a notice – partly because they were aware that they themselves might require German and French support in the future. Also, the termination of the excessive deficit procedure against Portugal despite a strongly rising debt ratio above the 60% reference value supports the suspicion of concerted collusion contrary to the spirit of the SGP. The proposal of revoking the right to vote of those finance ministers who are responsible for an excessive deficit does not provide a solution either, as it would call into question the legitimacy of supranational decision-making rules.

5 The Effectiveness of the Original Fiscal Policy Framework

Under the Treaty and the SGP, Member States have undertaken to pursue sound budgetary policies and in particular to avoid excessive public deficits. In principle, a deficit above 3% of GDP is considered excessive. A deficit overshooting the reference value would not be considered excessive if it is the result of an unusual event (an annual fall of real GDP of 2% or at least 0.75%)²⁰ or if the breach is judged to be minor, is only temporary and is caused by an unusual event outside the control of the Member State. To prevent excessive deficits during economic downturns, Member States have to strive to observe a “safety margin” between the current budget deficit and the reference value under normal cyclical circumstances.

The purpose of the SGP’s objective of a budgetary position that is close to balance or in surplus is to ensure that no excessive deficits arise during phases of sluggish growth. The medium-term objective has been reinterpreted several times since the start of Stage Three of EMU. Initially, it was seen as the attainment of a budget literally in balance²¹ or a surplus, while in recent years a cyclically adjusted deficit of 0.5% of GDP in view of

measurement uncertainties has also been considered acceptable as “close to balance.”

5.1 Early Warning System Proved Not to Be Very Effective

The so-called early warning procedure under the SGP aims at giving early warning to prevent the occurrence of an excessive deficit. The European Commission and the Ecofin Council assess the compliance of Member States’ medium-term budget planning with the SGP on the basis of stability and convergence programs submitted annually by the Member States. If the actual budget course diverges from the medium-term budgetary objective, and hence jeopardizes attainment of the reference value, the respective Member State should be called on, by means of an early warning,²² to take the necessary adjustment measures.

Admittedly, the early warning system was not effective in preventing the occurrence of excessive deficits in 6 of the 12 EMU member countries. Portugal was expected to have a deficit ratio of just over 4% of GDP already in 2001. Germany and France have exhibited an excessive deficit since 2002, the Netherlands in 2003. Portugal corrected its excessive deficit in 2002, resorting extensively to one-off and

²⁰ Council Regulation (EC) No 1467/97 of 7 July 1997 clarifies that the European Commission when preparing a report under Article 104 (3) shall, as a rule, consider an excess over the reference value resulting from a severe economic downturn to be exceptional only if there is an annual fall of real GDP of at least 2%. However, the Council when deciding, according to Article 104 (6), whether an excessive deficit exists, it shall in its overall assessment take into account any observations made by the Member State showing that an annual fall of real GDP of less than 2% (but at least 0.75%) is nevertheless exceptional in the light of further supporting evidence, in particular on the abruptness of the downturn or on the accumulated loss of output relative to past trends.

²¹ Interpretation of the Austrian authorities.

²² The Ecofin Council addresses this early warning to a Member State on the basis of a Commission recommendation.

temporary measures, so that the EDP was ended at the beginning of 2004.²³ In 2004, following a revised notification of data, Greece was found to have had an excessive deficit since 2000.²⁴ At the beginning of 2005, Italy was also found to have exceeded the 3% reference value in 2003 and 2004 (most recently also in 2005), again in the course of data revisions. Whereas the Netherlands had corrected its excessive deficit ahead of the deadline – just one year after its occurrence – by taking substantial adjustment measures, France and Germany failed to take sufficient measures even though their deadlines had already been extended to 2005 in the fall of 2003. Consequently, 6 of the 12 EMU member countries had already been subject to an EDP since the start of Stage Three of EMU. As Portugal decided not to take additional temporary measures to reduce its deficit in 2005, the country's deficit exceeded the reference value once again, and a new EDP was initiated. Outside EMU, both the United Kingdom (in 2003 and 2004) and 6 of the 10 new Member States posted deficits in excess of the 3% reference value. The United Kingdom was found to be running an excessive deficit in January 2006, when it became clear that the country's deficit would exceed the reference value again in the fiscal year 2005/06 (see annex table 1a and 1b).

Although the European Commission had proposed giving early warn-

ings to four countries since 2002 before an excessive deficit occurred, namely to Portugal and Germany (January 2002), France (November 2002) and Italy (April 2004), the Ecofin Council issued a recommendation only to France. In the other cases, the Ecofin Council was satisfied that the respective countries had agreed to make an effort to prevent an excessive deficit from occurring. Considering that the countries later breached the 3% deficit limit, early warnings would have been justified in all three cases.²⁵

Judging from the experience with the procedures that the original SGP provided for, it appears that “the overall picture is thus one of weak enforcement of the earlier rules. The early warning mechanism has not been used as it should. The excessive deficit procedure has been initiated according to the book in case of deficits above three percent of GDP (except for the UK in 2004), but deviations from the stipulations regarding subsequent procedural steps have been notorious.” (Calmfors, 2005, p. 37)

5.2 Maastricht Convergence Criteria Call for Deficit Shrinkage – But Countries Have Shown Less Consolidation Commitment since the Start of Stage Three of EMU

The degree to which the EU's fiscal rules have actually influenced the Member States' behavior in the past decade also says something about these

²³ Albeit despite a sharply rising debt ratio linked to a breach of the reference value of 60% of GDP.

²⁴ The revision of Greece's fiscal data made manifest the problem of deficiencies inherent in statistical data and the fiscal indicators used, and showed up the problem of incorrect data reporting by individual Member States to Eurostat. In a rules-based system based on simple quantitative data, the correctness of the statistical database and reported data are pivotal to the entire framework. From the outset, critics had drawn attention to the possibility that deficient data would be reported and to the liability of Member States to resort to “creative accounting” to manipulate the relevant fiscal indicators. See also von Hagen and Wolff (2004).

²⁵ The early warning issued to Ireland in 2001 represented a special case in that Ireland violated the spirit of the SGP by exercising an expansionary fiscal policy.

rules' effectiveness. In the 1980s and in the first half of the 1990s, many European countries posted permanent structural deficits and rapidly growing debt ratios, an unsustainable development in the long run. An adjustment of budgetary developments was inevitable. When the fiscal criteria were established under the TEU as a necessary prerequisite for EMU membership, it became easier to embark on a consolidation path. The substantially improved budget indicators for 1997 were used to assess fulfillment of the convergence criteria. In the following years, however, most countries reduced their efforts to meet the convergence criteria (annex tables 2a and 2b). The procyclicality of fiscal policies in some EU Member States, especially between 1998 and 2001, supported critics' claims that the SGP was not providing for sufficient incentive mechanisms (annex charts 1a and 1b). The SGP did not give Member States an incentive to reinforce their consolidation efforts during good economic times. To the contrary, higher revenues during high growth phases still enabled countries to take expansionary fiscal measures – in Germany's case even with the approval of the Ecofin Council.²⁶ Since the economy began to slow down in 2001, a number of EMU member countries have posted excessive deficits that are nearly completely structural in nature. Obviously, the consolidation measures taken during the second half of the 1990s were not sufficient. Moreover, the fulfillment of the Maastricht criteria had been based partly on temporary measures and "creative accounting." With the economy slowing down, especially

Germany and France refused to act procyclically and to step up their consolidation efforts.

A large number of econometric studies analyzed to what extent the European rules-based fiscal policy framework had changed the reaction function of fiscal policy. Many analyses concluded that the framework had not caused fiscal policy to become less anti-cyclical (Balassone and Francese, 2004; European Commission, 2004; Posen, 2005). Gali and Perotti (2003) found that the sensitivity of budget deficits to cyclical fluctuations appears to have been stronger since the mid-1990s than in the preceding decades. According to Fatás and Mihov (2004), since the introduction of the European fiscal policy framework, the use of those discretionary fiscal policy measures which are not aimed at stabilization seems to have lost importance. This allows for the conclusion that the European fiscal policy framework indeed had some disciplining effect on Member States' fiscal policy.

6 The Key Changes of the SGP

6.1 Improved Governance

Cooperation and coordination between the Member States, the European Commission and the Ecofin Council play a decisive role for the effectiveness of the SGP and the European fiscal policy framework. Therefore, when the SGP was reformed, the Member States agreed to strengthen peer support rather than continuing to rely solely on peer pressure to induce Member States to act in the spirit of and in conformity with the SGP.

²⁶ *The fiscal cost of a tax reform does not become evident until a country's economic growth weakens; during high growth phases, this cost is masked by the high revenue collected during boom conditions.*

The publication of decisions and recommendations of the European Commission, improved delivery conditions and quality of statistical data and the strengthening of national budget processes are intended to foster the Member States' ownership of the new SGP. Complementary national budgetary rules, greater involvement of national parliaments and of the European Commission as well as greater continuity in drawing up stability programs aim at helping to achieve the fiscal targets.

6.2 Changes to the Preventive Arm of the SGP

The definition of the medium-term objective (MTO) and the adjustment path to the MTO represent the key changes to the preventive arm of the SGP. The MTO now refers to the cyclically adjusted budgetary position net of one-off and temporary measures.

The new SGP confirmed the reasons stated in the original SGP for having an MTO, i.e. (1) to provide a safety margin with respect to the 3% deficit limit; (2) to ensure a rapid reduction of the debt ratio and to guarantee the sustainability of public finances; and (3) to guarantee sufficient room for public investment.

The new MTO, though, is no longer uniformly defined, but rather differentiated for individual Member States to take into account the characteristics of their economies. Macroeconomic variables such as potential growth and the cyclical situation, specific structural reforms and fiscal sustainability in terms of the debt ratio

and population aging²⁷ are taken into account in determining the country-specific MTOs. Depending on the size of a Member State's debt ratio and its potential growth, the MTO shall be specified with a corridor ranging from a deficit of 1% of GDP to a (small) surplus, cyclically adjusted and net of one-off measures. Member States state their MTOs in their stability and convergence programs. The MTOs should be revised when a major reform is implemented and, as a rule, every four years to reflect new developments.

The adjustment path to the MTO should be defined in conformity with the business cycle. However, the reform reaffirmed the commitment of euro area member countries, as stated by Eurogroup finance ministers in October 2002, to strive for an improvement of their cyclically adjusted budget balances (now excluding one-off and temporary measures) by at least 0.5% of GDP a year until they reached their country-specific MTOs.²⁸

To refute the charge that they exercise a procyclical fiscal policy, the Member States have committed themselves to reinforce consolidation efforts during favorable cyclical phases. In turn, the need for consolidation during phases of weak economic growth is reduced. Economic "good times" are defined in the Code of Conduct on the content and format of the stability and convergence programmes as "*periods where output exceeds its potential level, taking into account tax elasticities.*" (Code of Conduct, 2005, p. 5)

²⁷ No agreed method to take into account the budgetary impact of population aging in countries' MTOs has been established yet.

²⁸ This obligation also applies to ERM II members.

Deviations from the adjustment path to the MTO or from the MTO are permissible provided that they result from structural reforms, are temporary²⁹ and if an appropriate safety margin to the 3% reference value is preserved. Only structural reforms that represent a short-term burden on the budget but have a positive impact on the sustainability of public finances in the long run, e.g. by reducing future expenditure or raising potential growth, are considered, though.

A systemic pension reform, i.e. the switch from a pay-as-you-go to a funded pension scheme, may be cited as a prominent example of a structural reform. In the short run, such a switch involves additional costs because the payments are routed from the public pension scheme to a privately funded scheme, but in the long run, public commitments should contract.³⁰

6.3 Changes to the Corrective Arm of the SGP

If the government deficit ratio exceeds the reference value of 3% of GDP, the European Commission is still obliged under the new SGP to prepare a report under Article 104 (3). In this report, the European Commission considers whether the excess over the reference value is only temporary, whether the ratio remains close to the reference value and whether the excess results from an unusual event outside the control of the Member State concerned. Under such circumstances, no EDP is initiated, just like under the old SGP.

As in the original SGP, a severe economic downturn – now defined as a negative annual GDP volume growth rate – qualifies as exceptional. Moreover, an accumulated loss of output during a protracted period of very low annual GDP growth relative to its potential is now also considered a severe economic downturn.³¹ The Code of Conduct, which was also revised, determines that the indicator for assessing accumulated loss of output is the output gap, as calculated according to the harmonized method agreed in July 2002.

When assessing whether an excessive deficit exists, the European Commission report should take into account whether the government deficit exceeds government investment and should appropriately reflect developments in the medium-term economic position (e.g. potential growth and the implementation of policies in the context of the Lisbon agenda) and in the medium-term budgetary position (in particular, fiscal consolidation efforts in “good times,” debt sustainability, public investment) and any other factors which, in the opinion of the Member State concerned, are relevant. These *other factors* comprise e.g. the cost of contributions to foster international solidarity and to achieving European policy goals, notably the unification of Europe. These costs refer mainly to the cost of German unification, but also the costs of reforming Eastern European economies and the volume of net payments to the EU budget.

²⁹ *The budgetary position should return to the adjustment path toward the MTO or to the MTO within the period covered by the stability or convergence program.*

³⁰ *However, these reforms cannot completely guarantee a lower future pension payment burden for the government.*

³¹ *Council Regulation (EC) No 1056/2005 Article 1 (1) “. . .if the excess over the reference value results from a negative annual GDP volume growth rate or from an accumulated loss of output during a protracted period of very low annual GDP volume growth relative to its potential.”*

Just like for the review to assess attainment of the medium-term objective, the cost of pension reforms is taken into account for the decision on whether there is an excessive deficit. Consideration using a linear degressive formula will be given to the net cost of the reform for the initial five years after a Member State has introduced a funded system.³² If the net cost causes the actual deficit ratio to exceed 3% of GDP only by a small margin, the deficit cannot be considered excessive, or an excessive deficit can be considered to have been corrected.

The reference value providing for a debt ratio of 60% or less of GDP has been accorded a greater importance in the new SGP.³³ The size of the national debt ratios influences the size

of the respective countries' medium-term objectives. Under Article 104 of the Treaty, government debt ratios above 60% of GDP would have to be sufficiently diminishing and approaching the reference value at a satisfactory pace. "Sufficiently diminishing" was never defined in detail. Under the reformed SGP, the Member States agreed to take into account both macroeconomic conditions (GDP growth) and gross debt for the concept of a "sufficiently diminishing" debt ratio in qualitative terms. The Ecofin Council is entitled to formulate recommendations on the debt dynamics in its opinions on the stability and convergence programs that the Member States are required to submit every year.

Key Changes at a Glance

OLD

Preventive Arm

Medium-term objective:

Cyclically adjusted budget balances

Applicable to all Member States: balance of -0.5% to surplus

Adjustment path:

At least 0.5% of GDP (euro area)

Corrective Arm

Exceptional circumstances

Severe economic downturn:

Growth rate: principally less than -2%/less than -0.75%

Deadlines:

Clear deadlines for procedure steps and in particular for the correction of the excessive deficit³⁴

NEW

Preventive Arm

Cyclically adjusted budget balance, net of one-off and temporary measures

Country-specific: range between -1% of GDP and surplus

Average of 0.5% of GDP depending on the state of the business cycle (euro area and ERM II)

Corrective Arm

Negative growth or negative output gap for a sustained period of low growth

Other relevant circumstances:

Extent of government investment relative to the government deficit, medium-term economic and budgetary position, other factors which are relevant in the opinion of the Member State concerned

Systemic pension reforms

General extension of the deadlines for procedures and for the correction of the excessive deficit by allowing for the repetition of procedure steps

³² Consideration will be given to 100% (first year), 80%, 60%, 40% and 20%, respectively, of the net cost of the reform.

³³ In principle, under Article 104 of the Treaty, exceeding the reference value for the debt ratio could entail a procedure like the excessive deficit procedure. However, this was in fact never considered, as the SGP focuses on the deficit ratio.

³⁴ These deadlines were not enforceable, though.

The reform of the SGP also covers the EDP deadlines. These deadlines – for the individual procedure steps and for the period granted to correct an excessive deficit – have been extended. Moreover, in the new SGP, Member States in excessive deficit have to make a minimum fiscal effort every year. The required improvement of the cyclically adjusted balance (net of one-off and temporary measures) is at least 0.5% of GDP as a benchmark in order to correct the excessive deficit within the deadline set.

As a rule, the deadline for correction of an excessive deficit is one year after its identification, but, in case of special circumstances, a two-year deadline may be granted. Moreover, a given deadline may be extended if unexpected adverse economic events occur during the period during which an excessive deficit is to be corrected. The prerequisite for such extension is that the Member State must have taken action in compliance with the recommendation of the European Commission. Generally, new Member States may be granted longer deadlines for the correction of excessive deficits, as may Member States which implement systemic pension reforms.

7 Unresolved Interpretation Issues of the Reformed SGP

The reformed SGP has also attracted considerable criticism, above all because it is more complex than its predecessor. The greater flexibility and the stronger economic foundation of the new SGP have come at the cost of transparency and simplicity. This reflects the fact that the new SGP has tried to strike a balance between consolidation requirements and the

demand for sound fiscal policies on the one hand and country-specific economic developments and public debt levels on the other hand. The assessment of national budget policies by the European Commission and the Ecofin Council has to take into account medium-term economic developments, i.e. the development of output relative to potential output. Thus, cyclical impacts on budget developments will henceforth play a more important role in the assessment, as do structural measures and public investment. However, this approach entails new definition and measurement problems, which contradict the demand for transparency and simplicity. The quantification of unobservable variables such as potential growth and the resulting output gap, variables which are crucial for the calculation of cyclically adjusted balances, involve the greatest uncertainties. Even the use of a uniform method cannot eliminate these problems, but it can guarantee that all Member States are treated as equitably as possible.

The reformed SGP is based on a number of concepts, principles and variables that had not been fully clarified by January 2006. To ensure that the SGP is applied consistently and coherently in the future rather than in an ad hoc manner, expert discussions were held to clarify the following aspects:

- Specification of what in fact constitutes exceptional circumstances of an “*accumulated loss of output during a protracted period of very low annual GDP volume growth relative to its potential*”:³⁵ Here, both the duration (“*protracted period*”) and the severity of the economic downturn (“*very low annual GDP volume*”

³⁵ Council Regulation No 1056/2005 Article 2(2).

growth relative to its potential”) must be clarified. The definitions must be chosen very carefully to prevent “exceptional” circumstances from becoming the rule.

- Definition of the terms “*one-off*” and “*temporary measures*”: Adjusting fiscal positions for such measures is intended to encourage Member States to base their consolidation strategies on sustainable measures. Moulin (2005) shows that in the past countries have typically resorted heavily to one-off measures when they were close to the 3% reference value and during economic downswings. Cases in point are Portugal, Italy and Greece.

Moreover, the definition of one-off measures given in the Code of Conduct (“*one-off and temporary measures are measures having a transitory budgetary effect that does not lead to a sustained change in the budgetary position*”) leaves substantial room for interpretation, which is why the European Commission suggested drawing up a list of measures for which fiscal positions should be adjusted.

Furthermore, taking into account one-off and temporary measures in the assessment of the structural budget situation changes the incentive structure for using short-term measures. Up until now, Member States have resorted to temporary deficit reduction measures above all to make their fiscal positions appear rosier than they actually were. Now, they have an incentive to conceal their true structural budget situation by depicting structural deficit-increasing measures as temporary measures. Hence, the changed incentive structure should lead to a restrictive acceptance of

temporary deficit-increasing measures.

- Specification of the term “*economic good times*”: The key indicator of “good times” is a positive output gap but, as agreed in the Code of Conduct, the change in the output gap shall also be given due consideration. Additionally taking into account the output gap changes has the purpose of preventing strict consolidation demands during periods of below-average growth simply because the output gap is positive. The Code of Conduct, moreover, links the concept of “good times” to the idea of “tax elasticities,” which have also yet to be clearly defined. Finally, the difficulty in clearly defining “good times” is compounded by what is referred to as the “real time problem.” What this means is that the ex ante assessment of cyclical conditions (output gap) at times deviates quite strongly from the ex post situation.
- The definition of “*effective action*” and “*compliance with recommendations and notices*”: Under the new SGP, the deadlines for eliminating the excessive deficit may be extended provided that Member States have respected the recommendations of the Council but were prevented from reaching their target by unexpected adverse economic events. In this respect, the difficulty in implementing the SGP lies in the ability to recognize whether the measures of the Member States are sufficient and whether they are in line with the recommendations. A purely qualitative analysis of the cyclically adjusted balances can only provide a guide and must be corroborated by additional indicators.

- Definition of “*structural reforms*”: The new SGP singles out structural reforms which cost in the short run but have a positive long-run effect on Member States. In this context, the question of which structural reforms fulfill these criteria arises. In addition, measurement problems arise because the long-term benefits of reforms are difficult to determine. This also applies to structural pension reforms, which are specially emphasized by the new SGP.
- Definition of the “*country-specific MTOs*”: It is still unclear to what extent and how the country-specific costs of population aging and hence implicit liabilities should be taken into account in determining the medium-term objectives. This issue is to be clarified in the course of 2006.

In assessing the stability and convergence programs of Member States with regard to compliance with the MTOs, the European Commission and the Ecofin Council must evaluate whether Member States have met their objectives adequately and consistently. If necessary, they can urge the Member States to adjust their MTOs. This provision is intended to ensure equitable treatment of all Member States.

8 A Critical Review of Early Experience and Conclusions

The reformed SGP addresses various complaints directed at the original framework, above all criticism of a uniform medium-term budget target for all Member States regardless of country-specific growth conditions, the size of the debt ratio as a percentage of GDP and the challenge of population aging. Moreover the reform deals with the reproach that the SGP did not pro-

vide enough incentives for an anticyclical budget policy supportive of short-term growth and for a policy that strengthened the long-term growth potential.

Opting to emphasize the country-specific situation more strongly makes sense in principle because a uniform debt target can trigger completely different debt dynamics in countries with different growth performances. The country-specific component now allows Member States with a lower debt ratio and a higher growth potential greater leeway for budgetary policy and hence more scope for structural reforms that can help improve the long-term sustainability of public finances.

The required path of adjustment toward the MTO has also been revised in a manner that should, in principle, discourage procyclical policies. It remains to be seen whether the changes to the SGP are in fact supportive of a budget policy that is symmetrically balanced across the business cycle.

Moreover, the stronger focus on underlying structural budget developments aims at encouraging Member States to take permanent rather than one-off or temporary consolidation measures.

The disadvantage of the changes to the *preventive* arm of the SGP is that the new design raises methodological issues that render implementation in line with the intention of the reformed SGP more difficult. Furthermore, greater country-specific room for maneuver with regard to the MTOs reduces the safety margin to the reference value, increasing the risk of an excessive deficit. Determining the long-term fiscal advantages and the short-term fiscal burdens that structural reforms may create also involves

substantial methodological problems. While the differentiation across countries strengthens the preventive arm because the Member States will hopefully embrace the reformed SGP more wholeheartedly, the reformed SGP is also less simple, less straightforward and less transparent. Consequently, it becomes harder to treat Member States equitably, and the scope for implementing the SGP less strictly is greater.

The reform of the *corrective arm* marks a move towards more flexible standards and a greater emphasis on discretion. The new rules relax the conditions for enhanced surveillance under the EDP. The modification of the “exceptional circumstances” clause for the existence of an excessive deficit increases the likelihood that deficits in excess of the reference value will not be considered excessive, even though it is understood that such breaches should remain small and temporary. The clarification of these options, which are in fact not new, increases the pressure on the Member States and the Ecofin Council, however. The reformed SGP also allows for more leeway in the timeframe for correcting excessive deficits, even though the “normal” one-year deadline following its identification has remained in place. There is also now more room for granting additional time to remedy an excessive deficit, and steps of the procedure may be repeated. The corrective arm still allows for a procyclical policy to help in correcting an excessive deficit; this procyclicality tends to be even stronger on account of the elimination of one-off measures, as the cases up to now have shown.

First experience with the reformed SGP indicates that the cyclical situation now plays a greater role in determining deadlines for the correction of an

excessive deficit. In this vein, both Italy and Portugal were given a longer deadline to correct their excessive deficits (annex tables 3a and 3b) on account of “special circumstances.” With regard to Italy, the Ecofin Council declared in July 2005 that Italy needed to correct its excessive deficit only by 2007, as the weak economy would have to be taken into account in implementing the severe consolidation requirement. Italy was called on to take the necessary measures to ensure a cumulative reduction in the cyclically adjusted deficit, net of one-off and other temporary measures, of at least 1.6% of GDP by 2007 relative to 2005 levels, and to deliver at least half of this correction in 2006.

In the case of Portugal, the Ecofin Council again decided that an excessive deficit existed and initiated an EDP in September 2005. Also on account of “special circumstances,” Portugal was given a deadline up to 2008 to correct its excessive deficit. Both the size of the excessive deficit (after the ending of significant one-off measures), and consequently the size of the adjustment to bring the deficit below the reference value, as well as weak GDP growth were cited as special circumstances. Portugal has committed itself to achieving a structural improvement of 1.6% of GDP in 2006 and of 0.75% each in 2007 and 2008.

Indirectly, though, this concession – the higher the excessive deficit, the longer the deadline to eliminate it – is a questionable signal. Additionally, Portugal was rewarded for having declared that it would no longer resort to temporary measures. This approach reveals a possible weakness of the reformed SGP, as the Treaty actually permits both structural and temporary measures to remedy an excessive deficit.

The decisions about further procedural steps in the cases of Germany, France and Greece (originally scheduled for January 2006) are particularly crucial for the evaluation of the reformed SGP. Germany and France had obligated themselves to correct their excessive deficits by 2005. In the case of Germany, the European Commission concluded in its Autumn 2005 Forecast that the country would, nonetheless, post a deficit in excess of 3% in 2005 as well as in 2006. While the excess in 2005 may be partly explained by weaker-than-expected economic growth, the consolidation measures taken may also have been insufficient to reach the agreed target. This means that under the SGP, the European Commission would have to make a recommendation according to Article 104 (8) of the Treaty, which would establish that no effective action had been taken within the period laid down. Moreover, a recommendation to give notice to Germany under Article 109 (9) of the Treaty would be in order.³⁶

In the case of France, the European Commission also expected the excessive deficit to continue to exist (Autumn 2005 Forecast). However, the excess is small at 0.2 percentage point, and can be attributed to weaker-than-expected growth. Consequently, there is no need to make recommendations pursuant to Articles 108 (8) and 108 (9) of the Treaty. However, France did not produce the agreed minimum improvement of its cyclically adjusted budget deficit; moreover, it is uncertain whether there will be a further improvement in 2006.

In July 2004 the Ecofin Council moreover identified an excessive deficit in Greece. In February 2005, Greece was given notice under Article 104 (9) of the Treaty to take measures to reduce the deficit by 2006. The Autumn 2005 Forecast of the European Commission anticipates that Greece will exceed the reference value for the deficit, which, however, will be close to the agreed target because Greece availed itself of substantial temporary measures. But the initial situation has changed on account of another substantial data revision. Now, the Ecofin Council must determine whether Greece is fulfilling its obligations under the EDP and whether it has taken sufficient action to correct its excessive deficit in 2006. If this is not the case, sanctions would have to be applied to Greece.

New Member States with an excessive deficit have been given until 2008 to correct their excessive deficits (as “special circumstances” are deemed to apply to them from the outset, with the exception of Cyprus (2005), Malta (2006), Poland (2007) and Slovakia (2007)).

The assessment of Hungary deserves special mention: Initially, the Ecofin Council allowed Hungary a deadline until 2008 to correct its excessive deficit. Upon determining that Hungary had taken insufficient measures, it subsequently issued a new recommendation under Article 104 (7) of the Treaty in March 2005. While the new recommendation retained the 2008 deadline for deficit correction, it contained a supplementary obligation for Hungary to reach interim budget targets. In November

³⁶ Council On March 1, 2006, the European Commission recommended to the Ecofin Council to give Germany notice under Article 104 (9) of the Treaty to take measures to correct the excessive deficit by 2007 at the latest. The Ecofin Council adopted the relevant decision on March 14, 2006.

2005, Hungary was once more found not to have taken effective measures to reduce its excessive deficit (pursuant to Article 104 (8) of the Treaty). In January 2006, finally, Hungary was asked to moreover submit a new convergence program by September 2006 because it had not specified the measures it would take to remedy its excessive deficit – which implies yet another recommendation by the Ecofin Council under Article 104 (7) of the Treaty.

The United Kingdom, finally, has been posting a deficit in excess of the 3% reference value since 2003. In March 2004, the European Commission drew up a report that rejected the existence of an excessive deficit on the grounds that the excess over the reference value was “small and temporary.” After the United Kingdom announced in its notification of autumn

2005 that it would exceed the reference value marginally also in the fiscal year 2004/05, the European Commission drafted another report on the budgetary situation in the United Kingdom in September 2005. The Autumn 2005 Forecast of the European Commission also signaled that the deficit would remain above the reference value in 2005 and 2006, whereupon the Ecofin Council identified the existence of an excessive deficit in January 2006 and recommended that the United Kingdom put an end to the situation of excessive deficit by the fiscal year 2006/07.

Overall, one may conclude from the experience up to now that breaches of the deficit reference values will continue for some time. Budgetary discipline will tend to suffer from these breaches, and this would hamper stability-oriented monetary policymaking.

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Annex

Table 1a

Initiation of Excessive Deficit Procedures in the EU-15 since 1999			
France	Germany	Greece	Italy
2002: -3.2 2003: -4.2 2004: -3.6 2005: ¹ -3.2	2002: -3.8 2003: -4.1 2004: -3.7 2005: ¹ -3.9	2000: -4.1 2001: -6.1 2002: -4.9 2003: -5.7 2004: -6.6 2005: ¹ -3.7	2003: -3.2 2004: -3.2 2005: ¹ -4.3
Report of the European Commission under Article 104 (3): April 2, 2003	Report of the European Commission under Article 104 (3): November 19, 2002	Report of the European Commission under Article 104 (3): May 19, 2004	Report of the European Commission under Article 104 (3): June 7, 2004
Opinion and recommendation of the European Commission under Articles 104 (5), 104 (6), 104 (7): May 7, 2003	Opinion and recommendation of the European Commission under Articles 104 (5), 104 (6), 104 (7): January 8, 2003	Opinion and recommendation of the European Commission under Articles 104 (5), 104 (6), 104 (7): June 24, 2004	Opinion and recommendation of the European Commission under Articles 104 (5), 104 (6), 104 (7): June 29, 2005
Decision under Article 104 (6) (and recommendation under 104 (7)) of the Ecofin Council on the initiation of a procedure to correct an excessive deficit by 2004: June 3, 2003	Decision under Article 104 (6) (and recommendation under 104 (7)) of the Ecofin Council on the initiation of a procedure to correct an excessive deficit by 2004: January 21, 2003	Decision under Article 104 (6) (and recommendation under 104 (7)) of the Ecofin Council on the initiation of a procedure to correct an excessive deficit by 2005: July 5, 2004	Decision under Article 104 (6) (and recommendation under 104 (7)) of the Ecofin Council on the initiation of a procedure to correct an excessive deficit by 2007: July 28, 2005
Assessment by the European Commission that the measures taken are inadequate; recommendation under Article 104 (8): October 8, 2003	Assessment by the European Commission that the measures taken are inadequate; recommendation under Article 104 (8): November 18, 2003	Assessment by the European Commission that the measures taken are inadequate; recommendation under Article 104 (8): December 22, 2004	Assessment by the European Commission that the measures taken are sufficient: March 14, 2006
Recommendation of the European Commission under Article 104 (9) to give notice to France: October 21, 2003	Recommendation of the European Commission under Article 104 (9), to give notice to Germany: November 18, 2003	Decision of the Ecofin Council under Article 104 (8) about the lack of effective action: January 18, 2005	
"Conclusions" of the Ecofin Council instead of giving notice and extension of the deadline for correction to 2005: November 25, 2003	"Conclusions" of the Ecofin Council instead of giving notice and extension of the deadline for correction to 2005: November 25, 2003	Recommendation of the European Commission under Article 104(9) to give notice to Greece: February 9, 2005	
Ruling of the European Court of Justice: annulment of the conclusions: July 13, 2004	Ruling of the European Court of Justice: annulment of the conclusions: July 13, 2004	Decision of the Ecofin Council under Article 104 (9) to give notice to Greece and to extend the deadline for correction to 2006: February 17, 2005	
Communication of the European Commission about the extension of the deadline for correction of the excessive deficit to 2005: December 14, 2004	Communication of the European Commission about the extension of the deadline for correction of the excessive deficit to 2005: December 14, 2004		
	Decision of the Ecofin Council to give Germany notice under Article 104 (9) of the Treaty and to extend the deadline for the correction of the excessive deficit: March 14, 2007		

Source: Calmfors, 2005, S. 34ff; http://europa.eu.int/comm/economy_finance/about/activities/sgp/edp/edpfr_en.htm

¹ Forecast values, European Commission Autumn 2005 Forecast of November 2005.

Table 1a – continued

Netherlands	Portugal 1	Portugal 2	United Kingdom
2003: –3.2	2001: –4.2	2005: ¹ –6.0	2003: –3.3 2004: –3.1 2005: ¹ –3.4
			Report of the European Commission under Article 104 (3): April 28, 2004
Report of the European Commission under Article 104 (3): April 28, 2004	Report of the European Commission under Article 104 (3): September 24, 2002	Report of the European Commission under Article 104 (3): June 22, 2005	Report of the European Commission under Article 104 (3): September 21, 2005
Opinion and recommendation of the European Commission under Articles 104 (5), 104 (6), 104 (7): May 19, 2004	Opinion and recommendation of the European Commission under Articles 104 (5), 104 (6), 104 (7): October 16, 2002	Opinion and recommendation of the European Commission under Articles 104 (5), 104 (6), 104 (7): July 20, 2005	Opinion and recommendation of the European Commission under Articles 104 (5), 104 (6), 104 (7): January 11, 2006
Decision under Article 104 (6) (and recommendation under 104 (7)) of the Ecofin Council on the initiation of a procedure to correct an excessive deficit by 2005: June 2, 2004	Decision under Article 104 (6) (and recommendation under 104 (7)) of the Ecofin Council on the initiation of a procedure to correct an excessive deficit by 2003: November 5, 2002	Decision under Article 104 (6) (and recommendation under 104 (7)) of the Ecofin Council on the initiation of a procedure to correct an excessive deficit by 2008: October 7, 2005	
Recommendation of the European Commission under Article 104 (12) to conclude the EDP: May 18, 2005	Recommendation of the European Commission under Article 104 (12) to conclude the EDP: April 28, 2004		
Decision of the Ecofin Council to conclude the EDP: June 7, 2005	Decision of the Ecofin Council to conclude the EDP: May 11, 2004		

Table 1b

Initiation of Excessive Deficit Procedures in the New Member States since 2004

Cyprus	Czech Republic	Hungary	Malta	Poland	Slovakia
2004: -4.1 2005: ¹ -2.8	2004: -3.0 2005: ¹ -3.2	2004: -5.4 2005: ¹ -6.1	2004: -5.1 2005: ¹ -4.2	2004: -3,9 2005: ¹ -3,6	2004: -3,1 2005: ¹ -4,1
Report of the European Commission under Article 104 (3): May 12, 2004	Report of the European Commission under Article 104(3): May 12, 2004	Report of the European Commission under Article 104 (3): May 12, 2004	Report of the European Commission under Article 104 (3): May 12, 2004	Report of the European Commission under Article 104(3): May 12, 2004	Report of the European Commission under Article 104 (3): May 12, 2004
Opinion and recommendation of the European Commission under Articles 104 (5), 104 (6), 104 (7): June 24, 2004	Opinion and recommendation of the European Commission under Articles 104 (5), 104 (6), 104 (7): June 24, 2002	Opinion and recommendation of the European Commission under Articles 104 (5), 104 (6), 104 (7): June 24, 2002	Opinion and recommendation of the European Commission under Articles 104 (5), 104 (6), 104 (7): June 24, 2004	Opinion and recommendation of the European Commission under Articles 104(5), 104(6), 104(7): June 24, 2004	Opinion and recommendation of the European Commission under Articles 104 (5), 104 (6), 104 (7): June 24, 2004
Decision under Article 104 (6) (and recommendation under 104 (7)) of the Ecofin Council on the initiation of a procedure to correct an excessive deficit by 2005 and to prevent a further rise in the debt ratio: July 5, 2004	Decision under Article 104 (6) (and recommendation under 104 (7)) of the Ecofin Council on the initiation of a procedure to correct an excessive deficit by 2008: July 5, 2004	Decision under Article 104 (6) (and recommendation under 104 (7)) of the Ecofin Council on the initiation of a procedure to correct an excessive deficit by 2008: July 5, 2004	Decision under Article 104(6) (and recommendation under 104 (7)) of the Ecofin Council on the initiation of a procedure to correct an excessive deficit by 2006 and to prevent a further rise in the debt ratio: July 5, 2005	Decision under Article 104(6) (and recommendation under 104(7)) of the Ecofin Council on the initiation of a procedure to correct an excessive deficit by 2007: July 28, 2005	Decision under Article 104 (6) (and recommendation under 104 (7)) of the Ecofin Council on the initiation of a procedure to correct an excessive deficit by 2008: July 5, 2005
		Assessment by the European Commission that the measures taken are inadequate; recommendation under Article 104 (8): December 22, 2004			
		Decision of the Ecofin Council under Article 104(8) about the lack of effective action: January 18, 2005			
		Recommendation of the European Commission under Article 104 (7): February 16, 2005			
		Recommendation of the European Commission under Article 104(7): March 8, 2005			
		Recommendation of the European Commission under Article 104 (8): October 20, 2005			
		Decision of the Ecofin Council under Article 104 (8): November 8, 2005			

Source: Calmfors, 2005, S. 34ff; http://europa.eu.int/comm/economy_finance/about/activities/sgp/edp/edpfr_en.htm

¹ Forecast values, European Commission Autumn 2005 Forecast of November 2005.

Table 2a

Deficit Ratios¹ in the EU Member States

% of GDP	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Belgium	-6.8	-7.4	-8.0	-7.3	-5.0	-4.3	-3.8	-2.0	-0.7	-0.4	0.2	0.6	0.0	0.1	0.0
Germany	x	-3.0	-2.5	-3.1	-2.4	-3.3	-3.4	-2.7	-2.2	-1.5	1.3	-2.9	-3.8	-4.1	-3.7
Greece	-15.4	-11.4	-11.1	-13.4	-9.4	-10.2	-7.4	-4.0	-2.5	-1.8	-4.1	-6.1	-4.9	-5.7	-6.6
Spain	x	x	x	x	x	-6.6	-4.9	-3.2	-3.0	-1.2	-0.9	-0.5	-0.3	0.0	-0.1
France	-2.1	-2.4	-4.2	-6.0	-5.5	-5.5	-4.1	-3.0	-2.7	-1.8	-1.4	-1.6	-3.2	-4.2	-3.6
Ireland	-2.8	-2.9	-3.0	-2.7	-2.0	-2.1	-0.1	1.1	2.4	2.4	4.4	0.8	-0.4	0.2	1.4
Italy	-11.8	-11.7	-10.7	-10.3	-9.3	-7.6	-7.1	-2.7	-2.8	-1.7	-0.6	-3.2	-2.7	-3.2	-3.2
Luxembourg	4.8	1.2	0.2	1.5	2.7	2.1	1.9	3.2	3.2	3.7	6.0	6.1	2.1	0.2	-0.6
Netherlands	-5.3	-2.7	-4.2	-2.8	-3.5	-4.2	-1.8	-1.1	-0.8	0.7	2.2	-0.2	-2.0	-3.2	-2.1
Austria	-2.4	-2.9	-1.9	-4.2	-4.9	-5.6	-3.9	-1.8	-2.3	-2.2	-1.5	0.1	-0.4	-1.2	-1.0
Portugal	-6.1	-8.1	-6.0	-8.9	-6.6	-4.5	-4.0	-3.0	-2.6	-2.8	-2.8	-4.2	-2.8	-2.9	-3.0
Finland	5.3	-1.1	-5.6	-7.3	-5.7	-3.7	-3.2	-1.5	1.5	2.2	7.1	5.2	4.3	2.5	2.1
EU-12	x	x	x	x	x	-5.1	-4.3	-2.6	-2.2	-1.3	0.1	-1.9	-2.5	3.0	-2.7
Denmark	-1.0	-2.4	-3.3	-3.7	-3.2	-3.1	-1.9	-0.5	0.2	2.4	1.7	2.6	1.4	1.0	2.3
Sweden	x	x	x	-11.6	-9.3	-7.0	-2.7	-0.9	1.8	2.5	5.1	2.5	-0.3	0.2	1.6
United Kingdom	-1.5	-2.8	-6.5	-8.0	-6.8	-5.7	-4.3	-2.0	0.2	1.0	3.8	0.7	-1.6	-3.3	-3.1
EU-15	x	x	x	x	x	-5.2	-4.2	-2.4	-1.6	-0.7	1.0	-1.2	-2.2	-2.9	-2.6

Source: Eurostat.

¹ Including UMTS license revenue.

Table 2b

Debt Ratios in the EU Member States

% of GDP	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Belgium	129.2	130.6	132.2	137.9	135.9	134.0	130.2	124.8	119.6	114.8	109.1	108.0	105.4	100.0	95.7
Germany	x	40.4	42.9	46.9	49.3	57.0	59.8	61.0	60.9	61.2	60.2	59.6	61.2	64.8	66.4
Greece	79.6	82.2	87.8	110.1	107.9	108.7	111.3	108.2	105.8	105.2	114.0	114.4	111.6	108.8	109.3
Spain	43.6	44.3	46.8	58.4	61.1	63.9	68.1	66.6	64.6	63.1	61.1	56.3	53.2	49.4	46.9
France	35.1	35.8	39.6	45.3	48.4	54.6	57.1	59.3	59.5	58.5	56.8	56.8	58.8	63.2	65.1
Ireland	94.2	95.6	92.5	95.1	89.6	81.8	73.3	64.5	53.8	48.6	38.3	35.9	32.4	31.5	29.8
Italy	97.2	100.8	108.1	118.7	124.8	124.3	123.1	120.5	116.7	115.5	111.2	110.9	108.3	106.8	106.5
Luxembourg	5.4	4.6	5.5	6.8	6.3	6.7	7.2	6.8	6.3	5.9	5.5	6.7	6.8	6.7	6.6
Netherlands	76.9	76.8	77.9	79.3	76.4	77.2	75.2	69.9	66.8	63.1	55.9	51.5	51.3	52.6	53.1
Austria	56.1	56.1	55.8	60.5	63.4	67.9	67.6	63.8	64.2	66.5	67.0	67.0	66.7	65.1	64.3
Portugal	58.3	60.7	54.4	59.1	62.1	64.3	62.9	59.1	55.0	54.3	53.3	53.6	56.1	57.7	59.4
Finland	14.2	22.6	40.5	55.9	58.0	57.1	57.1	54.1	48.6	47.0	44.6	43.6	42.3	45.2	45.1
EU-12	x	58.5	60.3	66.2	68.9	73.6	75.2	74.9	74.2	72.7	70.4	69.3	69.2	70.4	70.8
Denmark	63.1	64.0	69.4	81.1	77.4	73.2	69.7	65.7	61.2	57.7	52.3	48.0	47.6	45.0	43.2
Sweden	x	x	x	x	73.9	73.7	73.5	70.6	68.1	62.7	52.8	54.3	52.4	52.0	51.1
United Kingdom	34.0	34.4	39.2	45.4	48.6	51.8	52.3	50.8	47.7	45.1	42.0	38.7	38.2	39.7	41.5
EU-15	x	x	x	x	66.4	70.8	72.6	71.0	68.9	67.9	64.1	63.1	62.5	64.0	64.3

Source: Eurostat.

Table 3a

Correction Periods for Excessive Deficits in the EU-15		2001	2002	2003	2004	2005 ¹	2006 ¹	2007 ¹	2008
Portugal	Deficit ratio	-4.2	-2.8	-2.9	-3.0	-6.0	-5.0	-4.8	
	Deadline		— until 2003 →			— — until 2008 — — →			
	Extension/correction		ED corrected						
Germany	Deficit ratio	-2.9	-3.8	-4.1	-3.7	-3.9	-3.7	-3.3	
	Deadline			— until 2004 →					
	Extension/correction					until 2005	until 2007		
France	Deficit ratio	-1.6	-3.2	-4.2	-3.6	-3.2	-3.5	-3.5	
	Deadline			— until 2004 →					
	Extension/correction					until 2005			
Netherlands	Deficit ratio	-0.2	-2.0	-3.2	-2.1	-1.8	-1.9	-1.5	
	Deadline				— until 2005 →				
	Extension/correction				ED corrected				
Greece	Deficit ratio	-6.1	-4.9	-5.7	-6.6	-3.7	-3.8	-3.8	
	Deadline				— until 2005 →				
	Extension/correction						until 2006		
Italy	Deficit ratio	-3.2	-2.7	-3.2	-3.2	-4.3	-4.2	-4.6	
	Deadline					— — until 2007 →			
	Extension/correction								
United Kingdom	Deficit ratio	0.7	-1.6	-3.3	-3.1	-3.4	-3.3	-3.0	
	Deadline						— — until →		
	Extension/correction						2006/07 ²		

Source: Eurostat. OeNB.

Note: In the last year of the correction period, the deficit ratio is to have sunk below 3% of GDP.

ED = excessive deficit.

¹ The budget deficits are forecast values (Autumn 2005 Forecast of the European Commission of November 2005).² Correction period: fiscal year 2006/07.

Table 3b

Correction Periods for Excessive Deficits in the New Member States		2004	2005 ¹	2006 ¹	2007 ¹	2008
Poland	Deficit ratio	-3.9	-3.6	-3.6	-3.4	
	Deadline	--- until 2007 --->				
	Extension/correction					
Czech Republic	Deficit ratio	-3.0	-3.2	-3.7	-3.3	
	Deadline	--- until 2008 --->				
	Extension/correction					
Hungary	Deficit ratio	-5.4	-6.1	-6.7	-6.9	
	Deadline	--- until 2008 --->				
	Extension/correction					
Slovakia	Deficit ratio	-3.1	-4.1	-3.0	-2.5	
	Deadline	--- until 2008 --->				
	Extension/correction					
Malta	Deficit ratio	-5.1	-4.2	-3.0	-2.5	
	Deadline	--- until 2006 --->				
	Extension/correction					
Cyprus	Deficit ratio	-4.1	-2.8	-2.8	-2.4	
	Deadline	--- until 2005 --->				
	Extension/correction					

Source: Eurostat, OeNB.

Note: In the last year of the correction period, the deficit ratio is to have sunk below 3% of GDP.

¹ The budget deficits are forecast values (Autumn 2005 Forecast of the European Commission of November 2005).

Chart 1a

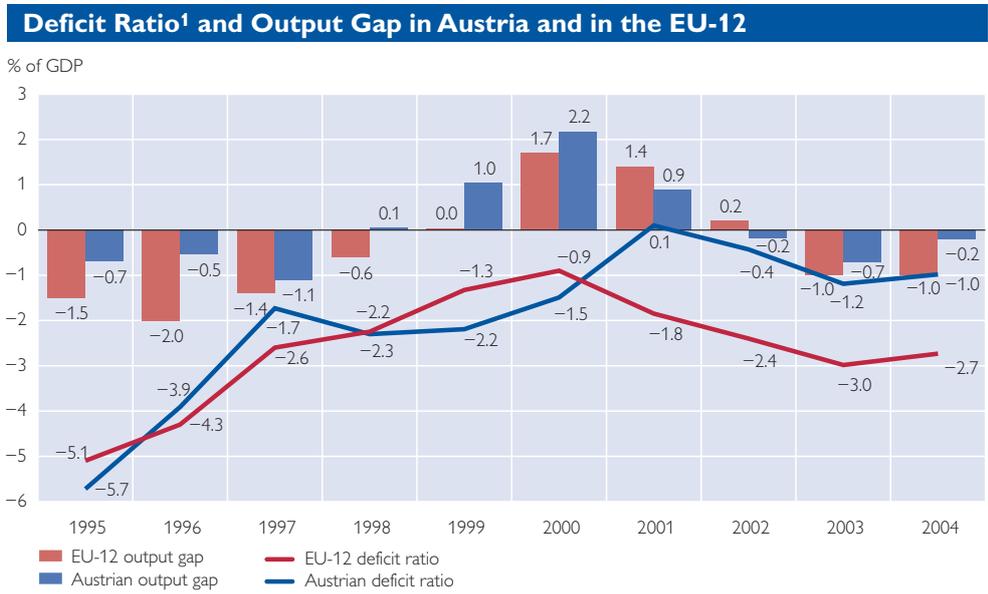
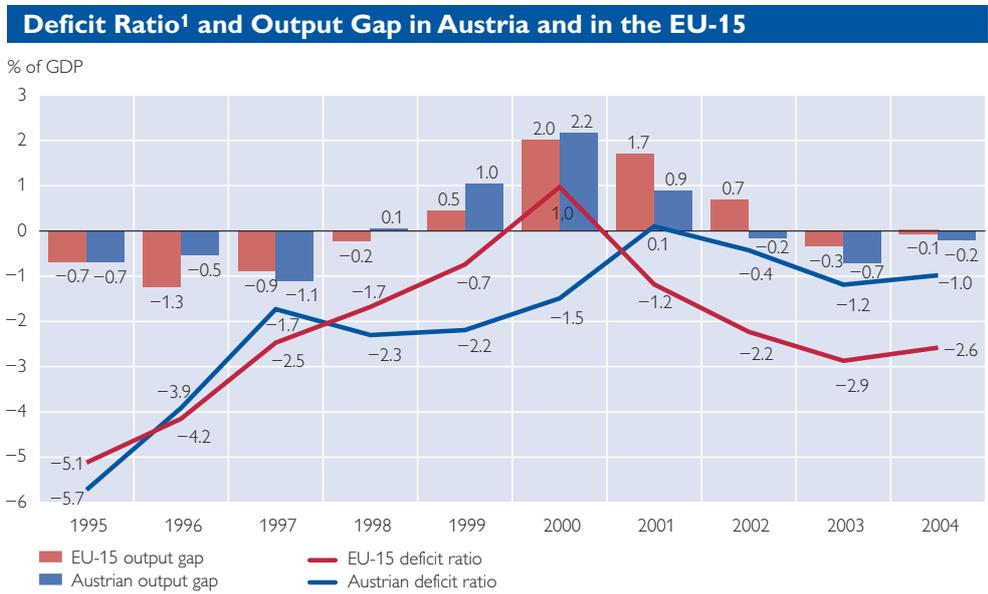


Chart 1b



High Employment with Low Productivity? The Service Sector as a Determinant of Economic Development

Andreas Breitenfellner,
Antje Hildebrandt

Whether measured in terms of employment or value added, the service sector by far dominates the economies of industrialized countries. The positive connection between tertiarization and per capita income is confirmed in both country cross-section and time series analyses. This development can be explained by demand factors (e.g. the growing proportion of female employees) and supply factors (e.g. cost disease in the service sector). This paper analyzes data on 23 service activities, grouped into four subsectors (distribution, business, social and personal services). The analysis of each subsector's contribution to the development of employment and productivity between 1983 and 2003 illuminates the prevailing productivity gap between the EU-15 and the U.S.A. The corresponding investigation of four new EU Member States during their transformation processes points to an employment potential in the tertiary sector that has not yet been fully utilized. The study further identifies four tertiarization models (dynamic, lagging, managed and catching-up) that can be associated with different geographic regions. The process of tertiarization is compatible with growth in both employment and productivity. Different combinations of production- and consumption-oriented services can have a positive effect on growth. The concluding section discusses the role of the European Union's Lisbon strategy in enhancing the productivity of the service sector.

JEL classification: O14, O52, O57, F15, L80, P20

Keywords: sectoral change, productivity, country comparison in the EU.

1 Introduction

The service sector is by far the most important sector in industrialized economies. The International Labour Organization (ILO, 2006) estimates the service sector's share of total employment in the European Union (EU) and other developed economies to have totaled 71.4% in 2005, having grown from 66.1% in 1995. Over the same period, the industry sector shrunk from 28.7% to 24.9%. Although services account for more than two-thirds of employment and value added, economic analyses and policies continue to focus on industrial production. Services are, of course, extremely heterogeneous; they are difficult to define, differentiate and categorize. Despite these difficulties, the tertiary sector is finally attracting increased national and international attention (for example through the EU Services Directive or the WTO's GATS negotiations).

The increasing importance of the service sector raises a number of significant questions: Is the structural change from agriculture to industry and on to services an unavoidable, natural phenomenon? Is there a distinct

pattern of different phases that all countries must go through in their development processes? What are the underlying reasons and determining factors? Which subsectors are particularly important? What are the consequences of tertiarization for employment, productivity and the economy as a whole? Can and should this process be influenced?

The purpose of this study is to summarize the key aspects of sectoral change and to review the findings obtained so far for the EU, including some of its new Member States. It is structured around the following two central working hypotheses:

1. The process of tertiarization is compatible with growth in both employment and productivity.
2. Different combinations of production- and consumption-oriented services can have a positive effect on growth.

In the following sections, the authors investigate the long-term growth trends observed in the tertiary sector and analyze the share of the individual subsectors in total employment and productivity in the EU as compared to the U.S.A. This comparison mainly

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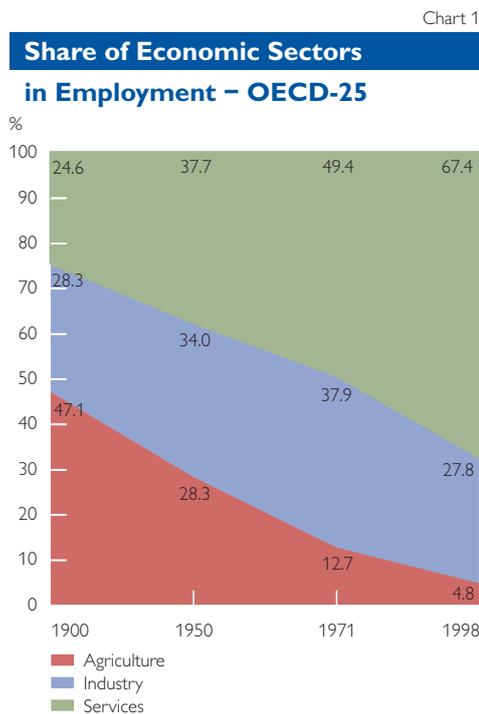
uses the data of the *Groningen Growth and Development Centre* (GGDC, 2005), which provides a comprehensive dataset for the EU and the U.S.A. between 1979 and 2003 and for the Czech Republic, Hungary, Poland and the Slovak Republic from 1995 to 2003.¹ The database subdivides the economy into 57 industries (activities), of which 23 are allocated to the service sector.

This study is organized as follows: Section 2 provides a summary of the tertiarization trends prevailing in the OECD region and analyzes the various theoretical approaches to sectoral change. Section 3 investigates and categorizes the individual segments within the service sector with regard to their shares of total employment and productivity in the EU and the U.S.A. Box 2 provides details on the development in the four largest new EU Member States. Section 4 attempts to analyze country-specific changes along different development paths. Finally, the authors draw first conclusions for the EU and its new Member States.

2 Sectoral Change: Developments and Initial Explanations

The process of economic development is connected with systematic structural change in most countries: As per capita income rises, the primary sector loses in importance, while the manufacturing industry initially gains momentum but is eventually surpassed by the constantly growing service sector.

The historical share of employees in a representative weighted average of highly developed countries² shows that the production of material goods has long since lost its leading position. This would imply that the so-called industrialized nations have actually entered the stage of post-industrial service economies.



Source: Feinstein (1999), OeNB.

A division into distinct development stages does not, however, sufficiently take into account that the volume of industrial production continued to grow over the whole period under consideration. Measured in constant prices, the share of industrial production in gross value added in the

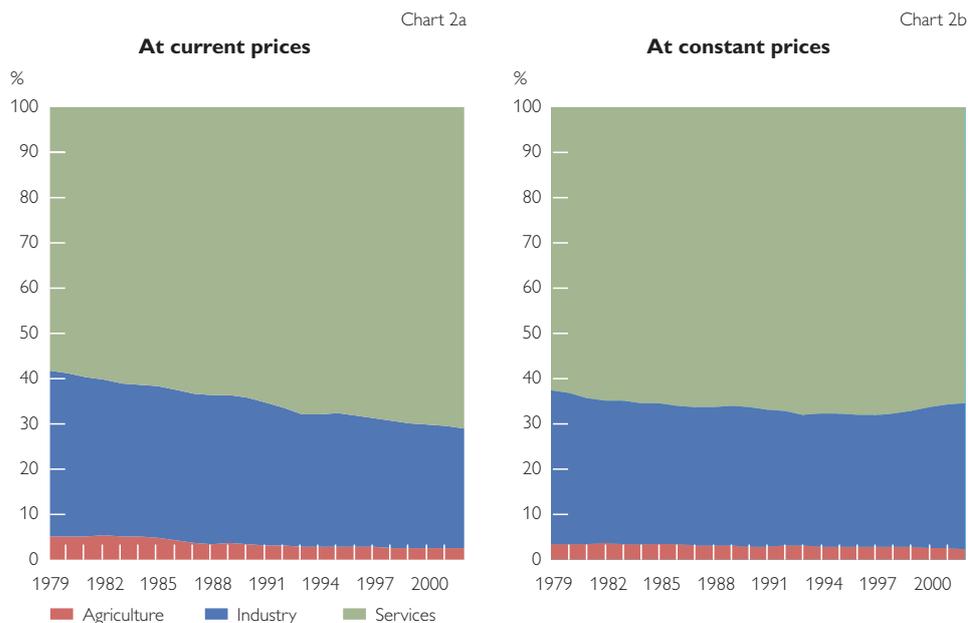
¹ No data are provided for the other new EU Member States.

² Given the lack of availability of long time series of data for sector employment in the OECD region, Feinstein's analysis (1999) was used as it forms a historical data series from a large number of sources in the most consistent manner possible. The percentages were determined after summation of the absolute figures. The 25 countries are made up of the EU-15 (not including Luxembourg), the four largest new EU Member States (Czech Republic, Hungary, Poland, Slovak Republic), Canada, the U.S.A., Japan, Australia, New Zealand, Norway and Switzerland.

OECD region has remained relatively stable. The widespread perception of a permanent decrease in value added by industrial production is only reflected

by current prices. This typical development is shown by the example of the EU-15 for the period from 1979 to 2002 (charts 2a and 2b).^{3,4}

Share of Economic Sectors in Gross Value Added – EU-15



The discrepancy between nominal value added (at current prices) and real value added (at constant prices) is caused by the comparatively stronger productivity growth in the industry sector,⁵ which means that the relative prices for material goods in comparison to services have been falling. This development challenges the notion that deindustrialization is basically a

substitution process in favor of the service sector.⁶ Despite the increasing degree of tertiarization, all three sectors will continue to coexist in the foreseeable future.

Although tertiary employment has developed in a similar manner in the individual countries, this process has by no means been uniform, as can be seen from the development paths of

³ The chart is based on constant prices (level of 1995) in euro taken from the GGDC database (2005), adjusted by industry-specific deflators. The U.S. data (at fixed prices of 1995 in U.S. dollars) provide a comparable picture (also see Economist, 2005). Rowthorn and Wells (1988) described this phenomenon as early as 1988.

⁴ Trends in West Germany before 1991 were combined with the data from unified Germany.

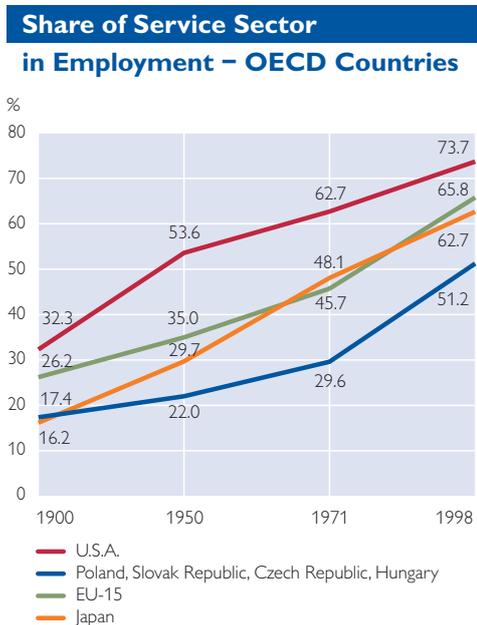
⁵ Measurement of productivity in the service sector does, however, open up a number of problems. For example, output from the service sector is mostly of an intangible nature and thus difficult to quantify. Furthermore, little information is available on the price and quality of the services provided, and on the effects of labor and technology characteristics on productivity (European Commission, 2003). Particularly in the public sector, output is defined as the sum of input factors, as there are no market prices available. For further reasons for a potential underestimation of productivity in the tertiary sector, see Gordon (1996).

⁶ In fact, lower relative prices should actually cause an increase in demand for material goods. However, demand stagnates because of substitution and income effects: material goods are obviously complementary and/or inferior goods.

the world's three largest economic areas and the largest new EU Member States (chart 3).

In this context, the lag in the onset of this transition process is particularly noteworthy. Tertiarization started first in the U.S.A., then in Japan and finally in Europe. The four largest new EU Member States (the Czech Republic, Hungary, Poland and the Slovak Republic) underwent drastic changes in their industrial structures during the transformation to modern market economies over the past decade. Despite this rapid transition, these countries still have a lower share of employment in the service sector than the EU-15.

Chart 3

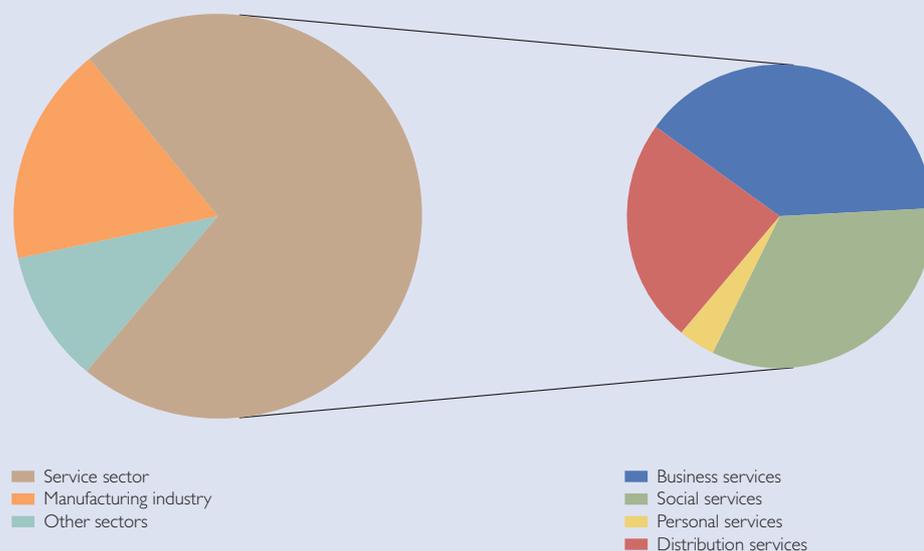


Box 1

What is a Service?

The service sector (also known as the tertiary sector) comprises activities that are not included in the extracting primary sector (mining, agriculture, fishing) or in the manufacturing secondary sector (industry and trade). Apart from this definition as a residual category, services are usually regarded as invisible, nonperishable and intangible. A further characteristic is that, in most cases, production and consumption occur simultaneously, i.e. through immediate interaction between consumers and service providers (*uno-actu principle*). The line between the rendering of services and the provision of goods is, however, increasingly becoming blurred. Software programs are a good example of this trend: they can be delivered physically (CD-ROM) or they can be made available through online services. Not least because of these definition problems, the concept of “services” must be analyzed in closer detail.

Share of (Sub)Sectors in Value Added – EU-15 (2003)



Source: GGDC (2005), OeNB.

The service sector can be classified in different ways. The categorization scheme used in this paper – dividing the sector into four subsectors (Singelmann, 1978), each of which is assigned a given ISIC⁷ category – is one of the most frequently used methods:

Distribution services are mainly made up of the following activities: sale, maintenance and repair of motor vehicles and motorcycles, retail sale of automotive fuels, wholesale trade and commission trade, retail trade, repair of personal and household goods, inland, water and air transport, supporting and auxiliary transport activities except the activities of travel agencies, communications.

Business services include financial intermediation, insurance and pension funding (except compulsory social security), activities auxiliary to financial intermediation, real estate activities, renting of machinery and equipment, computer and related activities, research and development (R&D), legal, technical, advertising and other business activities.

Social services comprise activities in the areas of public administration, defense, compulsory social security, education, health and social work.

Personal services are divided into the segments of hotels and catering and private households with employed persons.

The first two subsectors, distribution and business services, can be further aggregated into **intermediary or production-oriented services** that serve as inputs for the production of goods and services belonging to other (sub)sectors. The second two subsectors, social and personal services, constitute the collective category of **final or consumption-oriented services**, destined for final consumption.

An alternative classification system divides services according to their institutional characteristics, distinguishing between services supplied by the market and government or public services. This system must, however, take into account differences between the individual countries, for example those caused by different welfare state models.

⁷ International Standard Industrial Classification of all Economic Activities.

The theory of sectoral change can be divided into demand⁸- and supply-oriented approaches (Schettkat and Yocarini, 2003):

Demand Approaches

The three-sector hypothesis, which was first introduced by Fisher (1935) and Clark (1940), states that a gradual shift in employment and value added from the primary to the tertiary sector is inherent in the process of economic development. This hypothesis was based on the observation that most services have higher income and lower price elasticities than agricultural or industrial products. Consequently, sectoral change can be characterized as a demand phenomenon. With rising income levels, the demand for *inferior* goods will inevitably be saturated eventually, while the demand for *superior* services will continue to grow.

As postulated by Adolph Wagner back in 1863, in industrialized countries government expenditures will grow at a faster rate than the output of goods and services (*law of increasing state activity*). The fact that more collective services are provided as incomes rise reflects voter preferences and politicians' interests, but also the fact that individual demand does not sufficiently take into account the positive external effects of social services.⁹

Demographic factors must also be named as further demand-oriented determinants of structural change, although rising rates of participation by women influence not only the

demand for services but also their supply. A reduction in average household size also plays a role, as this reduces the economies of scale for the provision of services within families (Pohl, 1970). A high level of service employment goes hand in hand with a high rate of female participation in the labor market, as is evidenced by a comparison of OECD countries (Pilat, 2005). Furthermore, the increasing dependence ratio of people not gainfully employed – reflecting, above all, the changing age structure of the population – leads to a greater demand for services.¹⁰

Supply Approaches

Fourastié (1954) interprets structural change similar to the Fisher-Clark model, but places primary focus on the changes in labor productivity caused by technological progress. According to Fourastié, the service sector is a “catch basin” for the labor force released from agriculture and industry.

Baumol (1967) takes a more pessimistic view of the phenomenon of below-average productivity development in the tertiary sector. Because of their technological structure, limited capital intensity, and a lack of returns to scale, the productivity of services can only be raised *sporadically*. To guarantee the required level of quality it is necessary to employ a minimum amount of labor, as Baumol illustrates by the example of a quintet concert. As, however, wages in all sectors are

⁸ We are speaking of long-term structural determinants of demand. Rowthorn and Wells (1988) also observe an anti-cyclical component in deindustrialization.

⁹ Section 3 demonstrates, however, that the EU-15 figures for employment in public administration and defense have fallen over the recent years (catchwords: administrative reform, peace dividend). Furthermore, anecdotal evidence of the outsourcing or privatization of social services suggests that Wagner's theory might not have the character of a definite law.

¹⁰ Income differentiation represents a further factor, the level of which displays a positive correlation with the volume in consumption-oriented (personal) services, but correlates negatively with that of the sector as a whole (Bosch and Wagner, 2003).

oriented toward the technologically *progressive* manufacturing sector – presuming intersectoral labor mobility – the costs in the technologically unchanging sector rise. Consequently, an increasing proportion of labor must be channeled into low-growth activities (services), which in turn causes this *cost disease* to spread to the economy as a whole, successively slowing down economic growth.

The growing share of the service sector in employment and value added can also be understood as a result of corporate strategies. Such changes in industrial organization are not exclusively aimed at outsourcing jobs yielding low productivity or lacking strategic importance. On the one hand, specialized service companies satisfy demand at lower prices by exploiting returns to scale. On the other hand, organizational economies, synergies and learning effects (Landesmann and Petit, 1995), market developments, and institutional factors (tax or environmental laws) contribute to the rising importance of (complementary) business services (Mesch, 1997).

The growing popularity of outsourcing strategies may correlate with decreasing transaction costs, technological change and a rise in competitive pressure. It is certainly also connected to globalization tendencies that themselves affect the size of the service sector. The acceleration of worldwide direct investments and the increased intensity of global trade go hand in hand with the (international) outsourcing of production and service functions. The effective management of these outsourcing activities requires additional capacities in the service sector (R&D, design, marketing, logistics,

legal and tax consultancy, information and communication technology (ICT)). In this context, the liberalization of formerly heavily regulated service industries should be mentioned as a factor that might stimulate employment and productivity.

While advanced economies enjoy a historically developed comparative advantage as market pioneers in the globalization of (financial and corporate) services, the international outsourcing of ancillary service inputs is a relatively new trend. The prerequisites for this process are technological innovations, such as the development of broadband networks, regulatory reforms and trade liberalization, as well as the creation of a global market for highly qualified employees. Countries like India, but also Ireland and the Czech Republic, profit from this development. The feared negative effects on employees in high-wage countries could only be observed in case studies (Pilat, 2005).

3 The Service Sector as an Engine for Employment and Productivity?

Apart from the importance of the service sector for employment and value added in the economy as a whole, questions arise about the role services play in the growth of employment and productivity. In the EU-15, the total number of persons employed in the period from 1993 to 2003 rose by approximately 10%, with almost 13 percentage points resulting from employment growth in the service sector. In other words, the remaining sectors made a negative contribution of almost 3 percentage points.¹¹ A quite different picture emerges, however,

¹¹ *Growth contribution figures indicate the extent to which each sector contributed to total growth (in percentage points). The sum of growth contributions thus equals the growth rate of total employment within the service sector. The same applies for contributions to growth in labor productivity (also see OECD, 2003).*

when looking at the service sector's impact on labor productivity growth. Between 1993 and 2003 overall labor productivity (measured in value added per employee¹²) rose by more than 40% in the EU-15, but the service sector contributed just under 7 percentage points to this increase. The service sector as a whole thus made an above-average contribution to the growth of employment in the EU-15, but only a below-average contribution to productivity growth. In the same period, the U.S.A. recorded a slightly higher employment growth at almost 15%, with the service sector also accounting for the largest contribution. Labor productivity rose by more than 80%, and the service sector contributed almost 18 percentage points to this figure. These figures reveal the *productivity gap* that emerged between the EU-15 and the U.S.A. in this period, a gap that also exists within the service sector.

The broad spectrum of the service sector includes such heterogeneous fields as biotechnology research, gravel transportation, catering services and telecommunications. Such a diversity requires a differentiated approach in order to assess the impact of the individual activities on growth in employment and productivity. In this analysis, we focus on the EU-15 and use figures from the U.S.A. for comparison purposes. The service sector is divided into 23 activities in accordance with the *ISIC* classification (*revision 3, two- and three-digit level*; also see tables in the appendix). These tables not only present the shares of the individual

activities in employment and value added, but also show how these shares have changed over time.

3.1 Employment

Employment in the service sector grew by more than 21% in the EU-15 between 1983 and 1993, with the growth rate slowing down somewhat, to just over 19%, in the period from 1993 to 2003. In the U.S.A., by comparison, employment increased by more than 28% in the first period, but its growth rate also declined to approximately 19% between 1993 and 2003.

The contributions to growth vary across individual activities in the EU-15 (chart 5) and lead us to conclude that robust growth in employment can be attributed primarily to particularly strong demand for small range of activities.¹³ In the period from 1983 to 1993, the labor-intensive field of *health and social work* made the greatest contribution to growth, followed by *legal, technical and advertising* and *other business activities*. Some fields, such as *water and air transport* and *communications* either made a very small or even a negative contribution to employment growth. In the second period (1993 to 2003), the contribution of *other business activities* increased strongly. This segment, which comprises production-related business services, makes up a substantial proportion of employment and will definitely require a more detailed statistical analysis in the future. Positive development continues to be seen in the fields of *auxiliary transport activities and activities of travel agencies*, as well as *computer and related activities*.

¹² In the calculation of labor productivity, labor input is based on the more common measure of persons employed rather than hours worked. Wölfl (2003) found the choice of input variable to have but a marginal effect on the result. In the case of the service sector, moreover, there is no conclusive evidence as to which of the two input factors results in higher labor productivity growth.

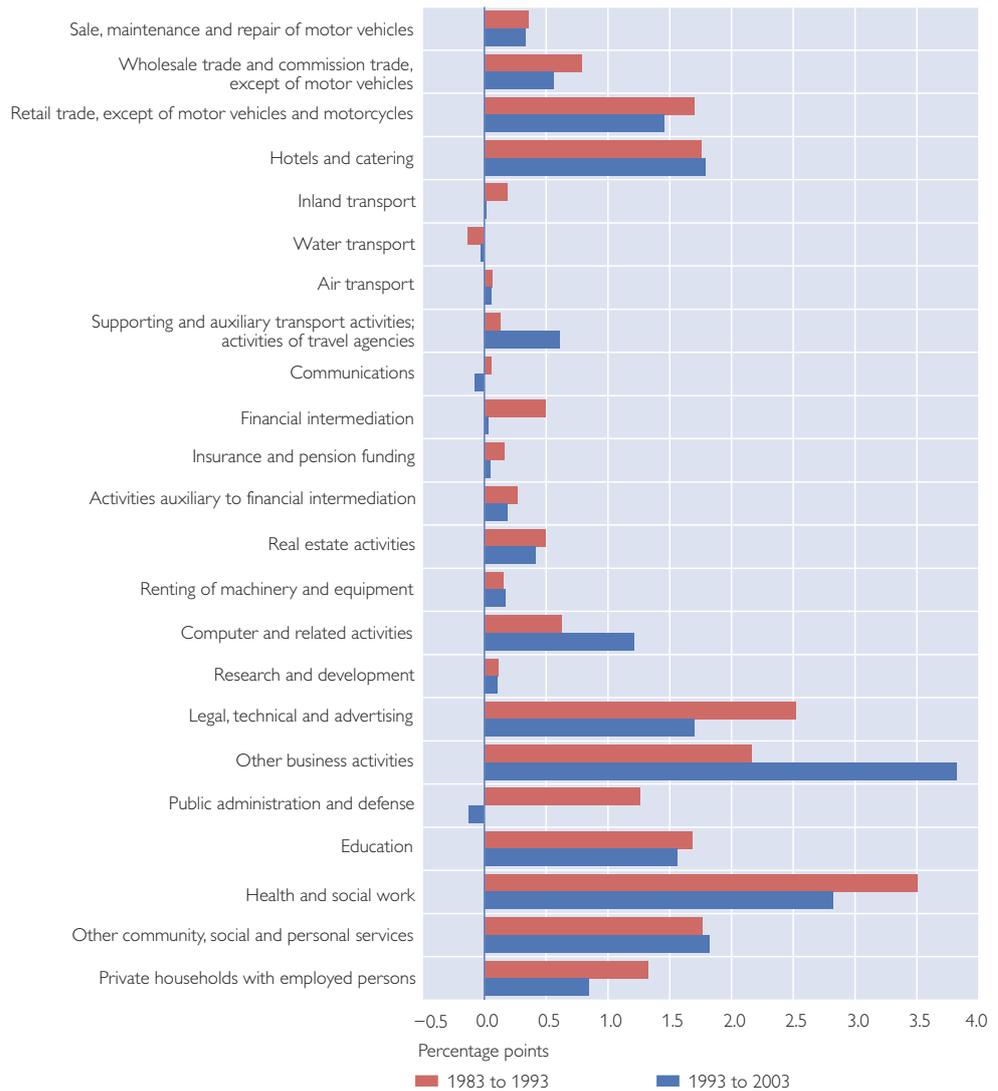
¹³ In the following section, we will only briefly outline the developments in the service sector, as a detailed analysis of individual activities or countries would go beyond the scope of this study.

HIGH EMPLOYMENT WITH LOW PRODUCTIVITY?
THE SERVICE SECTOR AS A DETERMINANT
OF ECONOMIC DEVELOPMENT

The contributions of the remaining activities to employment remained almost constant or dropped, with a particularly strong decline in *public administration and defense*.

Chart 5

Contribution of Service Activities to Employment Growth – EU-15

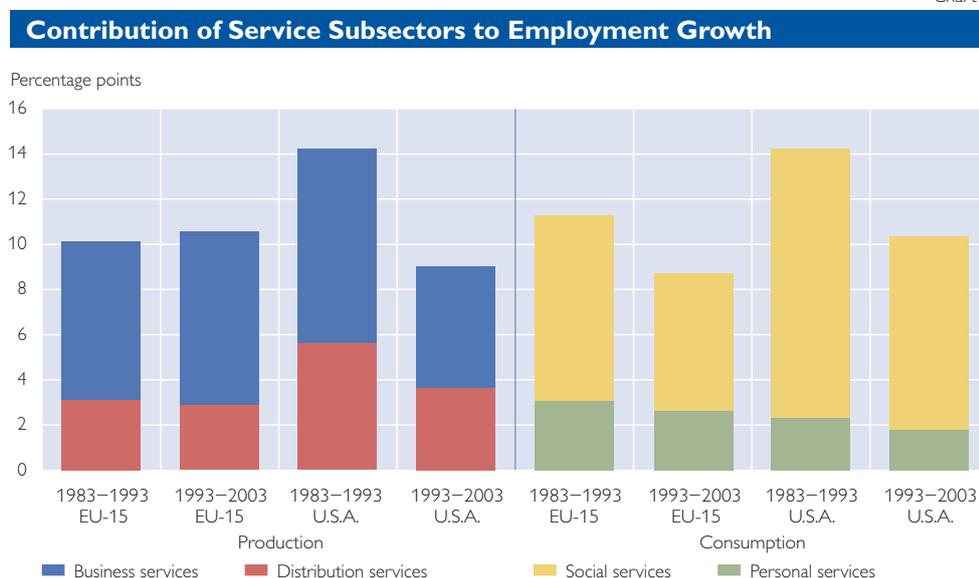


Source: GGDC (2005), OeNB.

The categorization of the activities described above into four subsectors – *distribution, business, social and personal services* (box 1) – shows that in the period from 1983 to 1993 *social service* activities made the largest contribution to employment growth in both the EU-15 and the U.S.A. (chart 6). Between 1993 and 2003, however, both regions experienced a significant decline in this segment's contribution

to growth. The contribution from *business services* in the EU-15 rose slightly in the second period, while that of *distribution services* fell somewhat. In the U.S.A., the contributions provided by *business* and *distribution services* went down. *Distribution* and *personal services* made only slight contributions to the growth in employment in both the EU-15 and the U.S.A.

Chart 6



Source: GGDC (2005), OeNB.

The classification by demand type (*production* and/or *consumption*) in chart 6 indicates that between 1983 and 1993, consumption-oriented services contributed more to employment growth than production-oriented services in the EU-15. In the U.S.A., the balance was fairly equal. In the period up to 2003, however, the picture drastically changed and the contribution to growth from consumption-oriented services dropped in both regions. This is apparently a consequence of administrative reforms and, to some extent, health and social reforms and the corresponding cuts in employment. In the EU-15, the contribution from pro-

duction-oriented services rose slightly, and therefore most new jobs were created in this segment. In the U.S.A., where the contribution made by production-oriented services declined markedly, more jobs were created in consumption-oriented industries during the second period.

3.2 Productivity

From 1983 to 1993, labor productivity grew in the entire service sector by more than 11% in the EU-15 and by just over 3% in the U.S.A. In the period up to 2003, however, the U.S.A. made substantial gains in productivity growth, achieving a growth

HIGH EMPLOYMENT WITH LOW PRODUCTIVITY?
THE SERVICE SECTOR AS A DETERMINANT
OF ECONOMIC DEVELOPMENT

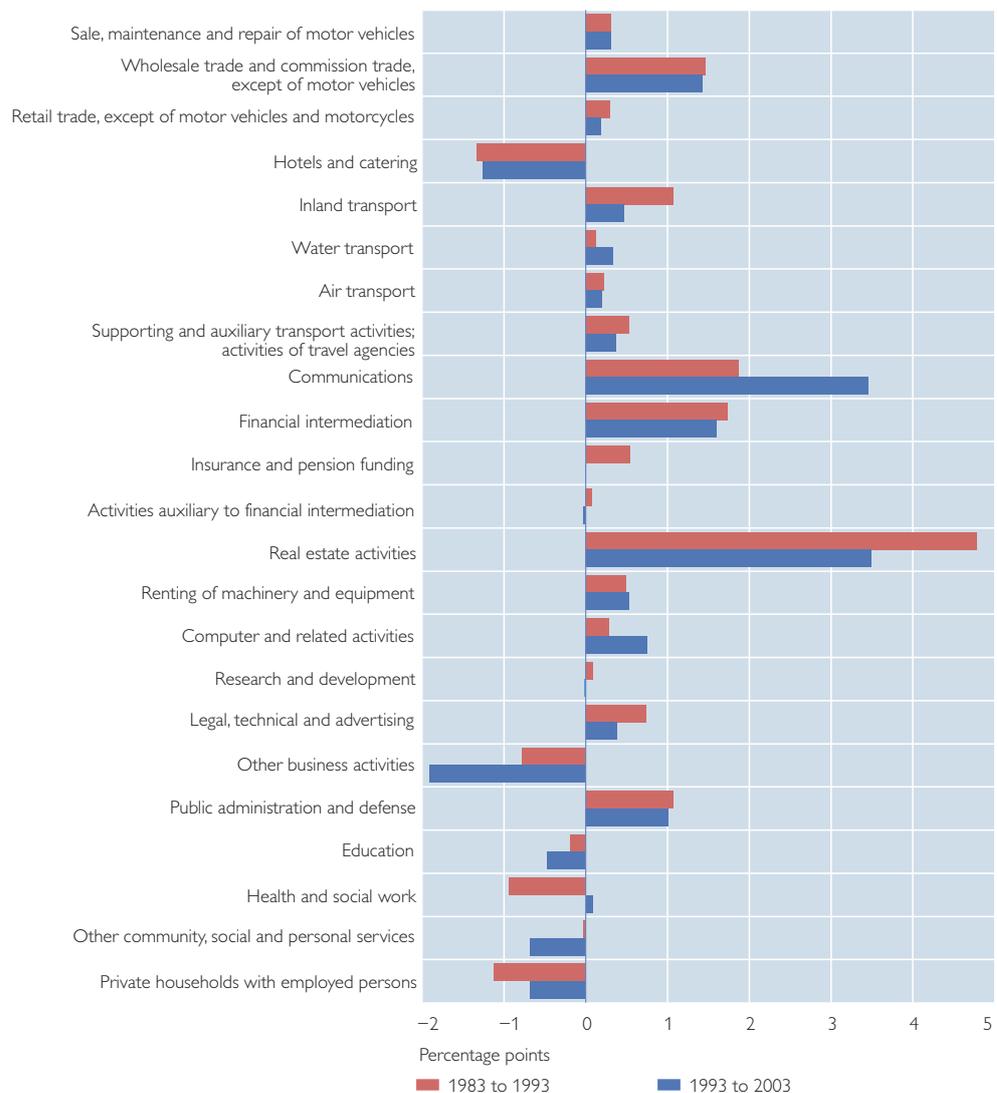
rate of more than 24%. In the EU-15, by contrast, growth declined to just over 9% from 1993 to 2003. This raises the question of which service industries were responsible for the different courses in productivity development.

The *communications* field was single biggest contributor to labor productivity in the EU-15 during the second period, which can be attributed to, among other reasons, the liberalization of the telecommunications market.

Between 1993 and 2003, *real estate activities* and *financial intermediation* also generated a higher rate of growth in labor productivity than during the previous period. The contribution from *real estate business* remained at a high level at first, but dropped by almost 50% in the second period. *Other business activities* and *hotels and catering* most strongly slowed down labor productivity growth in the service sector (chart 7).

Chart 7

Contribution of Service Activities to Labor Productivity Growth – EU-15

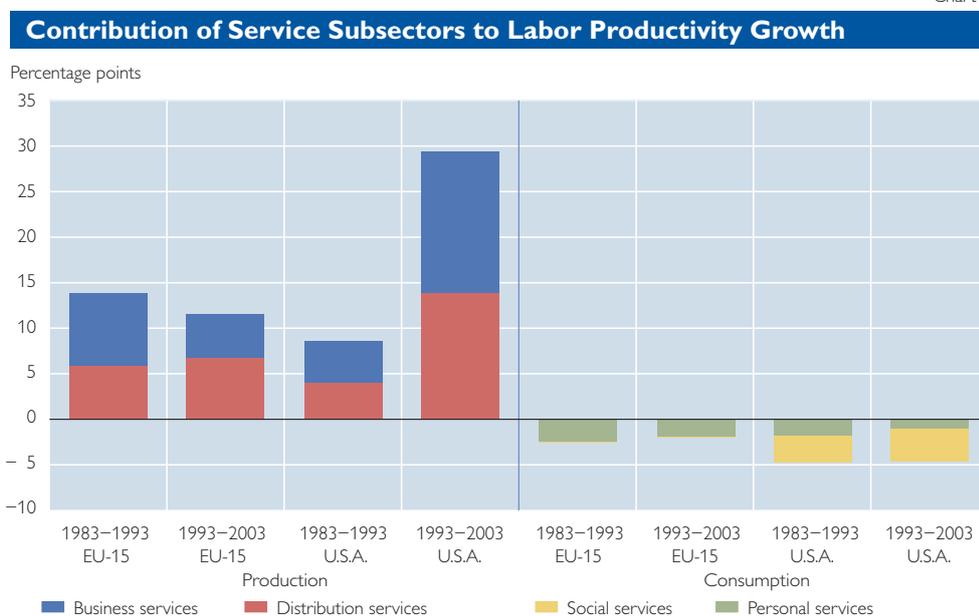


Source: GGDC (2005), OeNB.

The total contribution of *personal* and *social services* to growth in labor productivity was negative for both periods and country groups. These industries are typically labor-intensive with a low level of competition – both factors that slow productivity. The productivity growth in the service sector is thus attributable to market services, such as *distribution* or *business services*. In the period from 1993 to 2003, there was, however, a substantial decrease in

the contribution from *business services*, basically reflecting the decline in *real estate business*. The downturn experienced in some segments within *distribution services* was compensated by the sharp increase in contributions from *communications services*. In the U.S.A., in contrast, contributions from *distribution and business services* showed a marked increase in the second period as compared with the first.

Chart 8



Source: GGDC (2005), OeNB.

The broad categorization of services by the criteria of *production* and *consumption* shows that *production services* increased, and *consumption services* reduced labor productivity growth. In the EU-15, the negative contribution from *consumption services* but also the positive contribution from *production services* decreased slightly. In the U.S.A., by contrast, the contribution provided by *production services* climbed from approximately 9 percentage points to more than 30 percentage points. The strong labor productivity

growth experienced by the distribution service sector in the U.S.A. broadly reflects the development of trade activities. Large investments in ICT services led to a positive growth trend in labor productivity. Production-related services also displayed a greater intensity of R&D expenditure in the U.S.A. (European Commission, 2003). Pilat (2005) points to the higher degree of regulation in most EU countries in comparison to the U.S.A. This fact certainly added to the productivity gap between the U.S.A. and the EU-15,

as did the different courses of economic development.

The service sector not only accounts for the largest proportion of employment and value added but also creates the most jobs. This is particularly the case for business services and, to a lesser extent, for social services. In the EU-15, however, the service sector shows lower rates of productivity growth than in the U.S.A.¹⁴ Of the multitude of different industries, it is primarily business and distribution services that drive productivity. This is also where the lag behind the U.S.A. is most noticeable during the most recent period observed. This *productivity gap* can be explained, as has briefly been discussed above, by a com-

ination of different factors and sector-specific effects.

As a general rule, the limits of productivity growth can be attributed to structural factors, such as the necessity for individual care (social services). A low level of capital intensity with a correspondingly modest growth potential is a further factor. Services are generally limited to regional or domestic markets that are not open to competition and thus only develop a low level of R&D activities, if at all. Finally, the service sector is traditionally more heavily regulated than other sectors (Wölfl, 2005). The experience in the U.S.A. shows, however, that not all of these obstacles to productivity are insurmountable.

Box 2

Employment and Productivity Growth in Four New EU Member States

Employment Growth

The Czech Republic, Hungary, Poland and the Slovak Republic displayed similar yet different economic structures at the beginning of the transformation process from planned economies to market economies. In Poland, for example, the proportion of employees in the agricultural sector was substantially higher than in the other countries, while in the Czech Republic the manufacturing sector accounted for the highest share of employment. The service sector pattern was also mixed. While the tertiary sector was of relatively little importance in Poland, its share in total employment was already comparatively high at the beginning of the transformation process in the Czech Republic, Hungary and the Slovak Republic. It also grew more strongly in those three countries than in Poland, where a relatively high number of the labor force is still employed in the agricultural sector.

Despite the partially heterogeneous initial situation, the economic convergence of these countries with western industrialized nations fostered a process of deindustrialization, coupled with a strengthening of the tertiary sector. Between 1995 and 2003, the service sector provided a substantial above-average contribution to employment growth in all four countries, while farming and manufacturing had a negative or only slightly positive effect on employment.¹⁵

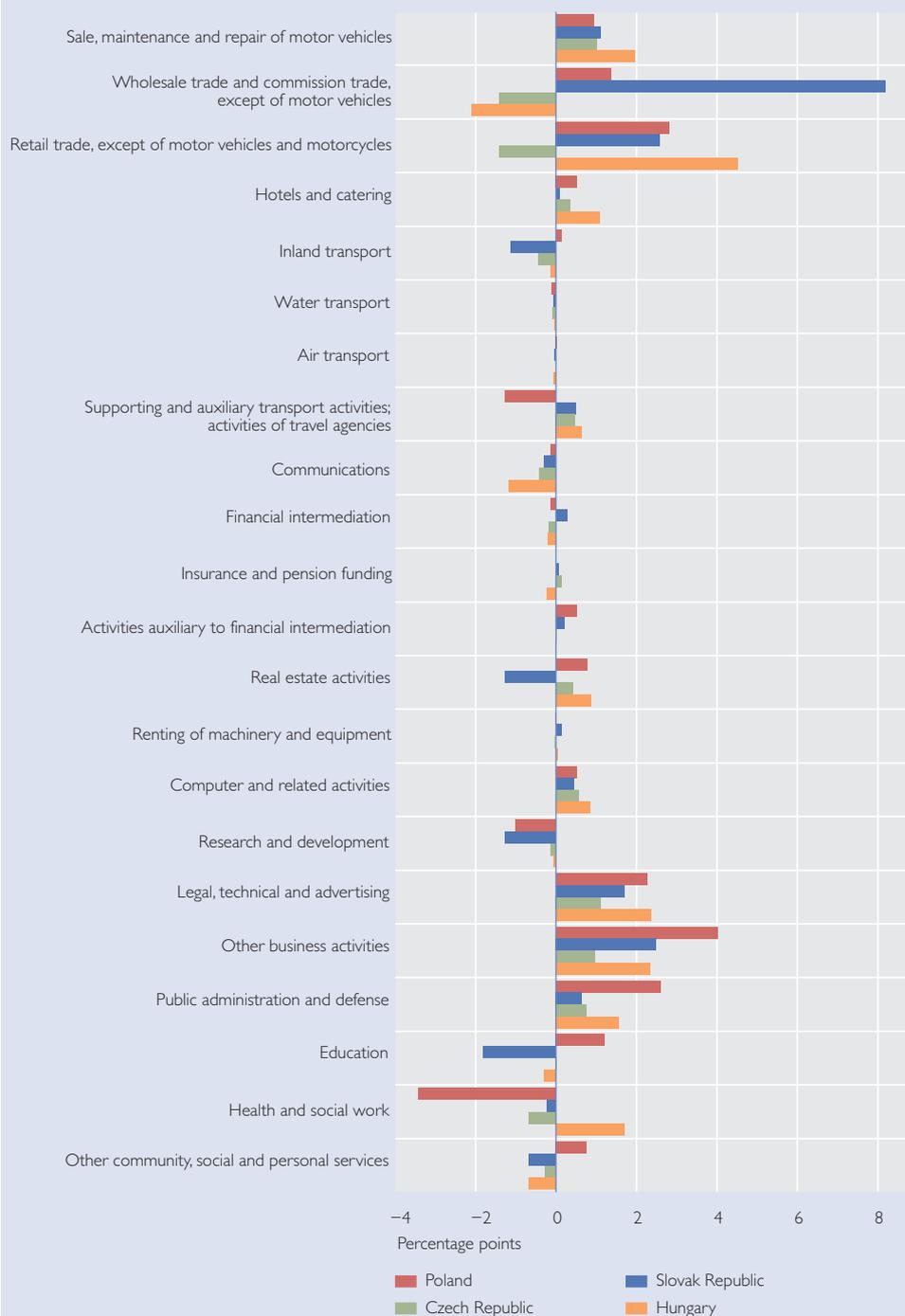
*In detail, the following picture emerges for the service sector (chart 9). In all four countries, industries such as sale, repair and maintenance of motor vehicles, hotels and catering, legal, technical, advertising and public administration made positive contributions to employment growth. The development of some segments, however, showed significant differences. **Retail trade**, for example, had a clearly negative effect on employment growth in the Czech Republic, while making a*

¹⁴ *The tertiary sector plays a crucial role in overall productivity growth, not only because of its large share in total employment and value added. Moreover, services also impact on the value added in other sectors, as not only goods but also, increasingly, services become integral parts of manufacturing processes.*

¹⁵ *From 1995 to 2003, total employment dropped by approximately 11% in Poland, 2% in the Slovak Republic and 5% in the Czech Republic. In Hungary, employment increased by more than 8%. The service sector made a positive contribution to employment growth in all four countries. The remaining sectors had a negative effect on employment growth, with the exception of Hungary, where these sectors made a slightly positive contribution.*

Chart 9

Contribution of Service Activities to Employment Growth (1995–2003)



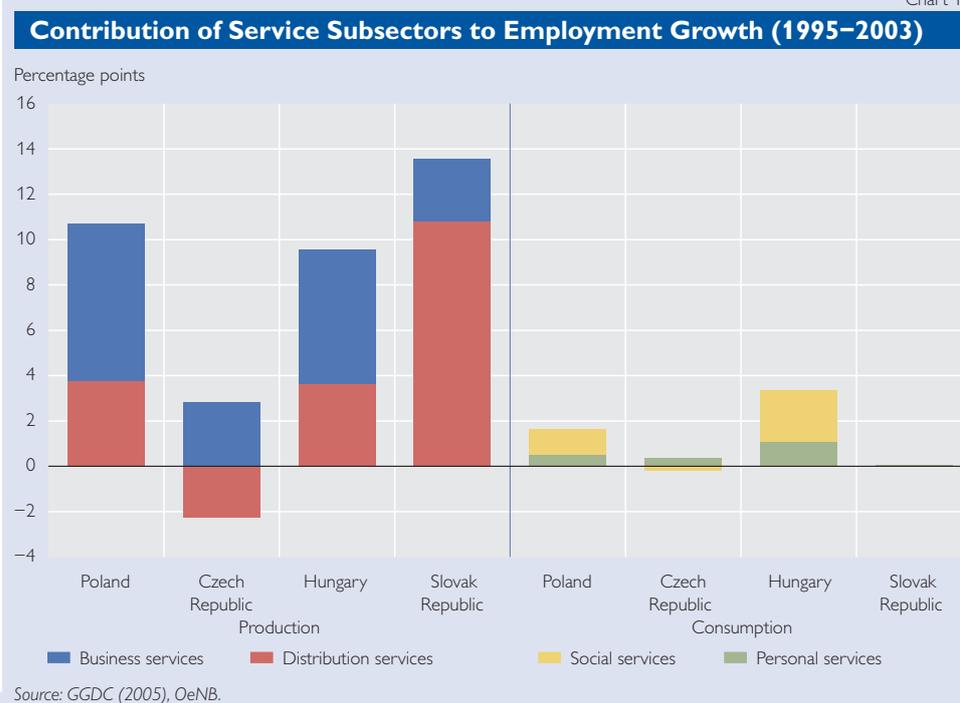
Source: GGDC (2005), OeNB.

HIGH EMPLOYMENT WITH LOW PRODUCTIVITY? THE SERVICE SECTOR AS A DETERMINANT OF ECONOMIC DEVELOPMENT

positive contribution in Hungary, Poland and the Slovak Republic. Health and social work, on the other hand, led to an increase in employment in Hungary but had a negative impact on employment growth in the other three countries.

The categorization of the subsectors into four groups shows a comparable development in Hungary and Poland (chart 10). The highest contribution to employment growth came from **distribution and business services**, coupled with a lower, but still positive contribution from **personal and social services**. In the Czech Republic, **personal and social services** made only a slight contribution to employment growth, whereas **distribution services** had a negative effect caused by the decline in jobs in the retail trade. In the Slovak Republic, employment in **personal and social services** remained almost unchanged, while the other fields experienced a marked increase.

Chart 10



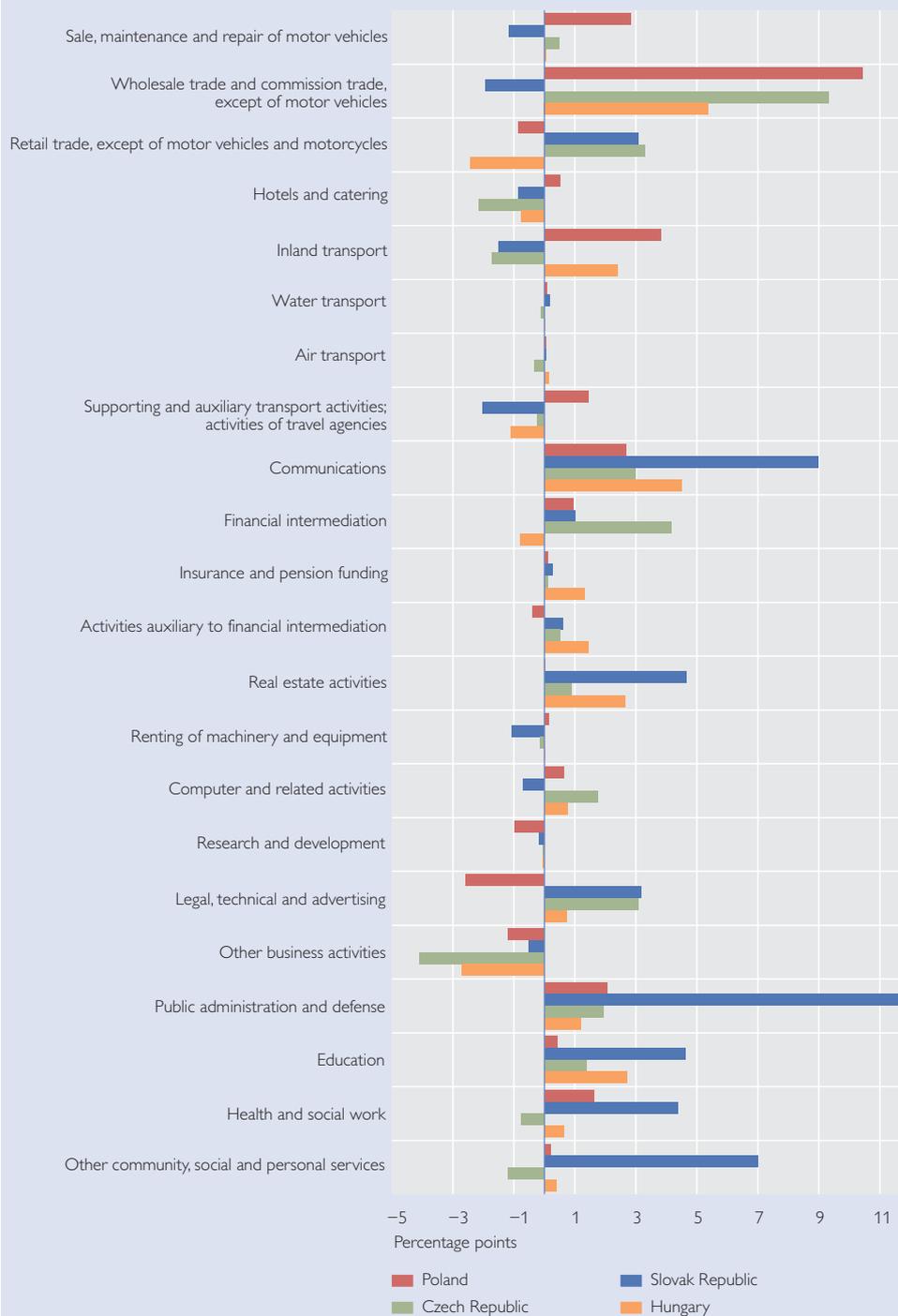
Labor Productivity Growth

In Hungary and Poland, the service sector's contribution to total labor productivity was below average, contrary to its contribution to employment growth. In the Czech Republic, the contribution to labor productivity growth from the other sectors almost equaled that of the service sector, while the growth achieved in the Slovak Republic was largely driven by the service sector.¹⁶

¹⁶ Between 1995 and 2003, total labor productivity increased by approximately 47% in Poland, by almost 40% in the Slovak Republic, by just over 30% in Hungary and by over 20% in the Czech Republic.

Chart 11

**Contribution of Service Activities to Labor Productivity Growth
(1995–2003)**



Source: GGDC (2005), OeNB.

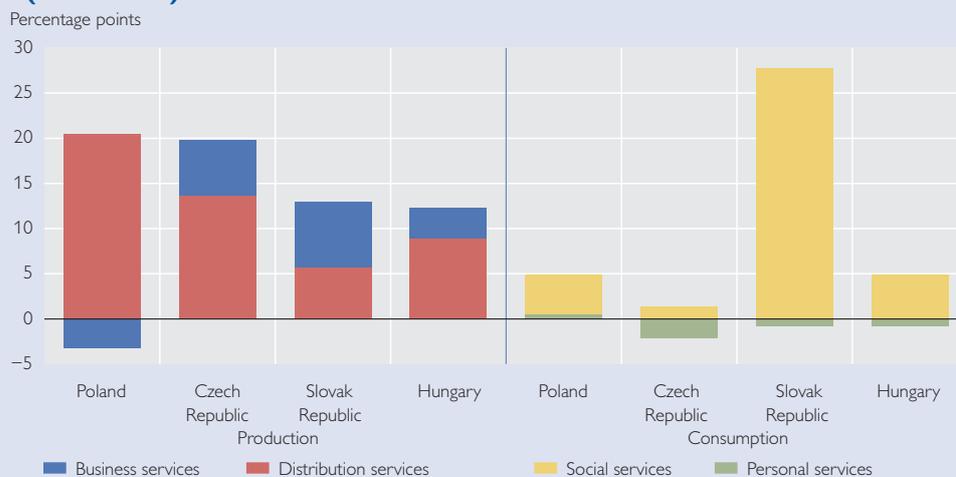
HIGH EMPLOYMENT WITH LOW PRODUCTIVITY?
THE SERVICE SECTOR AS A DETERMINANT
OF ECONOMIC DEVELOPMENT

In all four countries, labor productivity growth within the service sector was supported by communication activities, and even the segments characterized by traditionally low productivity rates (public administration, defense and education) made a significant positive contribution to labor productivity growth. The contribution of other business activities was negative. Wholesale trade and commission trade had a marked positive effect on productivity growth in all countries under review but the Slovak Republic, reflecting the strong rise in employment in this segment.

Chart 12

Contribution of Service Subsectors to Labor Productivity Growth

(1995–2003)



Source: GGDC (2005), OeNB.

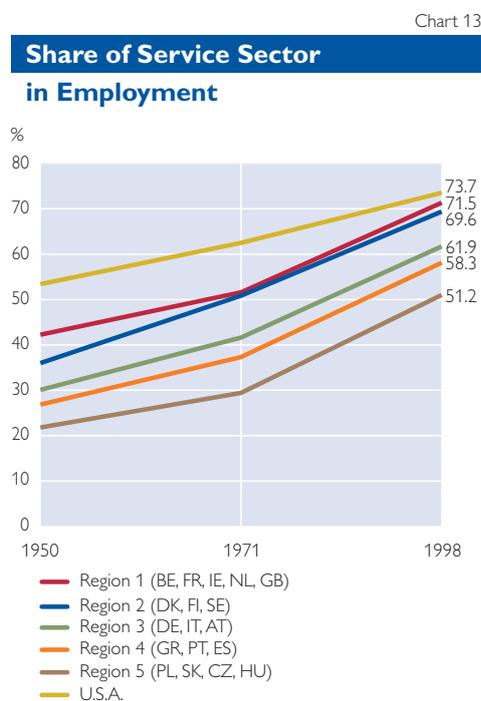
The parallel course of development in Hungary's and Poland's employment structure is partially reflected in labor productivity (chart 12). In both countries, the contribution of **business services** to employment growth was high, but it was low or even negative for labor productivity growth. The fact that **distribution services** made a substantial contribution to labor productivity growth in the Czech Republic and in Poland can be attributed to the positive development recorded in wholesale and commission trade, as well as in retail trade. **Consumption services (personal and social services)** had a negative effect on labor productivity growth in the Czech Republic, while Poland, Hungary and particularly the Slovak Republic recorded a positive contribution from this subsector.¹⁷

The phenomena of labor-dynamic business services and productivity-driving consumption services in Hungary, Poland and the Slovak Republic appear somewhat counterintuitive. This puzzle may be explained by the role of direct investments in business services such as marketing, design or accounting, which were newly established at a relatively high productivity level during the transformation process. At the same time, the demand for these services continues unabated and consequently affects employment growth. Inversely, distribution services and social services seem to overcome the legacy of underemployment and inefficiencies inherited from the past (Stehrer, 2005).

¹⁷ In the Slovak Republic, education and public administration account for a high relative share in employment and value added. A decrease in employment and/or an increase in gross value added will therefore significantly impact the labor productivity of the service sector.

4 Models of Tertiarization

Despite many areas of common ground, a country-specific analysis nevertheless reveals substantial differences in the development paths of the individual countries. The EU Member States can be grouped into geographic regions¹⁸ that shared certain characteristics with regard to the impact of service sector employment over the course of the last century (chart 13).



Source: Feinstein (1999), OeNB.

A comparison of these regions shows a distinct west-east and north-south divide. These differences can be explained to a large extent by the correlation with per capita real income levels or by historical factors, i.e. the different starting points of the industrialization process in the individual countries and, in some cases, periods of

planned economy. In the United Kingdom (Region 1), the process of tertiarization started much earlier. In contrast to the general trend toward convergence, the lag of the new EU Member States (Region 5) actually grew in the period between 1950 and 1971. Furthermore, the accelerated convergence process experienced in Denmark, Finland and Sweden (Region 2) gives particular rise to the assumption that the different development paths are actually the result of underlying systematic changes. We will now attempt to organize these patterns into four typical models (also see Häußermann and Siebel, 1998):

- model of dynamic tertiarization
- model of lagging tertiarization
- model of managed tertiarization
- model of catching-up tertiarization

The model of dynamic tertiarization describes an unrestricted structural change as seems most typical for the Anglo-Saxon region¹⁹ as well as for countries like Belgium, France or the Netherlands (Region 1). The model is based on the accelerated development of a broad and deep segment of market services, triggered by liberalization and deregulation. At a corporate level, this development is accompanied by strategies favoring the externalization of production-related services. Demand for consumption-related services is stimulated by a comparatively stronger focus on the domestic economy. At the same time, increasing differences in income levels generate a stronger demand for (financial) services (UNCTAD, 1995) as well as a low-wage segment in (personal) ser-

¹⁸ The geographic regions defined in this paper comprise the following countries: **Region 1:** Belgium (BE), France (FR), Ireland (IE), the Netherlands (NL) and the United Kingdom (GB); **Region 2:** Denmark (DK), Finland (FI) and Sweden (SE); **Region 3:** Germany (DE), Italy (IT) and Austria (AT); **Region 4:** Greece (GR), Spain (ES) and Portugal (PT); **Region 5:** the Czech Republic (CZ), Hungary (HU), Poland (PL) and the Slovak Republic (SK).

¹⁹ Interestingly, these groups are made up exclusively of countries (with the exception of Ireland) characterized by an early industrialization process and a strong colonial history.

vices. Literature initially took a critical stance toward the deindustrialization associated with this model (Baumol, 1967; Cohen and Zysman, 1987). This perception has, however, changed over time, and this type of deindustrialization is now considered *positive deindustrialization* (Rowthorn and Wells, 1988), as long as it reflects the degree of trade specialization on service exports and an economy's level of maturity rather than the impact of a recession.

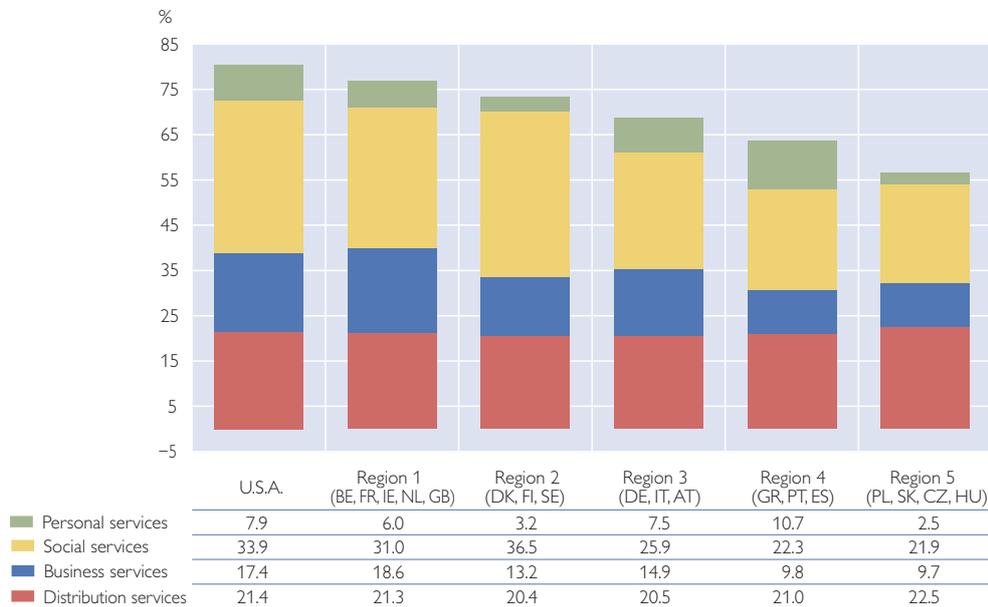
Lagging tertiarization can be viewed as a representative model of the structural development observed in long-term EU Member States such as Germany, Italy and Austria (Region 3), which is characterized by a comparatively stable position of the industry sector. This is, on the one hand, caused by the tendency of many manufacturing companies to internalize services, for example to maintain the quality standards of high-value material goods. On the other hand, this phenomenon is also a result of industrial policy intervention for the sake of vested interests. The protection of the secondary sector is frequently justified by the assumption that productivity growth can be best generated in this sector. Furthermore, lagging tertiarization is also characterized by the high share of manufacturing exports in GDP. This is mostly the result of a historically determined pattern of specialization in the international division of labor: a process in which original factor endowment, returns to scale, synergies and reputation effects play a role (*Made in Germany*, Italian design, etc.). Another reason for lagging tertiarization lies in the corporatist system of social partnership, which tends to give higher priority to the competitiveness of industrial locations than to other policy goals.

The model of *managed tertiarization* is associated primarily with Denmark, Finland and Sweden (Region 2). Some elements can also be found in the Netherlands (Region 1). This model embodies a strategy, followed more or less consciously, to promote the development of knowledge-based and social services. Despite their relatively late start at industrialization, these countries very soon evolved into service societies. The post-war *Scandinavian welfare state* was characterized by a highly productive manufacturing sector and a well-developed system of public and social services, combined with significant rates of female labor participation. The structural crisis of the late 1980s prompted a transition toward a knowledge society, accompanied by adjustments to the welfare state system, which was, however, basically kept in place. In this model, the public sector decreases only slightly in importance, remaining the most important employer for the female workforce and experiencing competition from the private sector particularly in the area of household-related services. The liberalized, production-oriented service sector, which is marked by strong cross-links to the modernized and export-oriented manufacturing sector, remains the main source of employment growth. The promotion of human capital development and innovation plays a central role in the model of managed tertiarization (Aring, 2003).

Catching-up tertiarization describes the transition process experienced by countries that joined the EU at a later stage: during the southern enlargement round – Greece, Spain and Portugal (Region 4) – or, most recently, in the eastern enlargement round – the Czech Republic, Hungary, Poland and the Slovak Republic (Region 5).

Chart 14

Share of Service Subsectors in Total Employment (2003)



Source: GGDC (2005), OeNB.

This model reflects the general shift toward the tertiary sector that is associated with rising per capita income. A further notable phenomenon is that deindustrialization and deagriculturalization in the countries of Region 5 not only occurred with a time lag, but also to a far stronger degree than in Region 4, particularly during the first recessive years of transformation until 1995. This is not surprising if we take into account the overly strong emphasis the former centrally planned economies put on the manufacturing industry. Employment in the service sector was considered unproductive for ideological reasons and the function of this sector in the economy was neglected (Vidovic, 2002). A large number of services were also integrated into the

agricultural or industrial conglomerates. These countries' transformation into market economies is therefore accompanied by a tertiarization process that takes place "in fast-forward mode," at least if including the first years of recession. This development does not, however, follow the same pattern across all industries (box 2). In several areas, a high proportion of foreign direct investments (wiiw, 2005) unquestionably contributed to the rise in productivity. Employment in the service sector is thus not yet in a position to fully compensate for the decline in jobs experienced in the other two sectors. Comparisons with similar developments observed in Greece, Spain and Portugal should, however, give cause for optimism

because a mainly long- and medium-term trend of convergence can be detected not only among all countries and groups of countries (or models), but also within the individual groups of countries (or models).²⁰

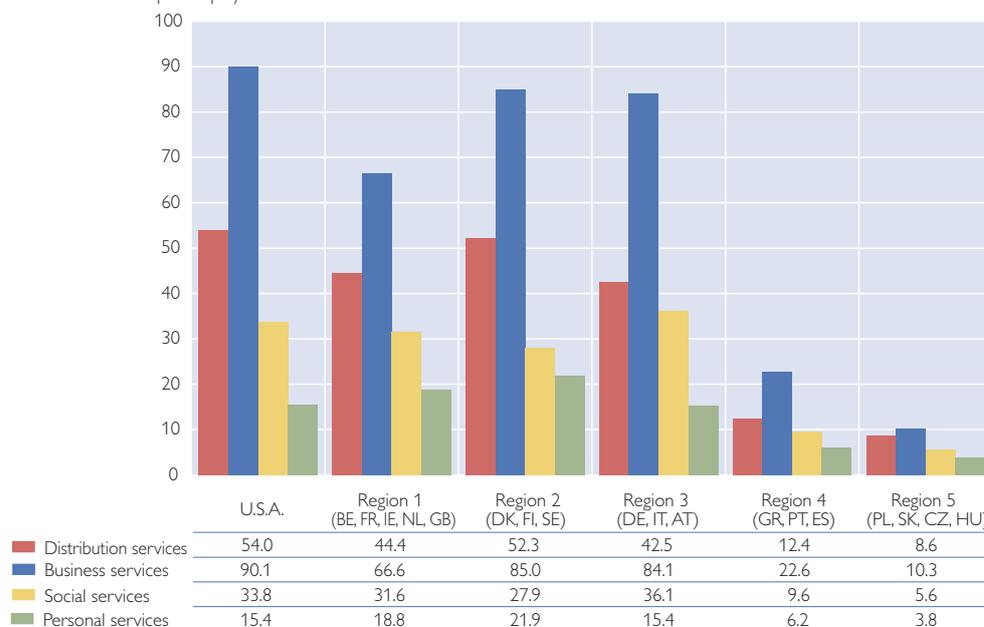
The classification by geographical regions (see footnote 18) shows that the individual countries frequently fit more than one model because they exhibit the characteristics of several pattern types (chart 14). With the ser-

vice sector accounting for only 66% of total employment, Ireland (Region 1) is the most obvious outlier. This ambiguity in allocation can also be illustrated by the example of France (also belonging to Region 1), where the share of the service sector (and not only public services) in total employment is high although the degree of regulation in the labor and product markets corresponds to the *lagging tertiarization* model.

Chart 15

Labor Productivity in the Service Sector (2003)

Gross value added per employee in EUR



Source: GGDC (2005), OeNB.

The comparison of the labor productivity levels in the various regions seems to confirm the results of the classification by region, albeit with some exceptions (chart 15). The United Kingdom (Region 1), for example, most closely matches the model of dynamic tertiarization, although its

productivity level does not equal that of the U.S.A. and is even lower than that of the Region 3 countries (Germany, Italy, Austria). In view of the measurement and differentiation problems inherent to service sector productivity, such results must, however, be interpreted with caution.

²⁰ This assessment is based on variances calculated for both the GGDC (2005) datasets covering the period from 1995 to 2002 and the data from Feinstein (1999), which cover almost the entire 20th century. The only divergence found was within the group of southern enlargement countries between 1971 and 1998, which can be attributed to the slow structural change in Portugal. A comparison between the EU and the U.S.A. also indicates the existence of permanent convergence.

The classification presented in this study offers an alternative basis for discussion with respect to the usual dichotomy between the U.S.A. and the EU. Numerous economists consider the service sector as a key to understanding the *productivity and growth gap* between Europe and the U.S.A. Rogerson (2005) also explains Europe's post-1950s employment gap with the underdevelopment of market services. Although, beginning in 1973, the tertiary sector significantly contributed to the deceleration of productivity growth in both economic areas, services (particularly financial and distribution services) caught up with the industry sector in the U.S.A. during the mid-1990s and subsequently contributed to an acceleration of productivity growth. Triplett and Bosworth (2003) conclude that *Baumol's cost disease* is cured and that the phenomenon known as *productivity paradox* – the failure of reinvestment in technology to boost productivity growth in the service sector – is solved. Van Ark (2005) pins his hope on the possibility that Europe could follow a similar pattern, even if the increase in the productivity of market services resulting from a more widespread ICT use would occur with a certain delay. The rapid adjustment of the economy requires, however, a supportive macroeconomic environment, flexible structures in product and factor markets, and the promotion of innovation diffusion and human capital creation. The EU's Lisbon strategy proposes a range of corresponding measures. Perhaps the objective of *becoming the most competitive and dynamic knowledge-based economy in the world* seems somewhat ambitious. Yet

the pursuit of employment and productivity gains in the service sector is nevertheless essential for the promotion of economic growth.

5 Conclusions

Sectoral change is a “natural” process (Economist, 2005) that occurs in all countries throughout the world and can be accelerated or slowed down only to a limited extent. The importance of the service sector for economic growth is often underestimated. In the enlarged EU, the service industry is already a crucial source of employment, and there is still room for expansion. Moreover, the potential of services to boost productivity has yet to be unlocked. Cross-links to the manufacturing sector and its role in the globalization process also influence the growth dynamics of the service sector. The experience of the U.S.A. or of countries like Denmark, Finland and Sweden shows that the suspicion of an inevitable *trade-off* between employment and productivity is unfounded. These examples also demonstrate that various combinations of distribution, business, social and personal services can produce similarly positive results.

The classification into four models of development paths presented in this study is only a rough sketch but confirms the initial impression of the existence of different tertiarization models, although an empirical test has not yet been performed. A further field of research is the productivity growth of services.²¹ The European service sector can only be effectively cured once the *cost disease* has correctly been diagnosed. Its recovery would boost

²¹ More insights into this topic can be expected in the near future, for example from the EU KLEMS Project on Productivity in the European Union coordinated by the Groningen Growth and Development Centre (www.euklems.net).

economic growth and thus facilitate securing price stability in monetary policy²² in the longer term (Cette and Pfister, 2004).

Particularly, the Member States that joined the EU during the southern enlargement round (Greece, Spain and Portugal) and the new Central and Eastern European EU Member States need to decide which of the advanced tertiarization models would be the best way forward for them. In this respect, the Lisbon strategy provides some direction for convergence toward the model of *managed tertiarization* (European Commission, 2006). A large number of the quantitative Lisbon objectives would imply direct or indirect impulses for the development of highly productive and socially balanced service economies. Efforts will focus on increasing employment rates, especially in the female labor force, facilitating broad-based education among young people, raising the levels of private and public R&D investments, intensifying competition, improving regulation²³ and ultimately completing the single market for services while preserving social cohesion. OECD rec-

ommendations, moreover, urge for further reforms to increase productivity in the service sector: Open national and international markets for services, flexible labor markets, lifelong human capital investment, targeted innovation policies, comprehensive implementation of information and communication technology, and a favorable tax system assist in meeting the challenge of globalization (Pilat, 2005).

Knowledge-intensive corporate services increasingly shrink the borders between the different sectors. The multiplier effect of such services ultimately guarantees the continuity of industrial production with a high degree of value added. At the same time, (public) social services and (private) personal services provide the prerequisites for reconciling family and career, drive out the hidden economy and improve the quality of life in a population characterized by a changing age structure. Last but not least, an evolving service culture that meets new needs and that combines professional with social skills and innovation with flexibility promotes both growth and employment.

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²² In the short term, however, insecurities regarding potential growth lead to asymmetric costs (Cette and Pfister, 2004).

²³ Peneder, Kaniovsky and Dachs (2001) make a plausible case that services are confronted with asymmetric information problems to a greater extent because of the simultaneous nature of production and consumption. Therefore, standardization of quality is called for to strengthen consumer trust and competition.

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HIGH EMPLOYMENT WITH LOW PRODUCTIVITY?
THE SERVICE SECTOR AS A DETERMINANT
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Annex

Table 1

Share of Service Activities in Employment						
%	EU-15			U.S.A.		
	1983	1993	2003	1983	1993	2003
Service sector	58.07	66.18	71.53	73.11	77.45	80.56
Sale, maintenance and repair of motor vehicles and motorcycles; retail sale of automotive fuel	2.13	2.19	2.19	3.14	3.16	3.19
Wholesale trade and commission trade, except of motor vehicles and motorcycles	4.04	4.22	4.16	4.30	4.02	3.84
Retail trade, except of motor vehicles and motorcycles; repair of personal and household goods	8.35	8.76	8.81	9.88	9.82	9.70
Hotels and catering	3.46	4.20	4.88	6.52	6.87	7.29
Inland transport	2.88	2.80	2.55	1.69	1.53	1.56
Water transport	0.23	0.14	0.11	0.05	0.04	0.04
Air transport	0.19	0.22	0.23	0.20	0.36	0.36
Supporting and auxiliary transport activities; activities of travel agencies	1.04	1.05	1.31	0.66	0.88	0.92
Communications	1.82	1.74	1.53	2.28	1.91	1.77
Financial intermediation, except insurance and pension funding	1.96	2.10	1.93	1.87	1.76	1.76
Insurance and pension funding, except compulsory social security	0.56	0.61	0.58	1.95	1.92	1.74
Activities auxiliary to financial intermediation	0.47	0.59	0.64	0.63	0.73	0.81
Real estate activities	0.62	0.86	1.03	1.21	1.25	1.29
Renting of machinery and equipment	0.18	0.25	0.33	0.34	0.42	0.45
Computer and related activities	0.47	0.78	1.43	0.41	0.74	1.31
Research and development	0.29	0.34	0.37	0.34	0.43	0.42
Legal, technical and advertising	2.18	3.41	4.11	3.07	3.73	3.95
Other business activities	2.09	3.13	5.13	3.10	4.84	5.69
Public administration and defense; compulsory social security	7.43	7.66	6.87	6.44	6.02	5.34
Education	5.90	6.45	6.78	10.62	10.67	11.26
Health and social work	7.22	8.69	9.56	8.54	10.31	11.37
Other community, social and personal services	3.28	4.04	4.75	4.84	5.30	5.93
Private households with employed persons	1.29	1.93	2.26	1.03	0.74	0.57
Manufacturing industry	32.58	27.99	24.37	23.67	20.28	17.38
Other sectors (Agriculture, forestry, fishing, mining, construction, gas and electricity)	9.35	5.83	4.10	3.22	2.27	2.06

Source: GGDC (2005), OeNB.

Table 2

Share of Service Activities in Value Added

% at current prices

	EU-15			U.S.A.		
	1983	1993	2003	1983	1993	2003
Service sector	61.34	68.17	72.01	68.10	72.80	76.28
Sale, maintenance and repair of motor vehicles and motorcycles; retail sale of automotive fuel	1.69	1.75	1.78	2.57	2.35	2.53
Wholesale trade and commission trade, except of motor vehicles and motorcycles	3.77	3.85	3.62	4.87	4.62	4.70
Retail trade, except of motor vehicles and motorcycles; repair of personal and household goods	4.39	4.45	4.42	5.38	4.96	5.08
Hotels and catering	1.76	2.10	2.41	2.51	2.48	2.51
Inland transport	2.77	2.64	2.33	2.13	1.61	1.43
Water transport	0.58	0.39	0.40	0.12	0.09	0.08
Air transport	0.37	0.37	0.41	0.39	0.53	0.53
Supporting and auxiliary transport activities; activities of travel agencies	1.25	1.28	1.64	0.57	0.71	0.73
Communications	2.39	2.67	2.59	3.30	3.10	2.97
Financial intermediation, except insurance and pension funding	4.47	4.39	4.14	2.44	2.57	4.43
Insurance and pension funding, except compulsory social security	0.93	1.10	1.13	2.20	2.38	2.54
Activities auxiliary to financial intermediation	0.48	0.56	0.77	0.80	1.27	1.91
Real estate activities	7.81	10.21	11.08	9.93	10.26	10.53
Renting of machinery and equipment	0.55	0.79	0.95	0.28	0.42	0.45
Computer and related activities	0.73	1.10	1.91	0.69	1.27	2.04
Research and development	0.38	0.42	0.38	0.30	0.44	0.49
Legal, technical and advertising	2.94	4.26	4.95	3.75	4.80	4.94
Other business activities	1.55	2.12	2.99	1.65	2.48	3.13
Public administration and defense; compulsory social security	7.94	7.74	6.98	9.91	9.33	7.91
Education	5.83	6.19	6.42	4.61	4.95	4.74
Health and social work	5.48	6.09	6.66	6.40	8.57	8.78
Other community, social and personal services	2.92	3.28	3.58	3.10	3.44	3.71
Private households with employed persons	0.35	0.41	0.47	0.19	0.17	0.13
Manufacturing industry	33.63	28.89	25.72	27.76	24.66	21.33
Other sectors (Agriculture, forestry, fishing, mining, construction, gas and electricity)	5.03	2.94	2.27	4.14	2.54	2.39

Source: GGDC (2005), OeNB.

The Financial System and the Institutional Environment as Determinants of Economic Performance: Austria in Comparison

Friedrich Fritzer¹

Empirical studies suggest that the Austrian economy would benefit considerably from a further integration of financial systems (Guiso et al., 2004). Against this background, this paper highlights selected aspects of the Austrian economy's financial structure and institutional environment in a cross-country comparison and evaluates the extent to which these factors are conducive to economic performance.

Compared with the U.S.A. or the United Kingdom, the ownership structure of listed companies is highly concentrated in Austria and in many other euro area countries. In fact, the Austrian stock market stands out in terms of its high ownership concentration. However, empirical evidence indicates that an all too high level of ownership concentration has a negative impact on firm performance (see, for example, Gugler, 1999). Fostering investor protection is a natural lever to promote a higher degree of dispersion and hence a lower level of concentration. Although the standards of investor protection in Austria have improved substantially in recent years, they still need to be safeguarded and strengthened where necessary.

Another important issue in this context is the development of venture capital markets which are key to innovation and hence to productivity. It is no coincidence that the most liquid venture capital markets are found in countries with the most developed stock exchanges – e.g. the U.S.A., the United Kingdom and the Netherlands. The Austrian venture capital market is one of the smallest by international standards. In order to promote venture capital in Austria, the local stock market, which provides exit opportunities for venture capitalists, needs to be deepened.

According to several indicators (which were originally developed by Barth et al. (2004) – supervisory power, supervisory independence and private monitoring – and updated for the present purpose), the Austrian regulatory and supervisory framework seems to be fairly well designed to foster efficiency and stability in the banking sector: (1) Austria seems to be among those countries which grant a fairly high degree of power to the supervisory authority. (2) The supervisory power is complemented by adequate mechanisms to foster the reporting of reliable, comprehensive and timely information (private monitoring). (3) In comparison with other countries, the Austrian supervisory authority is quite independent from political interference and influences from the banking industry (supervisory independence).

JEL classification: G28, K22, O4

Keywords: financial systems, corporate governance, banking sector regulation.

1 Introduction

The Austrian financial system is increasingly shaped by policy initiatives and developments at the European and international levels, set off e.g. by the European Commission, the European Central Bank (ECB) and the Organisation for Economic Co-operation and Development (OECD). The European Commission's Financial Service Action Plan (FSAP), which was launched to foster financial integration in Europe, entailed the adoption of 42 measures at the European level, which now need to be implemented and enforced at the national level. Of the 21 EU directives², the Transparency Directive,

the Takeover Bids Directive and the Markets in Financial Instruments Directive have not yet been transposed into national law in any of the EU Member States (see European Commission, 2006).

The European Commission recently outlined new priorities for 2005 to 2010 in its White Paper on Financial Services Policy (see European Commission, 2005). The main objectives of the White Paper are to consolidate progress made so far, to monitor the implementation of the FSAP measures at the national level and to enhance supervisory cooperation (see box 1 in the annex). The driv-

Refereed by
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¹ I thank Ernest Gnan, Patrick Darlap, Karin Hrdlicka, Markus Knell and Helene Schuberth for extensive comments on the paper. I am also grateful to the participants of a seminar on this topic organized at the OeNB, who provided input for future work.

² The other 21 measures of the FSAP are nonbinding recommendations.

ing force behind both the FSAP and the White Paper is the EU's ambition (as outlined in the so-called Lisbon strategy) to become the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs by 2010.

Not too long ago, the ECB for the first time published indicators of financial integration in the euro area (see ECB, 2005a) with the aim of monitoring financial integration. The ECB does not only look at financial integration from a growth perspective but also introduces a monetary policy view, since well-integrated financial systems contribute to the smooth and effective implementation of monetary policy.

Finally, the OECD recently launched an initiative to quantitatively assess the impact of financial system regulation on economic growth (OECD, 2006). Unfortunately, the quantification of growth effects is substantially hampered by a lack of appropriate data.³ For that reason, the OECD, the European Commission and the ECB are currently exploring the possibility of constructing a database on new financial system indicators, i.e. variables which go beyond the financial structure variables usually encountered in the empirical literature. For instance, the ECB has recently published a collection of measures describing various dimensions of the financial system, some of which are rarely considered in the empirical literature (ECB, 2005b and box 2 in the annex).

The present paper follows this line of research. It will focus on some aspects of the Austrian financial system and compare them to euro area coun-

tries and other benchmark countries (for instance the U.S.A.). As the literature on new financial indicators is still very much at the beginning, some limitations are inevitable.

First, the study will present a few important determinants of the institutional environment in which an economy operates. Second, the paper will try to assess the impact of the institutional environment on the efficiency of the allocation of resources (at the micro-level) and aggregate economic performance (at the macro-level). Financial stability effects, however, will not be considered. Third, this study aims at a qualitative assessment based on available empirical results as the sample of countries is very limited and institutional factors are not available over an extended period of time.

This paper is partly based on work done at the ECB (Hartmann et al., 2005). The new data reported in section 2 stems from replies by national authorities (see also Hartmann et al., 2005); the design of the related questionnaire was based on a World Bank survey (see box 3 in the annex).

Section 2.1 describes the broad theoretical link between financial systems and economic growth, with a particular focus on the role of corporate governance, legal systems and regulatory rules in determining economic growth. Section 2.2 discusses financial system size in contrast to financial structure. Section 2.3 evaluates the potential growth-enhancing effect of further financial integration in Europe. Section 2.4 finally analyzes selected issues of financial structure and institutions which are assumed to have an impact on economic performance, i.e. the different ownership structures

³ The OECD study evaluates regulatory variables which basically measure competition (for instance foreign bank entry).

of listed companies (section 2.4.1), recent developments in company law and regulation (section 2.4.2) and the modest size of the venture capital market in Austria as well as most other euro area countries (section 2.4.3). Section 3 concludes.

2 Theoretical and Empirical Links between Financial Systems and Economic Performance

2.1 The Theoretical Framework in a Nutshell

Financial systems influence economic growth via (1) the allocation of savings across investment projects, (2) the amount of resources consumed for the provision of financial services (i.e. financial systems' efficiency) and (3) their direct impact on the savings rate of an economy. Channel 1 improves the productivity of capital, while channels 2 and 3 influence the steady state per capita capital stock and thereby output.⁴

As it is costly to provide financial services, it is inevitable that financial systems absorb a certain amount of resources (channel 2). However, the amount of resources absorbed may be larger than necessary owing to monopolies and/or inefficient regulation, for instance. In such cases the functioning of financial systems is inefficient, as it does not promote as well as possible the growth potential of an economy.

The direct effect of financial systems on the savings rate (channel 3) may be negative or positive. Financial systems pool savings of individuals and thus improve growth prospects, e.g. via the potential funding of large-scale investment projects which could

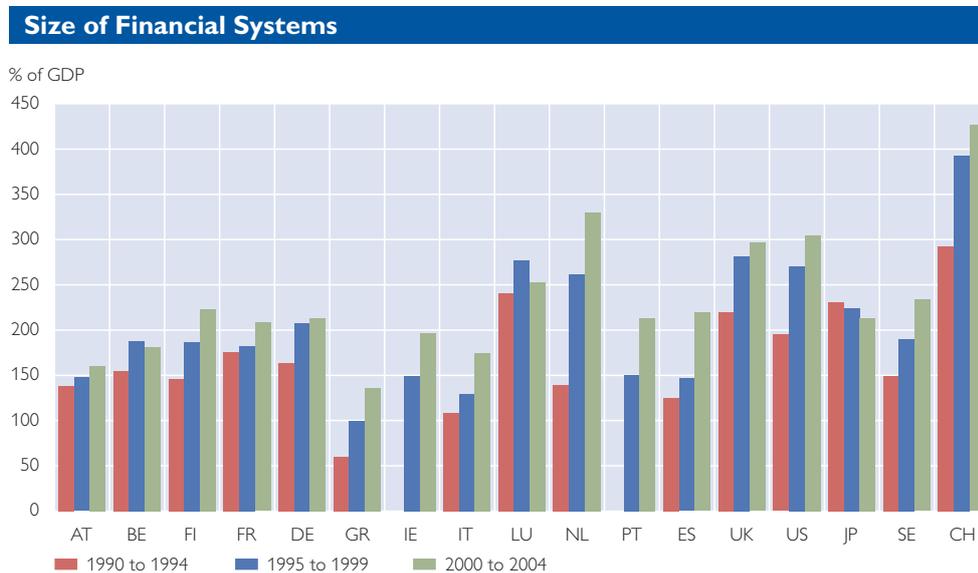
otherwise not be realised. However, the risk-reducing function of financial systems also tends to reduce households' precautionary savings, as there is less need to insure against liquidity shocks. As a consequence investments in growth-enhancing projects which are of a more illiquid nature are reduced.

Finally, financial systems enhance the efficient allocation of capital (channel 1) via the provision of information, their risk-sharing function and indirectly through the legal environment and other regulatory measures which protect investors and provide incentives to adhere to financial contracts. This, in turn, facilitates the full exploitation of the growth potential of the economy.

Good corporate governance tends to reduce the conflict of interest between managers and shareholders. In this context, institutions play an important role as they set up the legal system and regulatory rules which have an impact on the quality of information. For instance, accountants and auditors evaluate the content of information that is conveyed to investors, and regulation often requires the disclosure of information that would otherwise not be provided. A good legal system promotes delegation of control from investors to managers, which facilitates the resolution of commercial disputes and hence is of particular importance for the development of financial markets. The legal and regulatory framework establishes parameters under which financial systems operate. These parameters, however, are not immutable but subject to the changing influence that interest groups may exert.

⁴ The description of the channels follows Pagano (1993). The framework is clearly an endogenous growth models perspective as neoclassical growth models explain growth exogenously (via for instance exogenously assumed technological progress or labor force growth).

Chart 1



Source: ECB (2005b) based on BIS, Eurostat, IMF International Financial Statistics, World Federation of Exchanges and ECB calculations.

Note: The indicator is the sum of bank loans over GDP, stock market capitalization over GDP and domestic debt securities of the private sector over GDP. Following the IMF definition, banks are all financial institutions that have liabilities in the form of deposits transferable by check or otherwise usable in making payments. Market capitalization is defined as the value of domestic equities listed on domestic exchanges. For the Netherlands and Portugal, data is up to 2001, while data for Luxembourg excludes debt securities.

Hence, financial structures have an impact on economic performance via corporate governance codes, law, institutions and politics.

2.2 Financial System Size versus Structure

Financial system size can be measured as the sum of bank loans to the private sector, plus stock market capitalization and the value of debt securities of the private sector, each as a share of GDP. In terms of relative size, the Austrian financial system currently ranks behind many other developed countries. For instance, the Austrian financial system is only about half the relative size of the U.K. or U.S. financial system or only about one-third of the Swiss financial system.

It is a fairly robust and generally accepted claim that a larger financial

system is positively linked to economic and productivity growth.⁵ King and Levine (1993) is one of the most influential studies establishing this empirical link. However, size is not the whole story.

Banks provide other services than stock markets. For instance, stock markets may be better prepared to promote riskier but also higher return projects. Levine and Zervos (1998) showed the specific growth impact of stock markets empirically. As yet, there are mixed answers to the question whether stock markets or banks have a more beneficial impact on growth. The link between financial structure and economic growth seems to be too complex to be reduced to the “bank versus security market” dichotomy. An interesting empirical result was recently published by Carlin and

⁵ However, causality does not necessarily run in one direction only, i.e. finance may either lead real activity or follow real activity.

Mayer (2003). They provide evidence that financial structure is a key determinant of the industrial structure of an economy. They argue that market-oriented financial systems and those with dispersed company ownership favor high-risk research and development activities. On the other hand, bank-oriented systems and those with concentrated ownership are associated with longer-term investment of a less innovative nature.⁶ Before presenting an in-depth analysis of some structural features of the euro area financial system, a general assessment of the growth potential of the European financial system will be made in the following.

2.3 Financial Integration and Growth

Baele et al. (2004) take stock of financial integration in the euro area and conclude that the state of integration is heterogeneous across financial instruments. Money markets, for instance, are at a very advanced stage of integration, while the opposite is true for the retail banking sector.⁷ The report confirms the incomplete stage of retail banking sector integration across euro area countries. The level of integration also seems to be low (if growing) for equity markets.

Guiso et al. (2004) measure the economic growth effects of financial

integration and conclude that the potential benefits of further financial integration in Europe are substantial (ranging from 0.6 to 0.7 percentage point of additional economic growth in the manufacturing industry per year) and that they are distributed unevenly across countries depending on their stage of financial integration and/or quality of institutions. Hence, notwithstanding the fairly advanced stage of financial integration in Europe, deepening integration is expected to foster economic growth.

For the Austrian economy the study delivers two noteworthy results: In a simulation, Austria belonged to the countries which would benefit considerably if the development level of the European financial system were raised to the U.S. benchmark (slightly below 1 percentage point additional annual output growth in the manufacturing industry and about 0.2 percentage point of GDP growth).⁸ On the other hand the United Kingdom and the Netherlands, i.e. the most advanced financial systems in Europe, would (not surprisingly) benefit the least of further financial development. Second, Austria (together with Germany) is one of the countries which would benefit most if exogenous institutional determinants which are assumed to determine financial development

⁶ Rajan and Zingales (2003) argue that monetary and financial integration in Europe favors the development of financial markets (i.e. stock markets), as external competition weakens established companies' tendency to repress entry into financial systems. Murinde et al. (2004) find evidence which suggests partial convergence of the EU financial system on a variant of the Anglo-Saxon model, as the EU financial system increasingly relies on internal financing as well as direct financing via equity and bond markets, while bank debt is becoming less important. Full convergence, however, would most likely require an adaptation of the regulatory and legal as well as the tax systems of the euro area.

⁷ The ECB has recently published a report on financial integration indicators for the euro area (ECB, 2005a) and will update it on an annual basis. The statistical indicators without the report will be updated semiannually and published on the ECB's website.

⁸ The simulation methodology used by Guiso et al. (2004) simulates the impact of raising financial development (bank credit to the private sector and stock market capitalization as share of GDP) to the U.S. value on output in the manufacturing industries. Given that manufacturing accounts for slightly more than 20% of total output, the impact on GDP growth is about 0.2 percentage point (assuming that further financial integration has no impact on the non-manufacturing industries).

would be raised to the maximum EU standard. The institutional features Guiso et al. (2004) take into account are measures of enforcement (private and public enforcement), the duration and cost of judicial procedures, and creditors rights.⁹ It has to be noted, however, that the institutional measures used in the paper are not very recent ones. The creditor rights variables are taken from La Porta et al. (1998), private and public enforcement measures are from La Porta et al. (2003), measures on court efficiency and cost of judicial proceedings are from Djankov et al. (2003) and the World Bank Doing Business Indicators. Since those measures were constructed the institutional framework has partly changed (see also section 2.4 on other indicators measuring the development of institutional quality over time).

Another empirical study which provides evidence of the growth-enhancing effects of removing regulatory obstacles is Demirgüç-Kunt et al. (2003). The authors argue that regulations on bank entry, restrictions on bank activities and regulations that restrain the freedom of banks to conduct their business boost banks' net interest margins. In turn, the function of the financial system to ensure the most efficient use of available resources is hampered.¹⁰ De Ávila (2003) and Dehejia and Lleras-Muney (2003) investigate the growth impact of the harmonization and liberalization of banking sector regulation for the EU and the U.S.A., respectively. Like Demirgüç-Kunt et al. (2003) they arrive at the conclusion that past dereg-

ulation has had a positive impact on economic growth. According to the ECB (2005b) Luxembourg and Finland have the least regulated banking sectors, while Austria is comparable to most other euro area countries in terms of restrictiveness of banking sector activities. The measure used in the study to determine this restrictiveness is the degree to which banks are allowed to undertake fee-based activities in addition to deposit taking and lending.

2.4 Selected Structural and Institutional Issues with an Impact on Economic Performance

2.4.1 Ownership Structure of Listed Companies

The ownership structure of companies listed on the Austrian stock exchange (and on other euro area stock exchanges) is much more concentrated than in the U.S.A. or the United Kingdom. According to Gugler et al. (2004) the median largest shareholder on the Austrian stock market owns more than 50% of a company's market capitalization (similar to Germany), while in the U.S.A. and the United Kingdom the corresponding value amounts only to about 10% to 20% (table 1). In addition, there are substantial differences with respect to the identity of owners. In the U.S.A. and the United Kingdom, ownership is primarily associated with institutional investors. (In the U.S.A. this mainly applies to the 500 largest enterprises; smaller businesses are largely family-owned.) At the Austrian stock exchange, ownership is to a large extent in the hands of other corporations, as

⁹ Guiso et al. (2004) performed a simulation in which they raised exogenous institutional features to the maximum EU standard due to the fact that policymakers cannot directly influence financial developments but only exogenous institutional features which in turn determine financial development.

¹⁰ The sample of countries they investigate, however, also comprises developing countries, in which banking markets might be less competitive than in better developed European economies.

Table 1

Concentration and Types of Ownership								
Country	Number of firms	Largest holder ¹		Family-holdings ²	Financial holdings ²	Non-financial holdings ²	State holdings ²	Dispersed holdings ²
		mean	median					
United Kingdom	687	16.00	11.78	17.9	37.0	15.1	1.8	28.2
Ireland	24	17.62	12.20	29.2	20.8	16.7	8.3	25.0
U.S.A.	largest 3,070	21.89	16.83	47.3	25.9	14.6	0.9	11.3
U.S.A.	largest 500	15.75	10.95	12.4	43.2	18.6	0.2	42.6
Denmark	40	23.13	15.00	25.0	12.5	25.0	2.5	35.0
Finland	34	26.90	20.70	5.9	17.6	38.2	23.6	14.7
Sweden	54	28.33	25.00	16.7	38.9	33.3	3.7	7.4
Austria	30	59.37	54.50	6.7	23.3	53.3	16.7	0.0
Germany	240	54.01	51.72	26.7	15.4	48.8	7.0	2.1
Switzerland	66	45.63	48.00	33.3	10.6	42.4	4.6	9.1
Japan	1,036	15.08	8.85	5.9	6.6	58.1	0.2	29.2
Belgium	41	44.54	43.00	9.8	34.1	53.7	0.0	2.4
France	187	48.88	50.00	25.1	17.6	51.3	2.3	3.7
Greece	5	52.44	51.00	0.0	0.0	80.0	20.0	0.0
Italy	57	45.24	47.52	3.5	40.4	47.4	3.4	5.3
Netherlands	66	27.13	16.00	6.1	13.6	43.9	6.1	30.3
Portugal	10	42.48	51.35	0.0	20.0	30.0	50.0	0.0
Spain	59	37.76	29.10	1.7	23.7	57.6	8.5	8.5

Source: Gugler et al. (2004).

¹ Mean or median of largest shareholders of listed companies.

² Share of companies directly controlled by type of holder.

is the case with most other euro area exchanges.

Furthermore, the dispersion of shareholders (i.e. the cumulative amount of small ownerships) is much higher in the U.S.A. and the United Kingdom than in Austria and other euro area countries, where dispersion is in most cases less than 10%¹¹, compared to about 40% (for the 500 largest companies) in the U.S.A. and almost 30% in the United Kingdom. At the aggregate level there is no clear evidence whether the high ownership concentration and low dispersion of shareholders in euro area countries

has a negative impact on economic performance; however, firm level evidence suggests that high ownership concentration tends to have a negative influence on firm performance and the size of the capital market.¹²

For instance, Gugler (1999) showed for a sample of Austrian firms that high ownership concentration negatively influences corporate performance (measured as the profit-to-sales ratio and the real internal rate of return). As a policy conclusion he suggests granting small shareholders better protection against large shareholders and improving corporate transpar-

¹¹ The exceptions are Denmark, Finland and the Netherlands. The share of dispersed holdings also decreases for the U.S.A. if more than the 500 largest enterprises are considered.

¹² Berle and Means (1932) point out that there is little incentive for shareholders to exercise corporate control in the presence of high dispersion as exit is cheaper than intervention. To mitigate these "free-rider problems" of corporate control the presence of large shareholders may be necessary. In fact, it was found that corporate performance increases with concentration levels if the concentration ratio is initially low. Only if the ownership ratio surpasses a critical level does it tend to exert a negative influence on corporate performance as the incentives for very large shareholders to exploit private benefits dominate. Accordingly, Franks and Mayer (2001) argue that it is largely an empirical matter whether free-rider benefits outweigh private benefits of control.

ency. However, it has to be borne in mind that Gugler's evidence is based on two samples of Austrian firms from the periods from 1991 to 1994 and 1975 to 1994. Since the mid-1990s the Austrian corporate governance system has to some extent improved (section 2.4.2 a).

In fact, what Gugler (1999) suggests, i.e. increasing shareholder protection in order to boost firm performance, has empirical support. Using a sample of about 1,500 large German firms, Gompers et al. (2003) constructed a governance index during the 1990s based on corporate governance commitment, shareholder rights, transparency, the influence of management and supervisory boards and auditing. They found that an investment strategy based on the purchase of firms with the strongest shareholder rights and the sale of firms with the weakest rights would have earned abnormal returns, which points to the possibility that weakly monitored management tends to extract private benefits at the expense of shareholder interests. Drobetz et al. (2003) constructed a corporate governance rating for German firms and documented a positive relationship between a firm's corporate governance rating and its value. Results are robust for endogeneity with causation running from corporate governance practices to firm fundamentals. However, aggregate indices of corporate governance have to be interpreted with caution as the weighting of individual elements of the indices does not provide information on whether these elements are in a complementary or substitutive relationship with each other.

One could argue that market forces would lead to a closer monitoring of

corporate management once it becomes evident for the shareholders that the former extract too many private benefits. Davis (2002) argues that the growing importance of institutional investors in the euro area may lead to enhanced corporate control. Different types of investors, i.e. family holders with large stakes, institutional investors (life, pension and mutual funds), nonfinancial holders, state holders or small individual holders, exert corporate control in different ways. Institutional investors usually do not hold large stakes in companies but are large enough to have decisive influences on management decisions. Furthermore they tend to monitor firm performance closely. The strengthening of private pension schemes in many European countries will further increase institutional investors' importance as corporate equity holders.

However, it seems doubtful whether these developments will lead to a performance-enhancing system without an adaptation of the regulatory framework. For instance, Gugler et al. (2004) investigate cross shareholdings and corporate pyramids across a large sample of countries and conclude that a strong concentration of ownership is not as important for company performance as strong legal protection for shareholders.

While it would be premature to argue that empirical studies provide robust evidence for the claim that highly concentrated corporate ownership negatively influences economic performance, a key message is that enhancing the protection of minority shareholders is crucial in order to promote firm performance (and possibly the efficient allocation of capital).

2.4.2 Institutions Generate and Administer Company Law, Supervise Financial Market Actors and Define Disclosure Standards

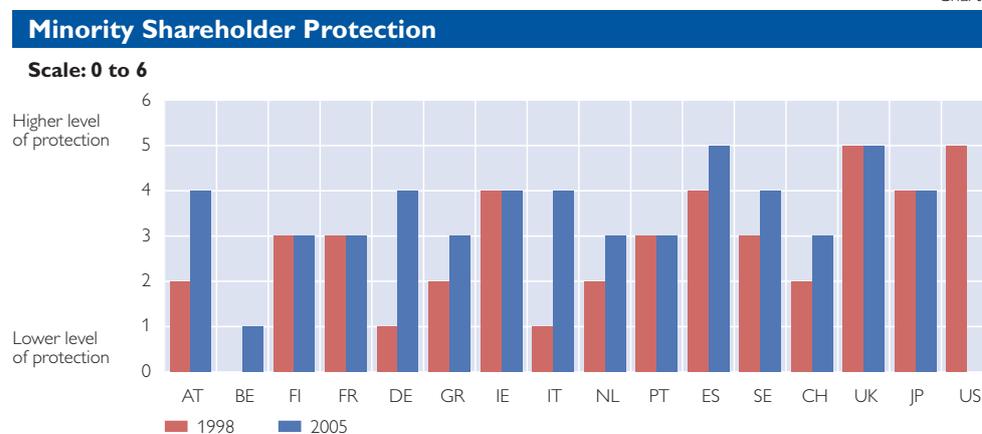
a) Improved corporate governance framework

Consumer and investor protection, corporate law and disclosure measures in euro area countries are in part laid down in binding rules and in part in voluntary codes. They form the environment in which financial systems evolve but they are not carved in stone. Policymakers need to constantly review the existing legal and regulatory framework to make it possible to adapt to major changes or to react to weak spots in the legal and regulatory framework. Large corporate failures

in the recent past (e.g. Parmalat in 2003) have led to regulatory action and a debate about a good framework for corporate governance. The most recent bankruptcy of a financial service provider in Austria shows that Austria is not exempted from corporate misbehavior.¹³

However, what is good corporate governance? Good corporate governance tends to reduce the potential conflict between managers and investors. A measure of good corporate governance is the shareholder protection index developed by La Porta et al. (1998). Specifically, the index measures the extent to which minority shareholders are protected against opportunistic behavior on part of the management.

Chart 2



Source: La Porta et al. (1998) for 1998 data; June 2005 update based on information provided by the OECD Corporate Governance and Company Law Database.

Note: This index is formed by the sum of quantified responses in the following areas: 1) proxy by mail; 2) shares not blocked before meeting; 3) cumulative voting or proportional representation; 4) oppressed minorities mechanism in place; 5) preemptive rights; 1) to 5) 1 = applicable, otherwise 0; 6) percentage of share capital required to call an extraordinary shareholders' meeting; 1 = minimum required percentage is less than 20 percent, otherwise 0. The index ranges from 0 to 6 with lower scores indicating low shareholder rights. The 2005 update for the U.S.A. is not yet available. The underlying data were originally published by the OECD. However, this presentation does not necessarily reflect the official views of the governments of its member countries.

Chart 2 shows that minority shareholder protection has substantially improved in Austria since La Porta et al. (1998) constructed their index (higher values indicate stronger minor-

ity shareholder rights). Austria is among those euro area countries with the strongest minority shareholder protection. Despite the improvement of minority shareholder protection in

¹³ In November 2005, Amis Financial Consulting AG went bankrupt.

recent years, euro area countries still slightly lag behind the degree of shareholder protection in the United Kingdom and the U.S.A. (For the purposes of the present paper we assume that minority shareholder rights in the U.S.A. have not deteriorated since

1998.) Shareholder rights are positively linked to the development of financial markets. Not surprisingly, thus, the United Kingdom and the U.S.A. are those countries in our sample with the most developed stock markets.

Table 2

Recent Changes to Company Law and Regulation					
Country	Binding corporate governance code ("comply or explain") ¹	Defined audit functions and limitations ²	Improvements in transparency ³	Mitigation of potential conflicts of interest ³	Role of independent directors ⁴
Austria			+		
Portugal					+
Greece			+	+	+
Belgium			+	+	+
Italy			+	+	+
Finland					
Denmark					
Sweden					
Germany	+		+		
France			+		
Netherlands	+	+	+		
Spain	+	+	+	+	
Japan			+		+
Ireland			+		
U.S.A.			+	+	+
United Kingdom			+		

Source: OECD (2004).

¹ Listed companies have to commit themselves to compliance with the corporate governance code. Any case of noncompliance has to be officially explained.

² Regulation to prevent that financial statements violate investor interests.

³ Conflicts of interest between managers and shareholders.

⁴ Non-executive directors protect investor interests in areas of potential conflict.

Note: "+" indicates a legal or regulatory change based on data collected by the OECD in 2002 and 2003.

Apart from general increases in shareholder protection, there have been several other common developments in company law in euro area countries (table 2): First, countries are trying to improve board supervision and the selection of board members. Second, there is a tendency to set standards to improve company's access to capital via for example stricter disclosure standards. One could argue that it is not necessary to regulate transparency as it would be

self-enforcing if it helps companies to gain easier access to capital. However, studies have shown that voluntary compliance with transparency standards proves to be rather low (OECD, 2004). Furthermore, small shareholders are usually less well informed than major shareholders and hence more vulnerable to market abuse. Third, there has been a general shift toward increasing the accountability of managers vis-à-vis shareholders. Fourth, policymakers have been trying to pro-

mote a stricter implementation of good corporate governance principles.¹⁴ For instance, Austrian companies listed on the Prime Market must (since 2004) state in their reports whether they comply with the Austrian Corporate Governance Codex and, if not, explain why (this amendment is not covered by table 2). Needless to say that this comply or explain rule is comparatively “soft,” as there is no substantial threat of negative consequences for companies ignoring the corporate governance code.

Generally speaking, policymakers in Austria and other euro area countries have been improving the design of corporate governance frameworks so as to secure the benefits of large shareholders as effective monitors of management whilst preventing them from extracting excessive private benefits. One important obstacle hampering the promotion of economic performance, however, is the diversity of legal and regulatory rules and (mostly nonbinding) corporate governance codes across the euro area. See OECD (2004) or the OECD Corporate Governance and Company Law Database for evidence.¹⁵

b) Regulatory framework in Austria seems to be conducive to growth

Viewed from the angle of economic efficiency, regulation in the financial sector should be tighter than in other markets (as for example the goods mar-

ket). First, financial crises can be extremely costly as they may spread quickly and spill over into the real sector of the economy. According to Caprio et al. (2003) the fiscal costs of the banking crises in Japan during the 1990s amounted to more than 20% of GDP. Europe is likewise not immune against large failures in the banking sector, as the banking crises in Finland (1991 to 1994), Italy (1990 to 1995) and Spain (1977 to 1985) show.¹⁶ Furthermore (almost) all private households use retail financial services and are hence exposed to failures in the banking sector.¹⁷ Second, asymmetric information is particularly prevalent in financial markets, the investor usually being the less well informed. In absence of mechanisms (self-enforcing mechanisms, regulations or legal rules) which compensate this informational disadvantage, investors might be exploited.

The OECD is working on a project to assess the impact of financial system regulation on economic growth (OECD, 2006). The preliminary findings suggest that economic growth is enhanced by a regulatory environment conducive to competition in the financial sector.¹⁸ However, regulation affecting competition is only one aspect of the regulatory and supervisory environment.

There are three measures which can be used to assess in how far the regulatory and supervisory framework in

¹⁴ There are several approaches ranging from stricter to less rigorous implementation. The strictest approach would involve a legally binding corporate governance code. A less rigorous implementation would only require that listed companies formally adhere to a (nonbinding) corporate governance code. However, a corporate governance code could also be seen as a key – if voluntary – element of good investor relationships.

¹⁵ The OECD Corporate Governance and Company Law Database will be made available to the general public in due course.

¹⁶ According to estimates by Caprio et al. (2003), however, the fiscal costs incurred in these countries were much lower than in the case of the Japanese banking crises during the 1990s.

¹⁷ Deposit insurance schemes may cushion this exposure to some extent.

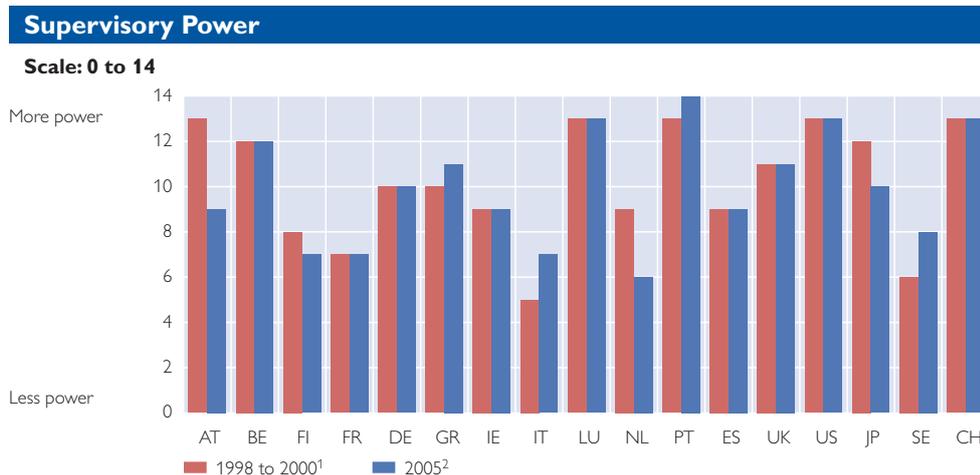
¹⁸ Fritzer (2004) provides a related result. In a cross-country setting, banking sector concentration proved to be detrimental to economic growth.

euro area countries is conducive to the efficiency of the banking sector and/or economic growth. These measures relate to *supervisory power*, *supervisory independence* and *private monitoring* (more specifically to rules and incentives which promote and/or facilitate monitoring on part of the private sector). The three indicators are based on a questionnaire developed by the World Bank. Updates of these indicators were received from national supervisory authorities (see also box 3). Findings in Barth et al. (2004) suggest

that these three measures are key indicators for assessing banking sector performance and stability.

The specific *supervisory power* indicator proposed here measures the degree to which supervisory authorities can take actions to prevent or correct problems in the banking sector. In particular, it assesses in how far action against external auditors, bank management and shareholders can be taken. Furthermore, the supervisory authorities' discretion in taking action is also considered.

Chart 3



Source: World Bank Survey with National Supervisory Authorities (1998 to 2000); 2005 values are the result of the author's calculations based on replies by national authorities.

¹ For BE a response to item 11.6 of the questionnaire is missing (value 0 assumed).

² FR, IT, NL, PT, SE: 2004 World Bank Survey (due to missing items).

Note: The index combines information on the following categories (yes = 1, no = 0): 1) Auditing/management: A) Can supervisors meet external auditors to discuss the report without bank approval? B) Are auditors legally required to report misconduct by managers/directors to the supervisory agency? C) Can legal action against external auditors be taken by supervisors for negligence? D) Can supervisors force banks to change the internal organizational structure?

2) Questions on disclosure and discipline: A) Are off-balance sheet items disclosed to supervisors? B) Can the supervisory agency order directors/management to constitute provisions to cover actual/potential losses? C) Can the supervisory agency suspend directors' decision to distribute dividends, bonuses or management fees? D) Can the supervisory agency supersede bank shareholder rights and declare a bank insolvent? E) Does banking law allow the supervisory agency to suspend some or all ownership rights of a problem bank?

3) Questions regarding bank restructuring and reorganization: Can the supervisory agency or any other government agency do the following: A) supersede shareholder rights? B) remove and replace management? C) remove and replace directors?

At the time the World Bank Surveys were conducted (1998 to 2000 and 2001; 2001 figures are not shown in chart 3), Austria had a banking supervisory authority with fairly strong and "above average" supervisory

powers based on this methodology. According to data received from national authorities in 2005, supervisory power in Austria is slightly lower now.¹⁹ In April 2002 the Austrian Financial Market Authority (FMA)

¹⁹ In particular disciplining devices of the supervisory authority (the power to constitute provisions, the possibility to supersede shareholder rights, item 2) B) and D) and item 3) of the notes to chart 3) were to some extent cut back.

was established as an *integrated supervisory authority* responsible for the banking, insurance and securities sectors. Hence, the new legal basis provides the Austrian supervisory authority with a larger scope of supervisory responsibilities, which is not taken into account by the bank supervisory power index. The larger scope of supervisory responsibilities (banking, insurance and securities) is of increasing importance given the rise of financial conglomerates. Hence, it seems that the bank supervisory power index omits important aspects of current developments in financial systems. Furthermore, the new legal basis for the Financial Market Authority established rights which strengthen the FMA's supervisory power but which are not reflected in the supervisory power index. For instance, the FMA's enforcement rights have been strengthened (and now for instance include the right to execute legal notifications and to impose administrative fines).²⁰ According to the supervisory power index, the FMA currently has a higher degree of supervisory power than France, Italy, Sweden and the Netherlands and lower supervisory power than Switzerland, Luxembourg, Portugal and the U.S.A.

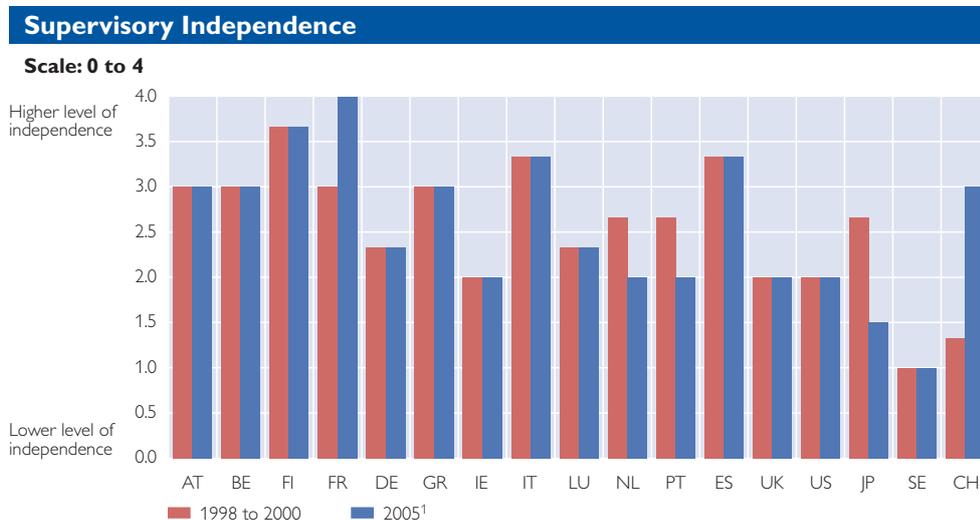
In the literature it is also argued that supervisory power is not necessarily conducive to economic performance, as regulators may sometimes abuse their power. In a cross-country setting, Barth et al. (2004) provide empirical evidence for the negative impact too much supervisory power has on economic performance.

The negative economic impact of too much supervisory power discussed in the literature can be counterbalanced by a high degree of *supervisory independence* and rules which facilitate private monitoring. Barth et al. (2004) investigated the effect of banking supervision on financing obstacles based on a sample of almost 5,000 corporations across 49 countries and found that creating a supervisory agency that is independent of influence exerted by the government or banks mitigates the adverse consequences of overly powerful supervision.

The supervisory independence index measures the degree to which the supervisor is outside the sphere of political and banking sector influence. For instance, the extent to which supervisory authorities are protected against lawsuits from banks increases their independence. The index ranges from zero (low level of independence) to 4 (very high level of independence).

²⁰ The Oesterreichische Nationalbank would like to stress that this survey does not cover all legal and regulatory changes which may have contributed to the enhanced supervisory power and independence of the newly established Austrian Financial Market Authority.

Chart 4



Source: World Bank Survey with National Supervisory Authorities (1998 to 2000); 2005 values are the result of the author's calculations based on replies by national authorities.

¹ FR, IE, IT, NL, PT: 2004 World Bank Survey (due to missing items).

Note: The index combines information on 1) independence of the supervisory authority vs. the political sphere (independence from government) and 2) independence vs. banks, i.e. the protection against lawsuits from banks. On 1) replies to the following questions are considered: A) To whom are supervisors accountable? B) How is/are the head of the supervisory agency/other directors appointed? C) How is/are the head of the supervisory agency/other directors removed?

Austria is among those countries with a relatively high degree of supervisory independence.²¹ The index of supervisory independence consists of three items, the evaluation of which requires considerable judgment (independence from the government, independence from the banking industry, accountability of supervisors). Hence, the supervisory independence indicator is subject to a higher degree of uncertainty. However, in any case, chart 4 shows that the Austrian supervisory authority's independence can be considered to be high and above average.²² It enjoys a level of independence similar to the Belgian and Spanish supervisors. Countries with lower levels of independence are for instance Sweden, the U.S.A. and the United Kingdom as well as Ireland.

Furthermore, bank supervisory agencies that force accurate information disclosure and promote private monitoring tend to reduce the financing obstacles faced by firms and enhance economic performance. See for instance Barth et al. (2004), who present empirical evidence that regulations which encourage or facilitate the private monitoring of banks are associated with better banking sector performance (lower net interest rate margins, fewer nonperforming loans).²³

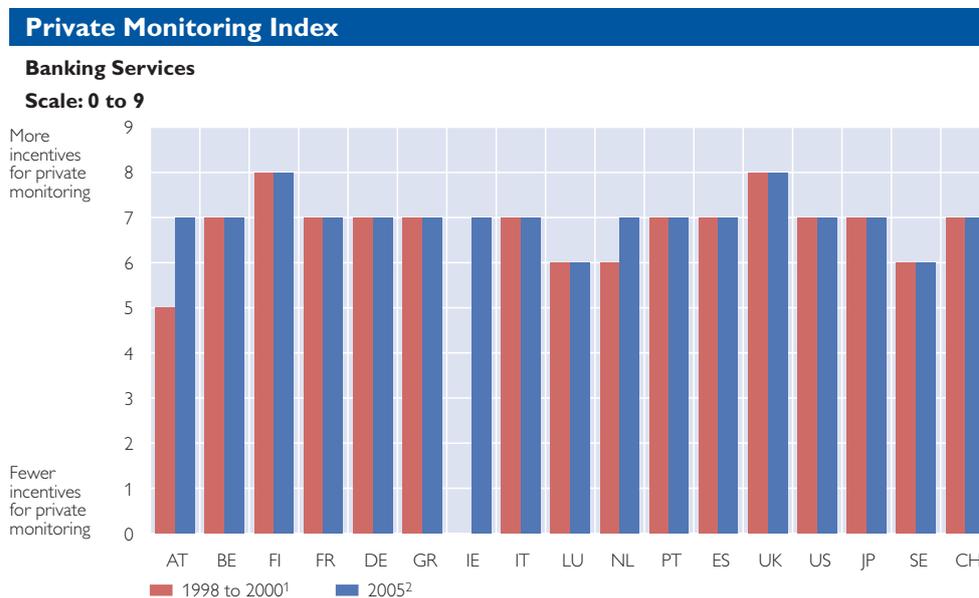
A third indicator is therefore the *private monitoring index*, which reflects the liability of directors for the accuracy of disclosed information, the share of rated banks in a country and the reliability of the rating agencies. The index moves on a scale from 0 to 9. The higher the index, the more

²¹ It has to be noted, however, that there is a higher degree of judgment involved in evaluating the degree of supervisory independence.

²² See also footnote 20.

²³ The development of stock markets also tends to be fostered by the enhancement of private monitoring (La Porta et al., 2003).

Chart 5



Source: World Bank Survey with National Supervisory Authorities (1998 to 2000); 2005 values are the result of the author's calculations based on replies by national authorities.

¹ No value available for IE between 1998 and 2000 (due to missing items).

² FR, IT, NL, PT, SE, CH: 2004 World Bank Survey (due to missing items).

Note: The index combines information on the following categories (values assigned: yes = 1, no = 0): 1) Are externally certified auditors required? 2) Are all top 10 banks rated? 3) Is there an explicit deposit insurance scheme? 4) Comprehensiveness of bank accounting? 5) Are off-balance sheet items disclosed to the public? 6) Do banks disclose risk management procedures to the public? 7) Is subordinated debt allowable as part of capital? On 4) Comprehensiveness of bank accounting (yes = 1, no = 0): A) Does the income statement contain accrued but unpaid interest/principal while loan is nonperforming? B) Are consolidated accounts covering bank and any nonbank financial subsidiaries required? C) Are directors legally liable for erroneous/misleading information?

information disclosure is enforced and hence the easier the monitoring of banks by the private sector is.

For Austria, the private monitoring index has improved substantially in comparison with the World Bank Survey 2001, which reported survey results from 1998 to 2000. According to the most recent updates, the possibilities of conducting private monitoring are similar to other countries in our sample.

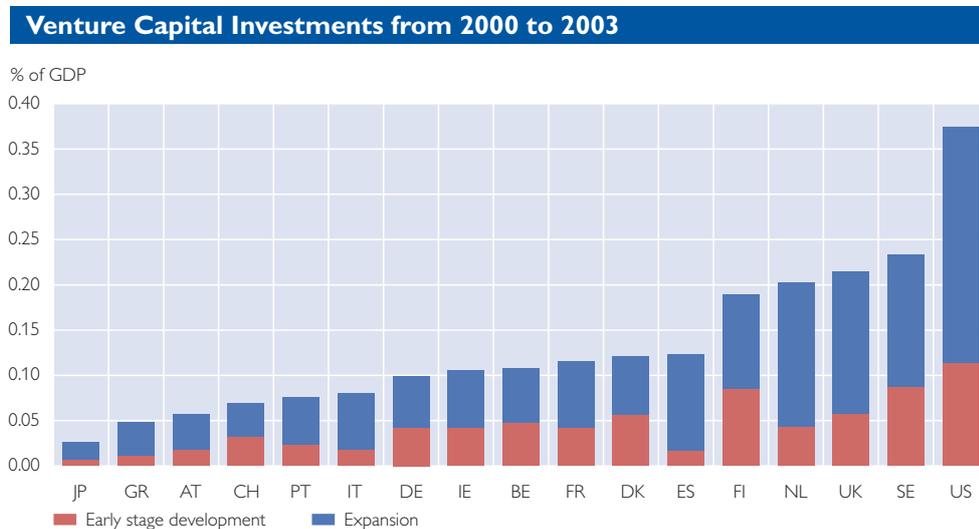
The above-mentioned measures of *supervisory power*, *supervisory independence* and *private monitoring* suggest that the Austrian regulatory framework is fairly well designed to foster the efficiency of the banking sector. According to the supervisory power index, Austria is among those countries which grant a fairly high degree of power to

supervisory authorities. In comparison with other European and benchmark countries, the Austrian supervisory authority is fairly independent from political interference and influence exerted by the banking industry (as shown by the supervisory independence indicator). Finally, the private monitoring indicator shows that sufficient mechanisms promoting the disclosure of reliable, comprehensive and timely information are in place.

2.4.3 Lack of Venture Capital

Business creation is an important source of innovation and hence a lever for economic growth. High-tech startups are particularly promoted in economies with developed venture capital markets.

Chart 6



Source: OECD based on data from EVCA (Europe); NVCA (United States); Asian Venture Capital Journal (The 2003 Guide to Venture Capital in Asia).

The Netherlands and Finland are the only euro area countries with relatively developed venture capital markets, comparable in size to the United Kingdom (chart 6). The particularly modest size of the venture capital market in Austria is likely to be an obstacle to economic performance. One reason for the (by comparison) underdeveloped venture capital market in Austria might be the small and illiquid Viennese stock exchange, which limits exit opportunities for venture capitalists. Furthermore, it seems that the development of the Austrian risk capital market is hampered by a lack of demand. It goes without saying that the heterogeneous tax systems across the euro area negatively affect the liquidity of venture capital markets.

3 Conclusions

Financial systems promote economic performance via the provision of information, their incentive-enhancing features and their risk-sharing function. Reliable information allows better investment decisions, while the diversification of risk promotes investment in

high-return but also high-risk projects. Furthermore, a legal system which improves the incentives for entrepreneurs to repay debt leads to a relaxation of credit and equity constraints.

The present study highlighted selected issues relating to the financial structure and the institutional environment of the Austrian economy (in a cross-country comparison) and assessed the degree to which they are conducive to economic performance.

The removal of the remaining barriers to financial integration (e.g. in the retail banking sector) may enhance economic performance if, at the same time, sufficient consumer choice is guaranteed, e.g. by ensuring that the terms and conditions at which financial services are provided are transparent. The European Commission has taken steps to foster integration in the retail banking sector and has set up an expert group to identify existing problems associated with user mobility, closing fees etc.

According to empirical studies, Austria would benefit considerably (in terms of additional economic growth)

from further financial development (see Guiso et al., 2004).

The most developed financial systems, e.g. those of the U.S.A., the United Kingdom and the Netherlands, also have the most liquid venture capital markets. Venture capital markets are key to innovation and hence productivity. The Austrian venture capital market is one of the smallest by international comparison and its development should be promoted. For that purpose, stock markets which provide exit opportunities for venture capitalists need to be deepened. Furthermore, the tax system should be reviewed and, if necessary, amended so as to ensure a more equal treatment of different types of investments (including cross-border investments), which in turn would promote the development of venture capital markets.

The ownership structures of listed companies are highly concentrated in Austria and many other euro area countries (compared to U.S. or U.K. standards). In fact, the Austrian stock market stands out in terms of ownership concentration. Empirical evidence suggests that high ownership concentration has a negative impact on firm performance at the micro-level (see for example Gugler, 1999).

Higher investor protection is a natural lever for greater dispersion and hence less concentration. Although investor protection in Austria has improved substantially over past years it needs to be strengthened further.

Corporate governance codes should be made legally binding, since compliance with voluntary codes seems to be rather reluctant.

Overall, the indicators originally developed by Barth et al. (2004) (supervisory power; supervisory independence; private monitoring) and updated for the present purpose suggest that the Austrian regulatory and supervisory framework is fairly well designed to foster efficiency and stability in the banking sector: 1) Austria seems to be among those countries which grant a fairly high degree of power to supervisory authorities. 2) Supervisory power is complemented by sufficient mechanisms which foster the disclosure of reliable, comprehensive and timely information (private monitoring). 3) In comparison with supervisors in other countries, the Austrian supervisory authority is quite independent from political interference and influence exerted by the banking industry (supervisory independence).

4 Annex

Box 1

Financial Services Policy in Europe: FSAP and White Paper

After the introduction of the euro, political attention in Europe focused on the creation of a single, liquid financial market which would foster growth, job creation and higher competitiveness. In 1999 the European Commission adopted an action plan designed to promote the rapid progress toward a single market for financial services. This **Financial Services Action Plan (FSAP)** (European Commission, 1999) consists of 42 measures of either legislative or non-legislative nature (e.g. nonbinding recommendations). The FSAP is an important initiative with far-reaching impacts on the financial services industry and the European economy. The FSAP measures cover a broad range of sectors: accounting and auditing (6 measures), banking and financial conglomerates (3), company law and corporate governance (7), financial market infrastructure (3), insurance and occupational pensions (6), insurance and securities markets (1), retail financial services and payments (8), securities and investment funds (7) and taxation (1). Most of these measures have already been officially adopted by European institutions (European Parliament, European Council) and hence are backed by political support and implicitly by industry. Most of the legislative measures still need to be transposed into national law by the Member States. To monitor and promote the implementation of the adopted FSAP directives an evaluation process will be carried out until 2008.

The European Commission's **White Paper on Financial Services Policy (2005 to 2010)** sets out the overall objectives of the financial services policy until 2010 (European Commission, 2005). In the upcoming five years the European Commission aims to a) consolidate progress made so far, b) complete unfinished business, c) enhance supervisory cooperation and convergence, and d) remove the economically significant barriers that remain. The White Paper specifies 72 concrete tasks and activities designed to promote the achievement of these goals (see Annex 1 to the White Paper). These tasks and activities include ex-ante evaluations for the preparation of new proposals, ex-post evaluations of measures, the development/assessment of efficient regulatory and supervisory structures for the financial services sector and the promotion of integration in the retail banking sector. Many of these tasks are handed over to specialized committees to avoid bureaucratic procedures and to ensure efficient implementation.

Box 2

Major Data Sources for Financial System Analysis:

A New Data Landscape Emerges

The changing character of European finance also brings about new challenges for policy analysis as well as altered data requirements. Originally, only **size indicators** (for instance, stock market capitalization as a ratio of GDP or bank credit as a ratio of GDP) were considered in cross-country evaluations of the finance-growth link. Typically, the IMF's International Financial Statistics database served as a data source (as for instance in the classical paper by King and Levine, 1993).

However, size indicators are not the whole story. The **efficiency** of the banking sector (e.g. the net interest rate margin), **banking sector competition** (e.g. requirements for entry into the banking industry), **ownership** (e.g. public versus private ownership) and the **institutional environment** (e.g. the degree of legal protection of property rights) play a role as well. Beck et al. (2001) compiled a financial structure database with statistics on some of these indicators for a vast range of countries. Currently, this database probably contains the most comprehensive compilation of financial system indicators for a panel of countries. As regards **banking sector regulation** (e.g. supervisory indicators), Barth et al. (2006) have recently completed a database based on a World Bank Survey for a cross section of countries. Several **corporate governance indicators** (which for instance assess creditor/investor protection or board structure) have been found to be relevant for the finance-growth link by individual researchers; however, there is currently no single database which assembles these indicators. Commercial providers offer firm level data on board structure, remuneration of executives etc. (for instance "Hoppenstedt Firmeninformation" for Germany and Austria). The well-known investor and creditor protection indicators by La Porta et al. (1998) are available only in the cross section (and not in the time dimension) for the end of the 1990s.

Recently, the OECD has made available a Corporate Governance and Company Law Database, which contains a vast array of information on corporate governance for OECD countries and which is certainly a useful source of information on company law and corporate governance. However, for the analysis of the finance-growth link, specific indicators need to be constructed.

What is missing at the moment is a database which comprises most of above-mentioned indicators (as well as those additional indicators which are found to be important for the analysis of financial system performance in individual research papers). Another problem is that many important indicators used by researchers for projects are not updated and hence of limited value for further research work (e.g. regulatory indicators or corporate governance indicators). The ECB recently initiated a research agenda which includes the construction of a **database comprising indicators of financial system characteristics**. The latter are supposed to facilitate a structured assessment of financial system performance (see e.g. ECB, 2005b). The indicators which are to be updated on a regular basis relate to 1) the size of capital markets and financial structure, 2) financial innovation and market completeness, 3) transparency and information, 4) corporate governance, 5) the legal system, 6) regulation, supervision and financial stability, 7) competition, openness and financial integration, and 8) economic freedom as well as political and socio-economic factors. The database could prove to be of particular relevance for the assessment of the European financial system, as its framework and selection of indicators are particularly geared toward an assessment of industrialized countries with relatively developed financial systems.

Box 3

Data on Banking Sector Regulation

The indicators on banking sector regulation are based on a questionnaire originally developed by the World Bank. This questionnaire was sent to the banking supervisory authorities of the euro area countries, the United States, the U.K. and Japan for an update in spring 2005. By November 2005 all national authorities had sent replies. However, the present study could not incorporate the most recent data on the Netherlands, France, Italy, Portugal and Sweden (due to missing items).

For the 2005 values, the following national authorities were contacted:

Austria	Financial Market Authority, Oesterreichische Nationalbank
Belgium:	Commission Bancaire, Financière et des Assurances
Finland:	Rahoitustarkastus – Finansinspektionen
Germany:	Federal Financial Supervisory Authority (BaFin)
Greece:	Bank of Greece (Banking Supervision Department)
Ireland:	Central Bank and Financial Services Authority of Ireland
Luxembourg:	Commission de Surveillance du Secteur Financier
Portugal:	Banco de Portugal
Spain:	Banco de España
United Kingdom:	Banking Supervision Authority
U.S.A.:	Office of the Comptroller of the Currency
Japan:	Financial Services Agency
Sweden:	Finansinspektionen
Switzerland:	Swiss Federal Banking Commission

The following table contains a detailed specification of the construction of the indicators (based on the World Bank questionnaire).

Indicator	Economic meaning and/or remarks	Correlation with economic performance/efficiency	Time span of data availability
Regulation and supervision			
Index of bank supervisory power	<p>The Index of bank supervisory power measures the extent to which official supervisors have the authority to take specific actions to prevent and correct problems in the banking industry. The composition of official supervisory power is built on the broad categories of auditing/management, disclosure and discipline. Values to the answers of the questions are quantified according to the answers yes = 1 and no = 0 and then summed up to yield the index. The index is on a scale from 0 to 14 with higher numbers indicating more supervisory power.</p> <p><i>Questions on auditing/management:</i> Can supervisors meet external auditors to discuss the report without bank approval? Are auditors legally required to report misconduct by managers/directors to the supervisory agency? Can legal action against external auditors be taken by supervisors for negligence? Can supervisors force banks to change the internal organisational structure?</p> <p><i>Question on disclosure:</i> Are off-balance sheet items disclosed to supervisors?</p> <p><i>Questions on discipline:</i> Can the supervisory agency order directors/management to constitute provisions to cover actual/potential losses? Can the supervisory agency suspend directors' decision to distribute: a) dividends b) bonuses c) management fees Can the supervisory agency supersede bank shareholder rights and declare a bank insolvent? Does banking law allow the supervisory agency to suspend some or all ownership rights of a problem bank? Regarding bank restructuring and reorganisation: Can the supervisory agency or any other government agency do the following: a) supersede shareholder rights b) remove and replace management c) remove and replace directors</p>	rather (+)	<p>Current data based on replies from national supervisory authorities</p> <p>World Bank Survey released March 9, 2004)</p> <p>World Bank Survey 1998–2000 (released March 16, 2001)</p>

THE FINANCIAL SYSTEM AND THE INSTITUTIONAL ENVIRONMENT AS DETERMINANTS OF ECONOMIC PERFORMANCE: AUSTRIA IN COMPARISON

Indicator	Economic meaning and/or remarks	Correlation with economic performance/efficiency	Time span of data availability
Index of bank supervisory independence	<p>The index of overall independence measures to whom the supervisor is accountable. The components are (1) independence vs. the political sphere (independence from government) and (2) independence vs. banks, i.e. the protection against lawsuits from banks (values assigned: yes = 1, no = 0).</p> <p>Values for independence vs. the political sphere are assigned according to the answers below as 1 = low, 2 = medium, 3 = high independence.</p> <p>1.1 To whom are supervisors accountable? 1.2 How is/are the head of the supervisory agency/other directors appointed? 1.3 How is/are the head of the supervisory agency/other directors removed?</p> <p>The overall index is the mean of the values assigned to responses to 1.1, 1.2, 1.3 plus the value assigned to (2) the independence vs. banks. Hence the index is on a scale from 0 to 4.</p>	(+)	<p>Current data based on replies from national supervisory authorities</p> <p>World Bank Survey (released March 9, 2004)</p> <p>World Bank Survey 1998–2000 (released March 16, 2001)</p>
Private monitoring index	<p>The private monitoring index is the sum of the values assigned to the following items: 1) whether an external certified auditor is required, 2) the percentage of rated top 10 banks (values assigned: 1 if all are rated, 0 otherwise), 3) whether there is an explicit deposit insurance scheme, 4) the comprehensiveness of bank accounting, 5) whether off-balance sheet items are disclosed to the public, 6) whether banks disclose risk management procedures to the public, 7) whether subordinated debt is allowable (required) as part of capital (1 if yes, 0 otherwise). Values assigned to items 1, 3, 5, 6 and 7 are 1 (if answer is yes) or 0 (if answer is no).</p> <p>The comprehensiveness of bank accounting (item 4) is the sum of the values (yes = 1, no = 0) assigned to the following questions: Does the income statement contain accrued but unpaid interest/principal while loan is non-performing? Are consolidated accounts covering bank and any non-bank financial subsidiaries required? Are directors legally liable for erroneous/misleading information?</p> <p>The higher the index the more the supervisory authorities force the banking sector to disclose information to the public (scale 0 to 9), i.e. 0 = monitoring of banks by the private sector is very difficult due to missing voluntary and mandatory disclosure, 9 = the ease of monitoring of banks by the private sector is high.</p>	(+)	<p>Current data based on replies from national supervisory authorities</p> <p>World Bank Survey (released March 9, 2004)</p> <p>World Bank Survey 1998–2000 (released March 16, 2001)</p>

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HIGHLIGHTS

Claudia Kwapil,
Fabio Rumler

On December 15, 2005, the Oesterreichische Nationalbank (OeNB) held a workshop on “Price Setting and Inflation Persistence in Austria.” The aim of this workshop was to discuss the OeNB’s recent research results in the field of price dynamics and inflation¹ with policymakers and the scientific community. The papers presented at the workshop analyzed the price formation process and the determinants of inflation persistence in Austria from different perspectives and on the basis of various data sources. The first session addressed the degree and determinants of price rigidities at the micro level. Session 2 provided an analysis of inflation persistence in Austria at the aggregate and sector levels, while session 3 dealt with Austrian consumers’ inflation perceptions. A policy panel discussion concluded the workshop.

JEL classification: D40, E31

Keywords: price rigidity, price setting, price perception.

In his introductory statement, Ernest Gnan (OeNB) presented a paper co-authored with Jesús Crespo Cuaresma. He argued that empirical studies of price stickiness and inflation persistence can be useful for monetary policy design and implementation, for designing structural policies which facilitate shock absorption by euro area economies, and for achieving better-informed inflation and growth forecasts. Summarizing findings from the Inflation Persistence Network (IPN), he argued, *inter alia*, that inflation persistence in the euro area fell to moderate levels in the course of the 1990s – similarly as in the United States. Inflation persistence is mostly driven by wages and other input prices. Prices are stickier in the euro area than in the U.S.A., but there is no evidence of general downward consumer price rigidity in the euro area, with the exception of the service sector. According to Gnan, heterogeneity in the frequency of consumer price changes across products is more relevant than across countries. Perceived inflation should be taken seriously by monetary policymakers for two reasons: First, public satisfaction (or discontent) with the central bank’s performance hinges on perceptions of –

rather than facts about – its credibility as a guardian of price stability. Second, inflation expectations are likely to be influenced by perceived inflation, rather than official current or past inflation rates. Inflation perceptions are thus also likely to influence wages and actual inflation as well as sacrifice ratios. Within the past 200 years, there was never a time in Austria when inflation reached levels persistently and significantly different from zero until the 1960s.

In the first session, which dealt with microdata, Alfred Stiglbauer (OeNB) presented a paper co-authored with Josef Baumgartner (WIFO), Ernst Glatzer and Fabio Rumler (OeNB). The paper analyzed stylized facts on price changes in Austria based on individual price records collected for the Austrian CPI. On average, consumer prices in Austria are constant for 11 to 14 months with strong heterogeneity across sectors and products. Prices for energy products and unprocessed food change more often than e.g. service prices. Stiglbauer further argued that price increases occur slightly more often than price decreases, the average size of price increases being 11% and that of price decreases 15%. The probability of a

¹ Most of the papers presented at the workshop were prepared in the context of the Eurosystem Inflation Persistence Network, a research network with participating researchers from euro area NCBS and the ECB which was established to study the patterns and determinants of inflation persistence in euro area countries.

price change increases, the longer a price quote has been unchanged and the higher the inflation rate in the relevant product category has been since the last price change. In his discussion, *Johannes Hoffmann (Deutsche Bundesbank)* referred to evidence which indicates that shops with greater price variability also show higher prices. Thus, more frequent price adjustments need as such not necessarily be preferable. He emphasized that studies on price-setting behavior should differentiate between regular and temporary price changes, as done in the presented paper.

In his joint work with Jerzy Konieczny (Wilfrid Laurier University, Ontario), *Fabio Rumler (OeNB)* investigated why decision-makers choose to act on a “time-regular” basis (e.g. adjust every six weeks, etc.) or on a “level-regular” basis (e.g. change interest rates by 25 basis points, etc.), even though such behavior appears sub-optimal. In their paper the authors attribute time-regular and level-regular behavior to adjustment cost heterogeneity. They show that, given cost heterogeneity, the likelihood of adopting time- or level-regular policies depends on the shape of the benefit function: the flatter it is, the more likely is regular adjustment. The empirical results provide strong support for the model: the lower the conditional frequency of price changes is in a given market, the higher is the incidence of time- and state-regular adjustment.

Claudia Kwapil (OeNB) presented a paper co-authored with Josef Baumgartner (WIFO) and Johann Scharler (OeNB) which analyzes the price-setting behavior of Austrian firms based on survey evidence. The paper’s main result is that long-term customer relationships are a major source of price

stickiness in Austria. Companies refrain from price adjustments (especially in response to demand shocks) because they do not want to jeopardize their customer relationships. Kwapil furthermore presented evidence suggesting that the price response to various shocks is subject to asymmetries. In his discussion of the above paper *Thomas Mathä (Banque centrale du Luxembourg)* compared the Austrian results with those from other euro area countries and pointed out several more questions worth investigating.

In the second session, which dealt with inflation persistence on the sectoral and macroeconomic levels, *Josef Baumgartner (WIFO)* presented univariate autoregressive (AR) models in which the sum of the AR coefficients provides a measure of inflation persistence. He produced evidence for three structural breaks (in the mid-seventies, mid-eighties and mid-nineties) in the inflation process in Austria. If these structural breaks are taken into account, persistence measures decrease sharply. Baumgartner also investigated the influence of the data frequency, the treatment of seasonality, the estimation methods and the aggregation level of the CPI on both the evidence of structural breaks and the degree of inflation persistence. In his comments on Baumgartner’s presentation, *Markus Knell (OeNB)* emphasized the careful treatment of seasonal adjustment in the paper. Most other papers neglect this topic, although it can have an essential impact on results (as shown in the above paper). Moreover, he judged the univariate approach applied in the paper as a reasonable and useful instrument for gaining a first impression of the main properties of inflation and price index data. He added, however, that the estimates of the persistence parameter can be

biased because of the stickiness of real shocks in the economy. A multivariate approach could take care of this problem.

Fabio Rumler (OeNB) analyzed price stickiness at the macroeconomic level within the framework of an open-economy New Keynesian Phillips Curve (NKPC) model. He extended the existing literature by incorporating three different factors of production (domestic labor, imported and domestically produced intermediate goods) into a general NKPC model. According to his results, structural price rigidity is systematically lower in an open-economy specification than in a closed-economy version. This indicates that, when firms face more variable input costs, they tend to adjust their prices more frequently. However, when the model is estimated in its general specification including domestic intermediate inputs, price rigidity increases again compared to the open-economy specification without domestic intermediate inputs. In his discussion of Rumler's presentation, *Johann Scharler (OeNB)* compared the estimates of the model's structural parameters with estimates frequently found in the literature and questioned whether the differences matter economically. He argued that the different values for the parameters do not matter much for the response of the output gap to a monetary shock. However, depending on the specification used, the effect on inflation can change significantly.

In the third session *Helmut Stix (OeNB)* presented a study co-authored with Manfred Fluch (OeNB) on the discrepancy between actual inflation and the inflation perceived by the general public around the time of the euro cash changeover. Stix argued that this discrepancy can in part be attributed to

the fact that people's perception of inflation seemed to be based mainly on the prices of frequently purchased goods, which rose faster after the cash changeover than those of other goods. Furthermore, consumers perceive price increases more strongly than price reductions. This perception seems to have been reinforced by the fact that consumers expected prices to rise as a result of the euro cash changeover and that they used outdated schilling reference prices when comparing prices in euro. Thus, perceived inflation proved to be unexpectedly persistent: It was not before the beginning of 2005 that the gap between perceived inflation and actual inflation was more or less closed. *Erich Kirchler (University of Vienna)* argued that the lower nominal euro values (in all EMU Member States except Ireland) may have made products appear cheaper because of the low nominal values. Furthermore, the difference between cheap and expensive products may have seemed smaller and, therefore, the more expensive product was chosen more easily. Consumers, however, did not attribute this behavior to their own spending habits but externalized it and blamed it on the euro.

In the concluding panel discussion representatives of Austrian research institutions and social partner organizations offered their reading of the findings presented at the workshop. *Karl Aiginger (Austrian Institute of Economic Research)* discussed some implications of the results for competition and structural policy. He emphasized that frequent price changes have both advantages and disadvantages. Price changes increase the uncertainty under which economic decisions are made, and uncertainty can reduce consumption and investment. On the other hand, price changes are important sig-

nals of changes in costs and productivity. Weighing the advantages and disadvantages of price flexibility, he argued that more frequent price changes than are currently observed in Austria would be beneficial, as, first, the average frequency of price changes – now once per year – is truly the minimum and as, second, price changes that become necessary after long periods of rigidity are relatively large. Companies' hesitation to adjust prices rapidly to changing cost or demand conditions reflects a lack of aggressiveness in seeking market opportunities. Moreover, as evidence shows, it is far more common among Austrian and European firms to react to cost developments than to take advantage of variations in demand. Therefore, Aiginger concluded, structural adjustments are delayed and innovations are less profitable than in the United States.

Günther Chaloupek (Austrian Chamber of Labour) argued that inflation persistence has decreased substantially since the first and second oil price shocks. This means that no or almost no second-round effects, which tend to prolong or even intensify the original inflation impulse, are to be expected. From his viewpoint, this suggests that the latest inflation developments should be watched calmly and that the ECB should not further increase interest rates. Chaloupek also pointed out that he doubts the neo-classical orthodoxy which states that perfect (upward and in particular downward) price flexibility is optimal under all circumstances. He cited Keynes who argued that falling prices can have serious negative consequences for companies and consumers. Therefore, Chaloupek suggested to devote more research effort to the problem of deflation. These efforts should, in particular, focus on deter-

mining the level of low inflation at which deflationary developments start to occur at the micro level (i.e. for individual firms).

Harald Kaszanits (Austrian Federal Economic Chamber) pointed out that, in Austria, prices are particularly sticky in the services, healthcare and education sectors, i.e. those sectors which are largely administered by public authorities. In order to induce more price flexibility in these sectors, he proposed to further liberalize and deregulate these markets by opening them up to private entrepreneurs and/or by encouraging public-private partnerships. Regarding the role of wages in the determination of prices, Kaszanits argued that wages usually increase at regular intervals and decrease only very rarely, which induces downward rigidity of prices in labor-intensive sectors such as services. To allow more (downward) price flexibility in these sectors he suggested to carry out labor market reforms aiming at more flexible payment schemes; he also emphasized the importance of wage restraints for favorable inflation developments.

Martin Zagler (Vienna University of Economics and Business Administration and European University Institute Florence) emphasized that the finding that there is downward flexibility in prices implies that there are no mechanisms to prevent a majority of prices to fall, and therefore to prevent periods of deflation. According to Zagler, monetary policy needs to react to this insight by also introducing a lower bound for inflation in its price stability objective. In this context, he interpreted the adjustment of the ECB's definition of price stability in 2003 – which before had been “below 2%” and now reads “below, but close to, 2%” – as an important policy change designed

to prevent periods of deflation. In Zagler's view the finding that prices react differently to cost and demand shocks requires a reassessment of monetary policy. For instance, in the case of a positive supply shock as triggered by the new economy and downward sticky prices, there would be ample scope for expansionary monetary policy. In the case of a business cycle upturn (which would represent a positive demand shock), prices – according to the research findings – should not react immediately to improved demand conditions and, thus, monetary policy could be accommodative without the danger of increasing inflation.

Ernest Gnan (OeNB) argued that structural reforms which enhance price flexibility and reduce inflation persistence not only serve the aim of enhancing long-term potential growth but may also have beneficial consequences in terms of smoother business cycles. Research findings which show that prices are frequently cut, particu-

larly in response to low demand, weaken the case for pursuing an inflation objective well above zero due to downward price rigidity. However, significant service price and wage downward rigidities are important qualifications. Increased wage flexibility and stronger competition in the euro area would support higher price flexibility, not least in the service sector. As inflation variability is more costly if inflation persistence is high, central banks should put greater weight on inflation stabilization in economies with higher inflation persistence. A central bank's inflation track record can itself influence price setting and inflation persistence. In the light of uncertainty about the degree of inflation persistence, robust monetary policy should rather err on the side of higher inflation persistence. Turning to Austria, Gnan summarized that inflation persistence is relatively high, that price flexibility is intermediate and that the frequency of price decreases in Austria is above the euro area average.

NOTES

Abbreviations

ARTIS	Austrian Real Time Interbank Settlement (the Austrian RTGS system)	IDB	Inter-American Development Bank
A-SIT	Secure Information Technology Center – Austria	IFES	Institut für empirische Sozialforschung GesmbH (Institute for Empirical Social Research, Vienna)
ASVG	Allgemeines Sozialversicherungsgesetz – General Social Security Act	ifo	ifo Institute for Economic Research, Munich
A-Trust	A-Trust Gesellschaft für Sicherheitssysteme im elektronischen Datenverkehr GmbH	IHS	Institut für Höhere Studien und Wissenschaftliche Forschung – Institute for Advanced Studies, Vienna
ATX	Austrian Traded Index	IIF	Institute of International Finance
BCBS	Basel Committee on Banking Supervision (BIS)	IIP	international investment position
BIC	Bank Identifier Code	IMF	International Monetary Fund
BIS	Bank for International Settlements	ISO	International Organization for Standardization
BOP	balance of payments	IWI	Industriewissenschaftliches Institut – Austrian Institute for Industrial Research
BSC	Banking Supervision Committee (ESCB)	JVI	Joint Vienna Institute
CACs	collective action clauses	LIBOR	London Interbank Offered Rate
CEBS	Committee of European Banking Supervisors (EU)	M3	broad monetary aggregate M3
CEE	Central and Eastern Europe	MFI	monetary financial institution
CEECs	Central and Eastern European countries	MRO	main refinancing operation
CESR	Committee of European Securities Regulators	MoU	memorandum of understanding
CIS	Commonwealth of Independent States	NACE	Statistical Classification of Economic Activities in the European Community
CPI	consumer price index	NCB	national central bank
EBA	Euro Banking Association	OeBS	Oesterreichische Banknoten- und Sicherheitsdruck GmbH – Austrian Banknote and Security Printing Works
EBRD	European Bank for Reconstruction and Development	OECD	Organisation for Economic Co-operation and Development
EC	European Community	OeKB	Oesterreichische Kontrollbank (Austria's main financial and information service provider for the export industry and the capital market)
ECB	European Central Bank	OeNB	Oesterreichische Nationalbank (Austria's central bank)
Ecofin	Council of Economic and Finance Ministers (EU)	OPEC	Organization of the Petroleum Exporting Countries
EEA	European Economic Area	ÖBFA	Austrian Federal Financing Agency
EFC	Economic and Financial Committee (EU)	ÖNACE	Austrian Statistical Classification of Economic Activities
EIB	European Investment Bank	POS	point of sale
EMS	European Monetary System	PRGF	Poverty Reduction and Growth Facility (IMF)
EMU	Economic and Monetary Union	RTGS	Real-Time Gross Settlement
EONIA	Euro OverNight Index Average	SDR	Special Drawing Right (IMF)
ERM II	Exchange Rate Mechanism II (EU)	SDRM	Sovereign Debt Restructuring Mechanism (IMF)
ERP	European Recovery Program	SEPA	Single Euro Payments Area
ESA	European System of Accounts	SPF	Survey of Professional Forecasters
ESAF	Enhanced Structural Adjustment Facility (IMF)	STEP2	Straight-Through Euro Processing system offered by the Euro Banking Association
ESCB	European System of Central Banks	STUZZA	Studiengesellschaft für Zusammenarbeit im Zahlungsverkehr G.m.b.H. – Austrian Research Association for Payment Cooperation
ESRI	Economic and Social Research Institute	S.W.I.F.T.	Society for Worldwide Interbank Financial Telecommunication
EU	European Union	TARGET	Trans-European Automated Real-time Gross settlement Express Transfer
EURIBOR	Euro Interbank Offered Rate	Treaty	refers to the Treaty establishing the European Community
Eurostat	Statistical Office of the European Communities	UNCTAD	United Nations Conference on Trade and Development
FATF	Financial Action Task Force on Money Laundering	UNO	United Nations Organization
Fed	Federal Reserve System	VaR	Value at Risk
FMA	Financial Market Authority (for Austria)	WBI	Wiener Börse Index
FOMC	Federal Open Market Committee (U.S.A.)	WEF	World Economic Forum
FSAP	Financial Sector Assessment Program (IMF)	WIFO	Österreichisches Institut für Wirtschaftsforschung – Austrian Institute of Economic Research
FWF	Fonds zur Förderung der wirtschaftlichen Forschung – Austrian Science Fund	WIIW	Wiener Institut für internationale Wirtschaftsvergleiche – The Vienna Institute for International Economic Studies
GAB	General Arrangements to Borrow	WKO	Wirtschaftskammer Österreich – Austrian Federal Economic Chamber
GATS	General Agreement on Trade in Services	WTO	World Trade Organization
GDP	gross domestic product		
GNP	gross national product		
GSA	GELDSERVICE AUSTRIA Logistik für Wertgestionierung und Transportkoordination GmbH (Austrian cash services company)		
HICP	Harmonized Index of Consumer Prices		
HIPC	Heavily Indebted Poor Countries		
IBAN	International Bank Account Number		
IBRD	International Bank for Reconstruction and Development		
ICT	information and communication technology		

Legend

× = No data can be indicated for technical reasons

. . = Data not available at the reporting date

0 = The numerical value is zero or smaller than half of the unit indicated

Discrepancies may arise from rounding.

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