

Economic Growth in Denmark, Sweden and the United Kingdom since the Start of Monetary Union

This study analyzes GDP growth in Denmark, Sweden and the United Kingdom, examining the determinants of potential growth, cyclical fluctuations in GDP and the contribution of the national economic policy of each of the three countries. High spending on research and development, particularly in information and communications technology, is identified as the main force driving growth in Sweden while a robust increase in private consumption resulting from rising asset prices is found to have been the key growth driver in the United Kingdom. In Denmark and Sweden, swings in the business cycle are being successfully offset through fiscal policy and other measures. The United Kingdom has made considerable progress with respect to business cycle convergence with the euro area, a significant factor for joining Economic and Monetary Union.

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1 Introduction

The Maastricht Treaty signed in 1992 laid the foundations for the monetary integration of Europe. However, not all of the Member States of the time were equally willing to deepen the Union in this way. The United Kingdom and Denmark were granted an opt-out clause for participation in Stage Three of Economic and Monetary Union (EMU). The enlargement of the EU in 1994 brought another member that would at first not participate in Stage Three – Sweden. However, unlike Denmark and the United Kingdom, Sweden is obligated to participate in Stage Three once the corresponding criteria¹ are met.

Thus, the start of a single monetary policy in 1999 resulted in a separation of the then-EU-15² countries in monetary policy terms, setting an example for a “variable geometry” approach to European integration (e.g. Rey, 1994). While monetary policy decisions for the 12 euro area countries are made by the Governing Council of the ECB, the United Kingdom, Denmark and Sweden have retained their national sovereignty in this area and can conduct monetary policy independently within the framework of the European System of Cen-

tral Banks (ESCB). The exchange rate regimes differ for each of the three countries. Denmark participates in the exchange rate mechanism (ERM) II, but the exchange rates of the Swedish krona and the pound sterling float freely (IMF, 2004a). However, the bilateral exchange rates of the Swedish krona and the pound sterling against other EU currencies are the subject of economic policy coordination and regarded as matters of common EU interest (see Article 124.2 of the Treaty on European Union). This is primarily intended to prevent competitive devaluations. Such coordination, which is a consequence of the increasing interdependence of Europe’s economies, occurs in many other economic policy areas as well.³

Because the economies of the three countries are closely linked to the euro area, their development is also significant for Eurosystem monetary policy to the extent that it has an impact on the euro area’s monetary policy targets. For example, the three countries accounted for 24.3% of the euro area’s total export market in 2003, with the United Kingdom notching the largest share at 18.3% (ECB, 2004b). The three countries’ weight in terms of the nominal-effec-

¹ In addition to the exchange rate criterion, Sweden currently does not meet the criterion of central bank independence (see ECB, 2004a).

² In May 2004, EU enlargement brought the number of Member States to 25.

³ See Article 99 of the Maastricht Treaty, which foresees the establishment of broad guidelines on the economic policies of EU Member States.

tive exchange rate is around 28%.⁴ Thus, changes in economic growth in Denmark, Sweden and the United Kingdom can also have implications for the euro area.

Although it is unlikely that any of these three countries will join the euro area in the next few years, they do have concrete prospects for membership. A continuation of the process of Europe's monetary integration through the accession of Denmark, Sweden and the United Kingdom to EMU basically hinges on their compliance with the convergence criteria under the Maastricht Treaty. According to the theory of optimum currency areas (De Grauwe, 2003), an important economic requirement for such enlargement is sufficient convergence of the business cycles, which is to say the absence of sharp asymmetrical shocks between these countries and the euro area.

In this study, we will examine economic growth trends in the United

Kingdom, Denmark, and Sweden, focusing on the period since the start of EMU in 1999. In order to obtain a precise picture of the factors relevant to growth, we will analyze the determinants of potential growth and the business cycles in the three countries. We will follow this with a statistical analysis of the convergence of the three countries' business cycles with that of the euro area and an overview of the current state of the debate on joining EMU.

2 Potential Growth

From 1965 to 2003, Denmark, Sweden and the United Kingdom achieved very similar rates of real GDP growth (table 1). During this period, the euro area grew faster on average due to higher growth rates in the first half of the period, which were largely attributable to economic catch-up processes in some euro area economies.⁵

Table 1

Real GDP Growth				
	Denmark	United Kingdom	Sweden	Euro area
	Annual average rate, in %			
1965 to 2003	2.1	2.3	2.3	2.8
1965 to 1985	2.4	2.1	2.5	3.3
1985 to 2003	1.8	2.6	2.1	2.4
1985 to 1999	1.9	2.6	2.0	2.6
1999 to 2003	1.3	2.4	2.2	1.6

Source: AMECO database.

The real increases in GDP that are achieved are determined largely by an economy's potential growth, that is, the rates achieved when all production factors are used to their full capacity. In order to examine which factors determined potential growth in Denmark, Sweden, the United Kingdom

and the euro area, we have conducted a simple growth accounting exercise based on the model developed by Feder (1983) (see box for the analytical framework). The main determinants in this model are the production factors labor and capital, total factor productivity (TFP) and the export

⁴ The United States accounts for 15.7% of the total export market and has a 23% weighting in terms of the nominal-effective exchange rate.

⁵ Greece and Portugal exhibited average GDP growth rates of more than 4% between 1965 and 1985.

sector. TFP combines those factors that increase aggregate output without an increase in the input from production factors, such as technical progress or an improved level of training and education among the labor force. The export sector is taken into account due to possible positive externalities. Feder (1983) justifies the use of exports in the production function approach as follows: “Econometric analysis utilizing this approach indi-

cates that marginal factor productivities are significantly higher in the export sector. The difference seems to derive, in part, from the intersectoral beneficial externalities generated by the export sector. The conclusion is therefore that growth can be generated not only by increases in the aggregate levels of labor and capital but also by the reallocation of existing resources from the less efficient non-export sector to the higher productivity export sector.”⁶

Growth Accounting Exercise Based on Feder’s Model (1983)

This model views an economy as if it comprises two distinct sectors that have different impacts on aggregate output due to their different productivity trends. The two sectors are the export sector and the rest of the economy, which produces for the domestic market. In addition, it is assumed that labor and capital are the only factor inputs that go into the production process and that the relative marginal factor productivities of labor and capital in the two sectors can differ. The model also assumes that the export sector can generate positive externalities for the rest of the economy because it is “more exposed” than other sectors and should achieve higher productivity due to the higher competitive pressure.

With some assumptions, we can derive the following equation:

$$\dot{Y} = \alpha(I/Y) + \beta\dot{L} + \left[\frac{\delta_x}{1 + \delta_x} - \theta \right] (\dot{X}(X/Y)) + \theta \dot{X}$$

where I/Y and X/Y are the ratios of investment (capital spending) and exports to aggregate output and L is the labor force. A variable with a superscript point represents the rate of change. δ_x is the productivity differential between the export sector and the rest of the economy. If the factor productivity differential is positive (negative), the production factors have a greater (lesser) marginal productivity in the export sector. Total factor productivity (TFP) is calculated, as usual, as a residual. In this study, particular attention is given to the externality effect of the export sector and the contributions of TFP, investment and labor to growth. This study does not address the results of the productivity differential δ_x in further detail (results are available from the authors on request).

Sectoral Production Function Approach from 1965 to 2003

	Denmark	Sweden	United Kingdom	Euro area
TFP	1.54 *** (0.15)	1.32 *** (0.36)	1.40 *** (0.50)	0.66 *** (0.12)
I/Y	0.92 *** (0.04)	1.01 *** (0.13)	1.10 *** (0.20)	0.36 *** (0.07)
L	0.15 (0.14)	0.67 *** (0.23)	0.57 *** (0.15)	0.73 *** (0.11)
X	0.54 *** (0.03)	0.13 * (0.07)	0.17 (0.21)	0.61 *** (0.02)
R ² _{adj}	0.71	0.67	0.62	0.85

Source: AMECO database; Estimation method: Generalized Method of Moments (GMM).
*** (**) [*] indicates significance at the 1% (5%) [10%] level, standard error in brackets.

TFP has dominated real GDP growth rates in Denmark, Sweden and the United Kingdom since 1965.

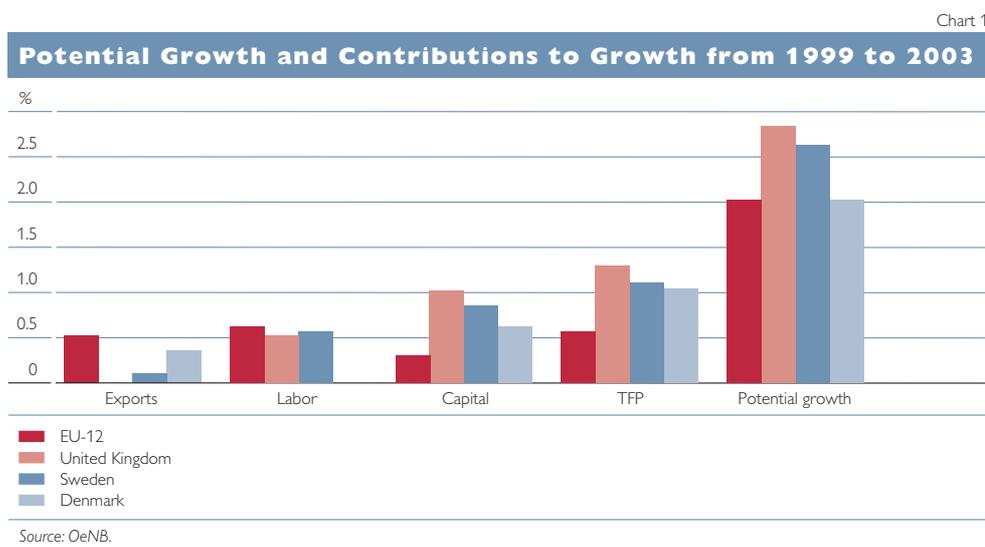
TFP’s contribution was considerably higher up to 1985 than in the years that followed.⁷ However, after 1985

⁶ For another application of Feder’s model, see Crespo Cuaresma and Wörz (2004).

⁷ Detailed results are available from the authors on request.

productivity slowed also in the other EU Member States, and in other industrialized countries. Possible explanations for this phenomenon include the rise in oil prices since the 1970s, difficulties with correctly measuring qualitative improvements in production, and the introduction of stricter environmental and labor

regulations. Chart 1 illustrates the shares that TFP contributed to growth in Denmark, Sweden, the United Kingdom and the euro area in the period from 1999 to 2003. This contribution was highest in Sweden and the United Kingdom, and even in Denmark the TFP share was far higher than in the euro area.⁸



Similarly to TFP, the importance of physical capital also declined in Denmark, Sweden, the United Kingdom and the euro area in the period after 1985. This can likely be attributed to the tertiarization of these economies and the associated stronger weighting of labor as a factor. It is striking that the contribution of physical capital to growth was the weakest in the euro area, both over the entire period since 1965 and in the sub-periods. Labor gained considerable importance in the euro area in the period from 1985 to 2003 as compared with the period from 1965 to 1985,

but either held steady or grew only slightly in Denmark, Sweden and the United Kingdom.

The export sector's contributions to growth varied in the individual periods but were relatively high in all four economies, particularly in the period from 1965 to 1985. In the euro area, the export sector contributed heavily (about one quarter) to GDP growth also in the period from 1999 to 2003. Thus, the externalities of the export sector postulated by Feder (1983) in his model were likely the strongest in the euro area.

⁸ The growth potential of the euro area is diminished in particular by the trend in Germany. A recent study by the Kiel Institute for World Economics (IfW) shows that potential growth for the euro area would be around 0.2 percentage point higher without Germany.

2.1 Determinants of Potential Growth in Denmark, Sweden and the United Kingdom

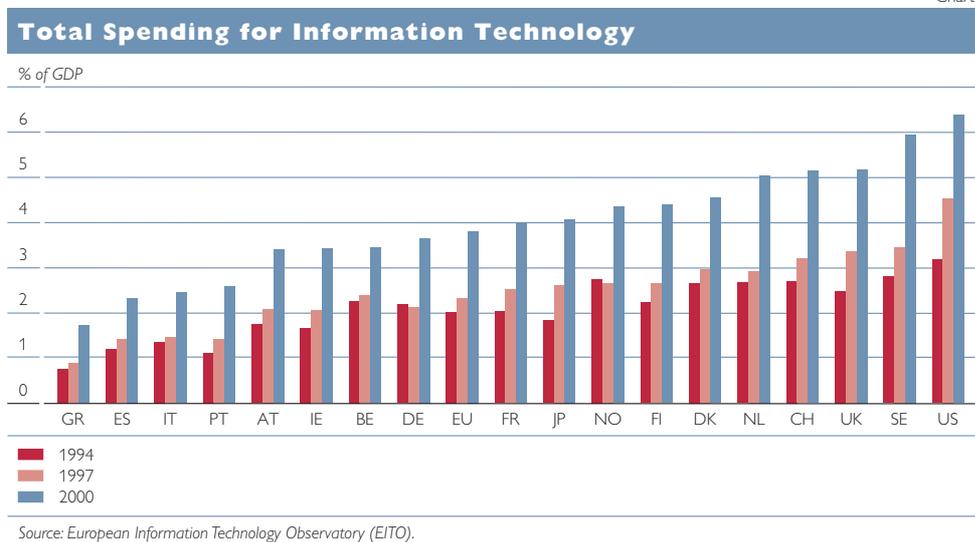
2.1.1 Sweden

One of the reasons for the strong GDP growth and the increase in TFP in Sweden lies in the country's high level of spending on research and development (R&D). At more than 4% of GDP, R&D spending was far higher in Sweden than in the other EU Member States – and even the

United States – in the past few years. This higher level of R&D activity yields more product and process innovations, which, in turn, boost GDP growth by increasing productivity.⁹

Sweden's R&D spending is also attributable to the country's dominant position in the information and communication technology (ICT) sector. Sweden was the European leader in terms of ICT spending during this period¹⁰ (see chart 2).

Chart 2



Studies on productivity trends generally tend to focus on industries like the ICT sector, in which significant technological changes have taken place. In general and particularly for Sweden, their authors argue that ICT sector growth should result in strong increases in productivity. One of the empirical results for Sweden was that growth in manufacturing would have been far weaker had it not been for the spectacular increases in the ICT sector.¹¹ Chart 1 supports this hypoth-

esis, as it clearly shows that TFP was the main factor contributing to the comparatively strong GDP growth between 1999 and 2003 in Sweden (as well as in Denmark and the United Kingdom).

2.1.2 Denmark

The ICT sector also plays an important role in Denmark, though perhaps not to the same extent as in Sweden. Of note is that, due to continually falling prices for goods from the ICT sec-

⁹ A comprehensive analysis of the effects of R&D on GDP growth is provided in "The Sources of Economic Growth in the OECD Countries" (OECD, 2003b).

¹⁰ Other measures also put Sweden out in front in this respect.

¹¹ For a critical analysis of the Swedish ICT miracle, see Edquist (2004). Edquist argues that the higher level of (productivity) growth in Sweden relative to other countries is partly a statistical artifact resulting from the use of the wrong deflators for the ICT sector.

tor, users of ICT products are more likely to benefit from increased productivity than producers. According to Aiginger (2004), the diffusion of new technologies and the creation of industrial clusters in biotechnology have also been key to strengthening Denmark's innovative power.

In the breakdown of Denmark's potential growth (chart 1) it becomes apparent that the changes in labor input between 1999 and 2003 did not contribute to GDP growth. In fact, the size of the labor force stagnated in Denmark in this period while it increased by around 1% in Sweden, the United Kingdom and the euro area. In Denmark, unemployment increased while the labor force participation rate stagnated at a high level of around 80%. Still, at 5.5% in 2003, the unemployment rate remained low compared with other European countries. The 1 percentage point increase in unemployment in 2003 can be attributed to the fact that Denmark has virtually no employment protection regulations, which makes it easier for companies to reduce staff in response to decreased demand. However, the Danish government spends more on active labor market measures than any other EU Member State in order to absorb this high flexibility in hiring and firing (OECD, 2004b), thus providing a social safety net for employees.

2.1.3 United Kingdom

The United Kingdom posted higher potential growth in the last few years than Denmark, Sweden and the euro area. This is due both to increases in the labor force participation rate and stronger TFP growth. In terms of the latter, the robust growth in ICT investment likely played a role (OECD, 2004a). However, productivity in the United Kingdom remains far

below that of most other industrialized countries. This can be explained in part by the lower stock of physical and human capital (O'Mahony and De Boer, 2002). Deficits exist in both the public and private sector physical capital stock. The export sector's small contribution to productivity growth is likely also connected to the low capital stock in this area. The result is fewer positive external effects between the exposed sector and the rest of the U.K. economy.

One of the goals of the United Kingdom's economic policy is to increase productivity by improving training and education, increasing public sector investment, further promoting ICT, and further liberalizing the product markets in order to close this "productivity gap" vis-à-vis other countries.

3 Business Cycle

In addition to potential growth, economic swings – that is, temporary phases of particularly strong or weak capacity utilization of the production factors – play a key role in economic growth. When analyzing these cyclical swings, it makes sense to differentiate between the role of global and country-specific economic shocks, the economic structure, and national monetary and fiscal policy measures (Westaway, 2003). The following will first provide an overview of the shocks experienced by all three countries since the start of EMU. Since this overview provides significant information about the convergence of the countries' business cycles with those of the euro area, the euro area will also be included in the analysis. Thereafter, an overview of the country-specific shocks and the relevant economic policy trends in Denmark, Sweden and the United Kingdom is provided.

3.1 Global Economic Environment – The Role of Global Shocks

Since 1999, the global economy has been hit by several shocks that have also influenced cyclical dynamics in Denmark, Sweden, the United King-

dom and the euro area. Chart 3 shows the impact of these shocks based on economic growth adjusted for potential growth in the three countries and the euro area.¹²

Chart 3

Business Cycle – Transitory Components of Growth in Denmark, Sweden, the United Kingdom and the EU-12

Percentage points



Source: Author calculations based on NIGEM data.
Forecast values from Q2 04 onward.

Chart 3 already indicates a relatively high level of synchronization among the business cycles, which suggests the influence of global shocks. The common economic expansion that lasted until the middle of 2000 was followed by a broadly synchronized slowdown through the middle of 2001. This “early millennium slowdown” (Peersman, 2004) was not limited to the four economic areas, but also extended to many other countries. Restrictive monetary policy in many countries coming into the year 2000, a severe oil price shock, the end of the investment boom in the United States, a price collapse on

the world’s major stock markets after the ICT bubble burst, and finally, growing geopolitical uncertainties that had corresponding negative effects on confidence played an important role here. At the beginning of 2002, an economic recovery began to emerge in the three countries, the euro area, and other regions. However, this recovery was interrupted by a renewed series of negative shocks, including a further substantial decline in stock prices due to disregard for corporate governance standards and growing geopolitical uncertainty as a result of the Iraq war. Starting in mid-2003, a global economic

¹² This analysis uses the potential growth rates estimated using a production function approach based on the NIGEM model. The values are relatively close to those of the European Commission (2004) and the estimates in chapter 2. However, such estimates do come with sometimes considerable uncertainty.

recovery began to emerge, gained momentum, and spread to Denmark, Sweden, the United Kingdom, and the euro area.

Bordo and Helbling (2003) concluded that the role of global shocks for the development of the national economies has increased in the past decades. This trend can be attributed to globalization of the economy, which through the increasing integration of the world's product and financial markets strengthens the global transmission mechanisms of shocks. This stands in contrast to the positive aspects of globalization, which include the possibility to benefit from greater economies of scale, increased international division of labor, simpler financing of current account deficits, and better spreading of income risks through international diversification.

3.2 Country-Specific Factors and Economic Policy

3.2.1 United Kingdom

As it had since the mid-1990s, the U.K. economy continued to evolve very positively in the time since the start of the monetary union despite the negative global shocks mentioned above.¹³ Particularly striking was the high level of stability of economic growth during this period. Chart 3 illustrates how much less volatile growth is in the United Kingdom compared with Denmark, Sweden and the euro area. This stability can be attributed to strong domestic demand, with private and public sector consumption and capital spending on new construction contributing significantly to stabilization. The stability of these components offset the fluctuations in exports and investment in plant and

equipment, which had evolved more in line with international trends. These demand-side trends led to a growing disparity at the sectoral level between a service sector marked by dynamic growth and a largely stagnant industrial sector.

The strong private consumption of the past years can be explained by a series of factors. Massive real appreciation due to rising short- and long-term real interest rates in 1996 brought continued improvement in the terms of trade. Households' wealth increased considerably, first through stock price gains and then through rising real estate prices. The latter have a greater impact on private consumption in the United Kingdom than in other countries because the financial and real estate markets make it easier to obtain credit through "mortgage equity withdrawals" (home equity loans). These structural factors, combined with a relatively inelastic supply, may have contributed to the increase in real estate prices. The low interest rate policy since 2001 has also supported the real estate prices and, thus, private consumption, not least due to the high share of adjustable-rate mortgage loans. However, the situation on the real estate market is now giving cause for concern since current prices are generally considered to be too high. Another factor contributing to strong private consumption is the positive trend on the labor market, which has reduced income risks for consumers. Greater wealth and better terms of trade along with a more stable labor market likely also contributed significantly to a far lower saving rate.

¹³ The following remarks take into consideration inter alia the information and estimates expressed in the Article VI Consultations of the IMF and the OECD Economic Surveys for the period under review.

The vibrant growth of public sector demand for capital goods, consumer goods and labor is largely attributable to the U.K. government's structural policy aims, which are geared toward improving supply in the healthcare and education sectors and increasing labor productivity. However, the sharp rise in spending over a relatively short period has recently resulted in absorption problems. The economic effects of the government's fiscal policy were extremely favorable, both in the consolidation phase following the change of government in 1997 and in the phase of expansionary budget policy after 2000. One of the key problems associated with the use of discretionary measures by government to stabilize business cycles is how to get the timing right, and this probably was not resolved during the period under review in the United Kingdom either. Budget consolidation was done shortly after the elections and, thus, followed the electoral fiscal cycle, whereas the expansionary fiscal policy of the past few years was motivated largely by structural policy goals. Thus, the favorable timing of these measures from a cyclical perspective was probably less a matter of fiscal policymakers' intentions than mere chance.

The weakness of the export and industrial sectors is the flipside of the boom in domestic demand. The massive real appreciation resulting from higher real interest rates, which must be viewed in connection with stronger domestic demand, impaired competitiveness in the export sector perceptibly, which in turn resulted in losses of market share and permanent current account deficits of around 2% of GDP. One of the aims of current economic policy in the

United Kingdom is to curb private consumption somewhat. One way to do this would be to increase current government revenues, a sensible move considering the planned increase in current government spending.

3.2.2 Sweden

GDP growth in Sweden during the period from 1999 to 2003 was higher than in the euro area, but the cyclical swings were also wider due to the collapse of the ICT market and this small, open economy's strong foreign trade relations, which facilitated the transmission of global shocks.

The average growth rate of 4.6% in the period from 1998 to 2000, which was achieved during the global boom, was the strongest since the 1960s. Growth in Sweden plummeted to below that of the euro area in 2001 in the wake of the ICT sector collapse, but was already emerging into recovery in 2002. A strongly accommodating fiscal policy likely played an important role here. Sweden had used the boom period at the end of the 1990s to balance its budget from a two-digit deficit (−11.4% of GDP) in 1993. The positive budget situation – a surplus of 5.2% of GDP in 2000 – provided sufficient budgetary leeway at the start of the economic downturn to allow the automatic stabilizers to take their full effect. This, in turn, helped smooth the cyclical trend. The large budget surpluses also permitted Sweden to implement additional discretionary measures, particularly in the form of income tax cuts. According to the OECD (2002a), disposable real income growth picked up by more than 1 percentage point. As a result of this loosening of the fiscal policy stance, the budget surplus shrank from 5.2% of GDP in 2001 to 2.3% in 2003.

The overall trend in Sweden makes obvious the advantages of stability-oriented macropolicy and a credible commitment to and goal for public finances.¹⁴ Moreover, it makes clear how important it is to build budgetary surpluses during expansion phases to ensure fiscal policy leeway during contraction phases.

3.2.3 Denmark

GDP growth in Denmark was driven by foreign trade and investment in the years from 1999 to 2001. Although Danish exports generally reacted relatively mildly to fluctuations in the business cycle due to the large share of goods, such as pharmaceutical products and processed foodstuffs, net exports nevertheless made a negative contribution to GDP growth in 2002. The trend in private consumption during this period was relatively subdued. Toward the end of 2002, there was a brief spike in private consumption because households were anticipating that the implementation of an EU directive would result in higher automobile prices in 2003.

On the whole, GDP growth over the past few years was less volatile in Denmark than in the euro area. This indicates inter alia the strong impact of automatic stabilizers. Simulations conducted by the European Commission (2001) show that the automatic stabilizers in Denmark are particularly effective and smooth fluctuations in GDP by around 30%. In a small, open economy, the elimination of monetary policy as an instrument for absorbing

shocks increases the importance of other stabilizing mechanisms such as fiscal policy.

The effectiveness of the automatic stabilizers depends on several factors, including the size of the public sector. At 57%, Denmark has the second-highest government revenue ratio in the EU behind Sweden. Another factor is the progressive tax rate structure.¹⁵ The extent of benefits provided by unemployment insurance also has an impact on the effectiveness of the automatic stabilizers. Here too, Denmark is among the highest-ranking OECD countries. In addition to the effects of the automatic stabilizers, a number of discretionary measures were also adopted at the end of 2001 (Volz, 2004).

In terms of monetary policy, Denmark is linked with the euro area through ERM II, which prescribes a central rate for the Danish krone. In order to maintain this exchange rate, it is important that inflation rates in Denmark and the euro area remain relatively similar. In the years from 1999 to 2003, the average HICP inflation rate in the euro area was 1.9%. In Denmark it was 2.3%. During the same period, the Danish central bank not only followed all of the interest rate changes made by the ECB, it also implemented several interest rate cuts independently, thus supporting GDP growth and narrowing the difference between the key interest rates in Denmark and the euro area from 80 basis points to 15 basis points. This easing of monetary policy was possible

¹⁴ One reason for the large budget surplus in Sweden is the fact that three fiscal policy goals were adhered to that are laid out in an agreement that covers all areas of the public sector: (a) maintaining a cyclically adjusted deficit of 2% over the entire business cycle, (b) adhering to spending ceilings in the federal budget, and (c) ensuring balanced budgeting at the level of the local and regional authorities. These goals were defined in part because Sweden's budget has a high cyclical sensitivity.

¹⁵ The top tax rate of 63% in Denmark is relatively high compared with other countries, and it already kicks in at an income level that is only 6% above the national average (OECD, 2003a).

thanks to the stability of the exchange rate, which has remained within the fluctuation bands¹⁶ defined in ERM II since 1999.

4 Convergence of the Business Cycles

The efforts to create a European monetary union have sparked increased interest in measuring the synchronization of the business cycles within Europe since the beginning of the 1990s. A high level of convergence among the national business cycles is an important criterion for an optimum currency area. Several studies have shown that the convergence of the euro area countries increased in

the second half of the 1990s (e.g. Angeloni and Dedola, 1999; Massman and Mitchell, 2002a).

The extent of synchronization between the euro area and the three countries studied here can be determined by the correlation of the cyclical components in their GDP growth rates (e.g. Artis, 2003). The cyclical component is calculated as the difference between real growth and an estimate for potential growth (see footnote 12). By dividing the period from 1992 to 2004 in half at the first quarter of 1999, we can compare the time before and the time after the start of Stage Three of EMU. Table 2 shows the results.

Table 2

Correlation of the Business Cycles

	Q1 92 to Q4 98	Q1 99 to Q4 04	Q1 92 to Q4 04
EU-12/United Kingdom	0.18	0.77	0.35
EU-12/Sweden	0.83	0.70	0.77
EU-12/Denmark	0.72	0.59	0.66

Source: Author calculations based on NIGEM data.
Forecast values from Q2 04 onward.

Thus, we see that, since the start of EMU, the business cycles of the three countries have been correlated considerably with that of the euro area. What is striking is the sharp increase in the correlation for the United Kingdom, which can be attributed to the strong cyclical divergences between the continental European economies and the United Kingdom at the start of the 1990s (Massman and Mitchell, 2002b). In Denmark and Sweden, the already high level of correlation dipped only slightly during the 1990s.

In Sweden and the United Kingdom, business cycle convergence plays an important role in the national de-

bates regarding the advantages of joining EMU. In Denmark, it is no longer an issue since Denmark is already participating in ERM II. In the United Kingdom, the Treasury, which is responsible for assessing the economics of joining EMU, determined in June 2003 that long-term convergence of U.K. and euro area business cycles had not yet been achieved and, therefore, joining EMU could not be recommended at this time given the current flexibility on the labor, product and financial markets (HM Treasury, 2003). In Sweden, the government concluded in fall 2002 that sufficient convergence exists between the Swedish and euro area business cycles.

¹⁶ In ERM II, a permissible fluctuation band of 2.25% around the central rate was agreed. Thus far, the Danish krone has never strayed more than 0.49% from the central rate.

Entry to the monetary union is the subject of broad debate in all three countries. The economic advantages and disadvantages of entry are being weighed, but also national traditions linked to the national currency play a role. The governments of the three countries have announced that they will join only after voters have expressed their support in a referendum. According to surveys conducted in October 2004, a majority of Danes are currently in favor of entering EMU. However, a vote is unlikely to take place before 2006 as the Danish government would prefer to wait until the Treaty establishing a Constitution for Europe is ratified before holding another euro referendum. In Sweden and the United Kingdom, the majority of the population continues to oppose participation in EMU.

5 Concluding Remarks

GDP growth in Sweden and the United Kingdom has increased faster on average than the euro area since 1999, while growth in Denmark has been somewhat slower than in the euro area. These differences can be explained by both higher potential growth rates and the fact that the euro area business cycle is subject to more severe fluctuations in both upward and downward cycles. With respect to the synchronization of the three countries' business cycles with that of the euro area, there is a high degree of convergence, which has increased since the start of EMU, particularly in the United Kingdom. However, the U.K. Treasury still deems this convergence with the euro area insufficient for entry into EMU.¹⁷

Our growth accounting exercise clearly shows that – although its impact has declined over the past decades – TFP remains the primary force driving growth in the three “old” EU Member States that are not part of the euro area. TFP's contribution is also greater in these three countries than it is in the euro area. In Sweden, the higher TFP was largely due to high spending for R&D, particularly in the ICT sector. In the United Kingdom, growth was primarily driven by strong domestic demand, with both private consumption and expansionary fiscal policy supporting this growth. The relatively modest rate of GDP growth in Denmark can be attributed to the stagnation in employment since 1999.

One reason for the less severe slowdown in Sweden was the country's highly accommodating fiscal policy. A large budget surplus allowed the automatic stabilizers to operate to their full effect. In addition, income tax reductions increased the amount of disposable income. The situation was similar in Denmark, where the automatic stabilizers also reduced the amplitude of the business cycle.

Finally, it is worth noting that the differences in GDP growth between the EU Member States that are not part of EMU and those that are do not necessarily indicate effects of the common currency. For example, some euro area countries have achieved higher growth than the three countries studied here since the start of EMU. Clearly, other factors also had a significant impact on the GDP trend. Moreover, the period that has passed since the start of EMU is still too brief for the positive effects of a currency

¹⁷ The reports by Calmfors et al. (1996 and 1997) also initially gave the same diagnosis for Sweden.

union on the integration of financial and product markets and thus also on GDP growth¹⁸ in the euro area countries to fully emerge.¹⁹

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¹⁸ See Rose (2000) and Persson (2001).

¹⁹ However, Faruqee (2004) concludes that positive effects of the currency union on the trade relations of the euro area countries can already be discerned, but that these effects vary widely from country to country. For Finland and Ireland, which are structurally similar and geographically close to the countries studied here, no significant effects were found.

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