

University of Groningen

Perspectives on productivity and business cycles in Europe

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Document Version

Publisher's PDF, also known as Version of record

Publication date:

2006

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Inklaar, R. (2006). *Perspectives on productivity and business cycles in Europe: Contributions of the Euro and the Lisbon agenda to growth*. [Thesis fully internal (DIV), University of Groningen]. s.n.

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Chapter 6 Summary and Conclusions

6.1 Introduction

In the coming decades, European countries face a number of major economic challenges, such as dealing with ageing populations and increased competition from both the United States and low-wage countries such as India and China. Facing these long-run challenges motivates the need to strengthen European competitiveness. Indeed two of the main economic projects of the European Union are geared towards this goal. In 1999, twelve countries joined the Economic and Monetary Union (EMU), with the aim of stimulating economic integration and growth. In 2000, EU governments subscribed to the Lisbon agenda of reforms to improve competitiveness. This study has analyzed the prospects of both projects from different perspectives.

Chapters 2 and 3 focused on the challenges for the new common monetary policy in the euro area in relation to the business cycles in European countries. Chapters 4 and 5 looked at the driving forces of productivity growth in Europe relative to the United States. This chapter first summarizes the main results from each chapter, before discussing the implications for economy policy in more detail. To face Europe's competitiveness challenges, the research in this study suggests that a broad reform agenda is needed, aimed at making European economies more flexible.

6.2 Prospects for a common currency

The scale and scope of the euro experiment have been emphasized frequently. Twelve countries with over 300 million inhabitants have given up their national currency and adopted a common monetary policy. This has created an economic area that is second only to the United States (in terms of GDP), in which a new central bank, the ECB, is responsible for monetary policy. Naturally, such an endeavour faces challenges, both in the short run and in the long run.

In the short run, the ECB has to establish a common monetary policy that fits a heterogeneous group of countries. Although the ECB has some tools, like structural models, to guide its policy, a euro area business cycle index can be a useful complement. Such an index aims to combine the information from a number of economic variables into a single figure reflecting current economic activity. The component variables should normally be available at least once a month and are used complement the GDP figures which are only available on a quarterly basis and which are mostly subject to large revisions. An important question is how to select the variables that go into the index and how to construct the business cycle index. One approach is to collect a dataset that is as large and diverse as possible and use a statistical model to determine the importance of each of the variables. Alternatively, analysts select a limited set of variables by judging how well their development corresponds to GDP.

Chapter 2 compares a set of business cycle indexes which are based on these two different approaches. As it turns out, there is little difference in the ability of the indexes to capture the main cyclical facts of the euro area. However, as it is easier to interpret changes in an index based on less than forty variables than in one based on 250 variables, the approach where analysts select a set of variables has certain merits. The second part of the analysis in Chapter 2 showed how variables from only three euro area countries (France, Germany and Spain) can provide a good insight into the euro area business cycle. Whenever the euro area was in a recession, variables from each of the three countries also pointed towards contraction. This suggests that at least in the short run, heterogeneity in the euro area is not as large that it will hamper monetary policy making. However, another finding is that comparable variables in different countries have different effects. For example, German industrial production is much more important in explaining movements in euro area GDP than comparable series for France and Spain.

This hints at the main long run challenge to the sustainability of the currency area. If business cycles differ across countries, monetary policy will be too strict for countries with below-average growth and too accommodating for countries with above-average performance. This is potentially worrisome since cyclical differences have led to the break-up of currency unions in the past. Chapter 3 argues that the prospects for the euro area depend on the future similarity of business cycles and the degree of flexibility of

labour markets. In recent decades economic and monetary integration within Europe has increased and business cycle synchronization among EMU members has increased modestly. However, this mild upward trend hides substantial variation over time. The experience of states within the U.S. suggests that such variation is unlikely to disappear as a result of further economic integration. Indeed, fluctuations in synchronization over time are stronger within the U.S. than within Europe and these fluctuations appear closely related to major national cyclical episodes. For example, during the Great Depression and the wartime boom, synchronization between U.S. states was high, but after World War II, average synchronization decreased.

To better understand how the EMU is likely to affect synchronization within the euro area, a set of determinants is identified. The analysis confirms earlier results that countries with closer trade links have more similar business cycles. The other findings are less well established in other research. Countries with more similar monetary and fiscal policies, highly correlated stock market returns, stable exchange rates, and a larger share of intra-industry trade also show higher output correlations. Furthermore, these other factors are at least as important as trade in terms of their impact on synchronization.

Based on this analysis, it seems likely that synchronization will increase as a result of the EMU. The most obvious reason for this is the common monetary policy and fixed exchange rates under monetary union. However, since the 1970s, stock market returns have become more similar and the share of intra-industry trade has risen too. The main uncertainties are the future course of fiscal policy and the degree of specialization. If a country embarks on a unilateral spending spree, its business cycle will less resemble those in other EMU countries. However, if all countries simultaneously break the deficit rule of the Stability and Growth Pact, fiscal policy will remain highly correlated. The more qualitative prescription that the budget should be in balance over the cycle can help to achieve a greater degree of synchronization

Specialization is the other uncertain factor in the future development of synchronization. The analysis showed that countries with a more similar industrial and trade structure have more similar business cycles. Krugman (1991) expects regions (countries) to specialize as a result of economic integration due to agglomeration benefits. However, the empirical evidence is mixed. The dataset used in Chapter 3 shows

that since the early 1970s, export bundles have become more similar and the intra-industry share has risen between euro area countries, while the measures of industrial similarity show increasing specialization over time. Evidence for U.S. regions by Kim (1995) suggests that agglomeration effects have not been a major factor in driving specialization in the U.S. Instead, since the 1930s, the industrial structure of U.S. regions has become more similar due to more mobile production factors. This suggests that industrial similarity across Europe might increase due to greater cross-border labour market flexibility.

Although the costs of the euro are likely to remain low due to sufficiently high synchronization of business cycles, the uncertainties regarding fiscal policy coordination and changes in specialisation patterns make the future degree of synchronization uncertain too. One way to mitigate this uncertainty is to increase flexibility and especially make cross-border movements of labour much more straightforward. First of all, a greater degree of flexibility is likely to lead to more similar cycles due to a decrease in specialization. Second, when a country is hit by an asymmetric shock, workers can move to countries with higher labour demand if labour markets are sufficiently flexible. This in turn will mitigate the effects of the asymmetric shock, reducing the need for other policy measures. Furthermore, apart from dampening the effect of asymmetric shocks, more flexible labour markets can also stimulate productivity growth.

6.3 *What drives productivity growth?*

The analysis in Chapters 2 and 3 provides insight into the role of certain structural features of the European economies for European business cycles. Chapters 4 and 5 focus on the question of whether structural or cyclical factors drive the productivity growth gap between Europe and the U.S. As U.S. labour productivity growth has been considerably higher than in Europe since the mid 1990s, the question arises whether the European economies are sufficiently competitive and innovative to safeguard future living standards.

It is argued here that the main structural explanation for Europe's lagging productivity growth since the 1990s is the smaller impact of new information and communication technologies (ICT) compared to the U.S. This is not so much due to a

larger ICT producing sector, but mainly due to less extensive and less productive use of ICT across the economy in European countries. Even though the larger ICT producing sector is one factor in the EU-U.S. growth differential, it makes a relatively small contribution to this growth differential. In fact while the ICT manufacturing sector contributes more to labour productivity growth in the U.S. than in Europe, the opposite is the case in the ICT producing services sector, which includes telecommunications. The big difference between Europe and the U.S. is in the pace of ICT investment and its productive use. It is relatively straightforward to determine that European ICT investment is lower than in the U.S., but harder and more controversial to establish its productive impact.

In theory, the marginal returns to ICT investment should equal its marginal cost. ICT goods can readily be purchased on international markets, so in a competitive economy, the returns from investing in ICT will be driven down to marginal cost. On average, the equality of marginal returns and marginal cost on ICT cannot be rejected with the industry data used here. But this average return hides important variation over time. While the productivity of ICT investment up to the beginning of the 1980s and again since the early 1990s was in line with marginal cost, returns on ICT were lower than marginal cost during the 1980s. The evidence suggests that this U-shaped pattern of returns to ICT was apparent in both the Anglo-Saxon countries (UK and U.S.) and the Continental European countries (France, Germany and the Netherlands) in the analysis. However, the U-shaped pattern for the Anglo-Saxon countries preceded that of the Continental European countries by a number of years

One explanation for these patterns is that ICT investment can at first quickly generate important productivity gains (the so-called ‘hard savings’). However, additional gains (the ‘soft savings’) from ICT use can only be exploited once sufficient time and money have been invested in complementary innovations. Many of these organizational investments are often not measured as investment but as expenses, leading to an understatement in TFP growth.¹⁶⁶ As these intangible investments start to bear fruit, TFP growth rises again.

¹⁶⁶ See Basu *et al.* (2004) for an economic model incorporating unmeasured investments.

In Chapter 4, we find that ICT mostly generates productive returns in line with marginal cost. However, strong TFP growth in a number of specific U.S. market services (in particular in trade and finance) suggests that the ICT gains may be larger. A reason for this could be that traditionally, services have not been very standardized, either in the set of inputs purchased or in ‘bundles’ of services that are sold, lowering its potential for productivity growth.¹⁶⁷ However, ICT has become a helpful tool for codifying knowledge about, for example, consumer buying patterns. Such information can then be analyzed to allow for greater standardization and hence drive productivity improvement.

Elucidating the link between knowledge, codification and ICT is one avenue for future research. Another approach is to establish the link between firm-level studies of the impact of ICT (e.g. OECD, 2004) and the type of industry-level analysis presented in this study. A number of firm-level studies find that the returns from ICT are larger than their marginal cost. In other words, they find evidence of positive ICT spillovers. However, the industry-level results presented here suggest that returns are equal to cost (at best). The explanation for this difference may also be related to intangible investments. The return to intangible investments is likely to be much more uncertain than the return to tangible investment and the type of investment will differ by industry. As a result, some firms in an industry will be successful in generating positive spillovers, while other firms will fail and may even generate negative spillovers. Although the competitive process will favour the successful firm, the unsuccessful firm will not disappear quickly in particular not when labour and bankruptcy laws are rigid. More research is needed to establish how this type of averaging-out of performance at firm level takes place in practice and how it affects the industry aggregate.

In addition to structural factors, cyclical factors may also be important in explaining the productivity growth gap between Europe and the U.S. The fact that productivity growth is faster during periods of strong economic growth and slower in recessions is interesting, but causality may run either way. Productivity shocks could cause business cycles but demand-side factors may also influence (measured) productivity. If the second explanation holds, a growth comparison between countries

¹⁶⁷ See Boden and Miles (2000) for more on the distinction between manufacturing and services.

will depend on the state of the business cycle in each country. Specifically, economic activity boomed in the late 1990s in the U.S., but much less so in Europe. Although the U.S. experienced a (relatively mild) recession in 2000-2001, U.S. productivity growth continued to outpace European growth, which suggests that cyclical factor cannot explain the entire EU-U.S. growth gap.¹⁶⁸

Understanding the reasons behind the cyclical nature of productivity can help in interpreting productivity growth in the short run, as well as in understanding the business cycle. Two popular demand-side explanations for cyclical productivity are the possibility of increasing returns to scale and unmeasured input utilization. Chapter 5 tests the importance of both for three European countries (France, Germany and the Netherlands) and the U.S. Earlier research proposed two criteria for testing these explanations (Basu and Fernald, 2001). First, the hypotheses of constant returns and well-measured input utilization should be rejected based on production function estimates. Second, productivity growth at the aggregate level should no longer be correlated with output growth after adjusting for non-constant returns to scale and unmeasured inputs.

However, the Basu and Fernald (2001) model aims to explain firm-level behaviour. This suggests that the model should be tested at the most detailed level possible. In Chapter 5, industry data are used, so a more appropriate test of the Basu-Fernald model is whether the correlation between output and productivity growth decreases at the industry level. The analysis based on this model suggests that increasing returns and unmeasured input utilization are indeed able to explain aggregate cyclical nature. However, in many industries, adjusted productivity growth remains positively correlated with output.

This raises questions about the usefulness of the Basu-Fernald (2001) model. The importance of increasing returns was reduced by using the change in average hours worked as a proxy for unmeasured input utilization. The reasoning behind this proxy is that in times of high demand, firms will increase average hours worked as well as worker effort and capital utilization. In the long run, new workers can be hired and new capital equipment installed. However, if work effort is less related to the use of machinery such as in services, the proxy may be less useful. Also, working hour regulations may make

¹⁶⁸ Inklaar and McGuckin (2003) also showed that averaged over 1995-2000, cyclical factors were not very important.

this measure less informative outside the U.S. In the more regulated European labour markets, it may be easier to hire temporary workers instead of adjusting average working hours. This suggests more research into measuring input utilization may be helpful.

The analysis in Chapter 5 also serves as a test for some of the well-known and frequently criticized growth accounting assumptions, namely constant returns to scale and well-measured inputs. Even when taking the estimation results from the cyclical analysis at face value, the main stylized productivity growth facts (in particular the slowdown of European productivity growth relative to the U.S. since the mid-1990s) are not affected by relaxing these assumptions. Furthermore, the size and even the sign of the adjustments to productivity growth are highly uncertain. In addition, Chapter 4 tested the equality of marginal returns and marginal costs of ICT capital. The results suggested that deviations from this equality may be informative about intangible investments. Hence both chapters illustrate that growth accounting assumptions are a useful starting point of the analysis. Furthermore, the deviations from the standard assumptions are neither certain nor stable enough to take them as the basis for further analysis. This leads to the conclusion that growth accounting provides a consistent framework for analysis, and serves as a useful point of departure for analyzing the sources of growth and differences in performance across economies.

6.4 An agenda for European reform

The main economic benefits from the introduction of the euro are likely to be a greater degree of competition and higher growth rates in the European Union. This is in line with the goal of the Lisbon agenda which aims to strengthen European competitiveness. The main policy question is what European countries should do to achieve these goals. The analysis in the first part of this study (Chapters 2 and 3) showed that the costs of the monetary union are probably not going to be excessive. However, the uncertainties about the future degree of coordination in fiscal policy and specialization across countries make the future degree of synchronization and hence the costs of the monetary union uncertain. One way of mitigating these costs is to make European labour markets more flexible. Specifically, it should be easier for workers to move across borders. However, the ease with which Americans move across the U.S. to chase better jobs and opportunities is

likely to remain a distant goal for the foreseeable future. Europeans face not just language and cultural barriers, but pensions and insurance systems continue to differ substantially across countries. Improving the degree of flexibility should still be an important goal for the European Union though, as it is also likely to improve productivity growth.

Stimulating competitiveness is not straightforward, but the analysis in this study suggests a number of policy measures. Chapter 4 showed that the U.S. has been reaping more of the productive benefits of ICT than Europe. The U.S. has invested more in ICT and has been realizing many of the soft savings earlier than Continental European countries. One reason for this U.S. advantage is that it is easier not just to start new firms, but also for those new firms to grow quickly. There are many regulations in the areas of product markets that restrict restructuring and inhibit the start of new economic activities. Investments in intangibles (such as R&D, training, organizational innovations) are often costly and risky and will not be undertaken in an environment that is too restrictive. Hence the gains from intangible investments will be limited, which in turn reduces the potential gains from ICT investment. European countries should enact reforms to enable good firms, which are those which successfully invest in restructuring and start new activities, to excel and failing firms to exit. Lowering hiring and firing costs should help to do both. In addition, reducing differences in regulation across countries will further assist in reaping economies of scale through ICT investment projects that rely on a large scale. Given the strong advantage of market services in the U.S., the European Union should give priority to liberalizing services markets across countries.

During the 1990s, most European countries struggled to bring inflation and deficits under control. In the end, inflation and deficits converged to the lower levels, such as those historically experienced in Germany, and not to the high levels of Italy. To unlock the benefits of ICT and stimulate competitiveness, a similar convergence may be necessary in the area of regulation. This should stimulate productivity growth by enabling more experimentation with new business models, as well as allow for more cross-border activity. Greater flexibility of product and labour markets will not just make it easier to respond to cyclical shocks but also to technological opportunities.

