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Cahiers Papers

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BEI EIB

Cahiers Papers

## The 2001 EIB Prize



## The Mediterranean Region



European Investment Bank

BEI EIB

## Editorial policy

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The views expressed in the articles are those of the individual authors and do not necessarily reflect the position of the EIB.

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Les Cahiers de la BEI sont publiés deux fois par an par le département de l'économiste en chef de la Banque Européenne d'Investissement. Le journal a pour but d'encourager la recherche de haute qualité en économie et le débat sur des sujets d'intérêt européen. En tant que tels, il est attendu des Cahiers qu'ils soient accessibles aux lecteurs non spécialistes et qu'ils mettent l'accent sur les dimensions politiques plutôt que les problèmes techniques. Ils présentent les résultats de la recherche menée par le staff de la Banque ainsi que des contributions de chercheurs et de spécialistes extérieurs. Les essais gagnants du Prix de la BEI proposé tous les deux ans sont aussi publiés dans l'édition d'hiver les années de compétition.

Les articles ne seront acceptés pour publication qu'à condition qu'ils n'aient été publiés ailleurs. Tous les articles des Cahiers de la BEI peuvent être librement reproduits et cités; cependant, l'Editeur apprécierait qu'un crédit approprié leur soit donné et qu'une copie de la publication lui soit envoyé.

Les vues exprimées dans les articles sont personnelles aux auteurs et ne reflètent pas nécessairement la position de la BEI.

Cahiers Papers

BEI EIB

The 2001 EIB Prize

European Investment Bank

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# Preface

*Philippe Maystadt*

*President*

*The purpose of the EIB Prize is to support innovative thinking on European economic issues. This is the third time that an essay competition has been organised by the Bank with this goal in mind, and we are pleased with the interest that has been generated.*

*The winning essays address a number of topical issues for Europe. The First Prize essay discusses the performance of educational systems, and argues that it is not only funding that matters, but also how management systems are designed and how incentives are established and performance measured. Indeed, there are broad parallels to the management issues the EIB itself must face as a policy-driven public bank.*

*Belief in democracy and the respect of human rights are fundamental foundations of European society. The Second Prize winning essay also demonstrates the links between the adoption of democracy, economic liberalisation and economic growth, with the particular case of Eastern Europe and the Former-Soviet Union. These key issues should be kept in mind when we look outside the Union to the more troubled corners of the world.*

*The Third Prize touches on a subject that is the very raison d'être of the EIB – regional inequalities throughout Europe. This essay argues convincingly that part of the reason for such inequalities comes from the structure of the workforce. For example, regions where more women participate in the workforce have done relatively better over the last few decades as the wage gap between men and women has decreased. But one of the key determinants of regional inequality appears to be differential skill levels in the local population. Policies for regional development should thus address investment in education – as indeed the Bank does when developing its lending strategies. And we return to the topic of the First Prize essay and the question of how educational institutions can be improved throughout Europe and particularly in lagging regions.*

*The support of European policies is at the heart of the Bank. Naturally, these begin with ideas and analysis. With this longer-term perspective, I would like to conclude by thanking everyone who submitted essays, and the Jury for their dedication and effort in selecting the winners.*

# 2001 EIB PRIZE

The **EIB Prize** is awarded for **short essays on economic and financial topics relating to European affairs**. For the 2001 prize, the awards were as follows: First Prize, EUR 15 000; Second Prize, EUR 7 000 and Third Prize, EUR 3 000.

The winning entries were selected by the Prize Jury, which comprised:

**Jacques-François Thisse,**

of the Catholic University of Louvain,
Chairman

**Giorgio Basevi,**

of the University of Bologna

**Alexandre Lamfalussy,**

of the Institut d'Etudes Européennes, Belgium

**Edmond Malinvaud,**

of the Collège de France

**Alfred Steinherr,**

Chief Economist of the EIB.

**The EIB greatly appreciates the major contribution of the Jury in judging this competition**

The prizes are to be presented in September 2001, at a conference held at the EIB's headquarters in Luxembourg.

More details of the Prize may be obtained from:

EIB Prize Secretariat
European Investment Bank
100, Boulevard Konrad Adenauer
L-2950 Luxembourg
www.eib.org

EUROPEAN INVESTMENT BANK

# First Prize

***Erich Gundlach and Ludger Wößmann***

Time-series evidence for a number of European countries shows that rising educational expenditures have not improved student performance. We speculate that the apparent decline in European schooling productivity reflects inefficient schooling institutions. International cross-section evidence suggests that the performance of students in many European countries could be vastly improved by changing the institutions which govern the incentives of students, teachers and the school administration. For instance, we find that centralised exams, school autonomy in personnel decisions, and competition from private schools boost student performance. Hence educational policies in Europe should focus on institutional reform rather than on additional spending.

**Erich Gundlach** heads a research group at the Kiel Institute of World Economics and lectures at the University of the Federal Armed Forces in Hamburg. His main fields of interest are the empirics of growth and the economics of education. He has also been a consultant for UNIDO and the World Bank. He holds degrees in economics from the Christian Albrechts University, Kiel, and from the University of the Federal Armed Forces in Hamburg.

**Ludger Wößmann** is a researcher at the Kiel Institute of World Economics, where he specialises in the efficiency of schooling systems and the effect of human capital on economic growth. He holds degrees in economics from the University of Kent at Canterbury, the Philipps University, Marburg, and the Advanced Studies Program at the Kiel Institute. Last year he was awarded the Friedrich Bruckhaus Prize of the Hanns Martin Schleyer Foundation for his master thesis. He has recently submitted his Ph.D. thesis to the Christian Albrechts University, Kiel.

# Better schools for Europe

## 1. Introduction

Parents, students, teachers and governments in many European countries were not amused by the findings of the latest international evaluation of student performance in mathematics and science. British, French and German students did not perform significantly better than their peers in the United States - a country where the public has become deeply alarmed over the state of the schooling system - and they performed much worse than students from several Asian countries. Up to now, convincing explanations are largely missing for the poor educational performance of European students. Research on the economics of education in Europe lags considerably behind research in the United States and even in developing countries. But understanding the striking international differences in student performance may hold the key for future economic prosperity because a well-educated labour force will provide a competitive edge in tomorrow's knowledge-based society.

We try to identify the economic factors that might be responsible for the large international differences in student performance. We present time-series evidence for a number of European countries that suggests that rising educational expenditures did not improve student performance. This finding is largely in line with the international literature on the effectiveness of schooling expenditures and implies that schooling is often provided inefficiently in Europe. Therefore, we speculate that a reform of institutions may be needed to achieve improved student performance.

To test this hypothesis, we use cross-country data to identify the impact of institutional differences across national schooling systems. We find that for a given amount of schooling resources, the performance of students in many European countries could be vastly improved by changing the institutions that govern the incentives of students, teachers and the school administration. Among the institutional features that appear to be most conducive to student performance are nationwide examinations, administrative control mechanisms in curricular and budgetary matters, school autonomy in process and personnel decisions, choice of teaching methods by individual teachers, limited influence of teacher unions and competition from private educational institutions.

Overall, our results show that the effectiveness of resource use in the schooling sector has declined more rapidly in many European countries than in the United States. What has been called a "productivity collapse" of US schools (Hanushek, 1997) appears to be a small problem when compared with the situation in countries like France, Germany, Italy and the United Kingdom. Given past experience, more educational expenditures will not necessarily suffice to turn failing European schooling around. Rather than throwing money at the problem, a reform of schooling institutions is needed to get better schools for Europe.

## 2. Educational expenditures and student performance: Schooling productivity (1)

In the average EU country, schooling accounts for a larger fraction of Gross Domestic Product (GDP) and employment than many manufacturing industries. Nevertheless, very little is known about

1) This section mainly draws on Gundlach et al., (2001).

**Schooling is labour intensive and the methods used may not have changed much over the past quarter century.**

changes in the productivity of schooling. Like other services, schooling is most likely a sector with stagnant productivity. Similar to performing a symphony or a haircut, schooling is labour intensive and the methods used may not have changed much over the past quarter century. This is in stark contrast to technological developments in manufacturing industries. The labour input required to produce an automobile has declined significantly, but performing a symphony or a haircut requires the same amount of labour input as ever. Schooling may not be very different.

The productivity of schooling can be measured as units of schooling output per units of schooling input. Schooling output is the number of students taught and schooling input is spending on education at the primary and secondary level. A plausible first guess would be that schooling productivity, like haircut productivity or symphony productivity, does not change by much over time: in all cases, the consumer is part of the product, production is labour intensive, and the technology is tried and tested. What hinders productivity growth is the combination of these features. Hence in theory, schooling should be a sector with stagnant productivity, where the same amount of input resources always produces the same amount of output.

Abstracting from detail, it is instructive to consider what would happen in a perfectly flexible economy, if schooling actually displayed stagnant productivity while all other sectors faced a constant positive rate of productivity growth. The outcome would be what Baumol (1967) has called the cost disease of services. With a functioning labour market, the wages of workers in the stagnant-productivity sector would have to increase in line with those of workers in the other sectors where labour productivity increases. Given an efficient allocation of resources, the price per unit of output of the stagnant-productivity sector would rise with the average rate of productivity growth of the other dynamic sectors. Applying this insight to the case of schooling suggests that a constant-quality unit of schooling output should become more costly over time.

In addition, one could even predict the efficient size of the expected cost increase of schooling if the average rate of productivity growth of the dynamic sectors of the economy were known. If average economy-wide productivity grew by 2 percent per year and efficiency conditions prevailed, then the GDP-deflated price of schooling (and of all other stagnant-productivity sectors) should grow by 2 percent as well (Gundlach et al., 2001). That is, public expenditures per student should rise by 2 percent in an economy which grows by 2 percent if schooling productivity had remained constant. However, if public expenditures per student grew by more than average productivity growth, then either schooling productivity should have declined or the quality of schooling output in the form of student performance should have increased. We begin with the latter possibility.

The main problem with an empirical analysis is exactly the difficulty of correctly measuring potential changes in the quality of schooling output. In principle, changes in the quality of schooling output can be measured by the results of standardized student achievement tests at various points in time. However, consistent time-series data on the cognitive achievement of students are available only for the United States (2). These tests suggest that there has been no substantial change in the average performance of US students between 1970 and 1994 (Hanushek, 1997).

2) The National Assessment of Educational Progress (NAEP) began to monitor the performance of students aged 9, 13 and 17 years, in mathematics and science in the early 1970s. The NAEP used the same assessment content and the same administration procedures over time, so the reported average test scores of US students are comparable intertemporally.

In addition to this US data, there is cross-country evidence on student performance for selected years. The International Association for the Evaluation of Educational Achievement (IEA) conducted cross-country science studies in 1970/71 and in 1983/84, and cross-country mathematics studies in 1964 and in 1980-82. The IEA's Third International Mathematics and Science Study (TIMSS), which integrated the two subjects, was conducted in 1994/95. All these studies include achievement tests for students in the middle and final school years, and except for the two mathematics studies, students were also tested in the primary school years.

We focus on a comparison of the results for the early 1970s with the mid-1990s. A direct comparison of the results is not possible because the sample of participating countries, the design of test questions, the distribution of difficult and easy questions within a test, and the format in which test results are reported have all changed. Nevertheless, it is possible to calculate changes in the performance of students for each country over time subject to specific assumptions about the mean and the standard deviation of the reported test results. This is possible at least as a rough approximation because independently of the test actually conducted, we also know the performance of students from any single country relative to the constant performance of US students - this can serve as an inter-temporal benchmark.

To make the different test results comparable over time, the sample distributions and sample means have to be converted to a common scale. We use alternative statistical hypotheses to define such a common scale for a sample of OECD countries. Our hypotheses centre around the idea that the performance of US students has remained constant and that the distribution of results among the relatively homogenous group of OECD countries should not have changed substantially between the early 1970s and the mid-1990s. In Gundlach et al., (2001) we explain in detail how we transform the original test scores subject to three different statistical assumptions about the sample distributions and sample means.

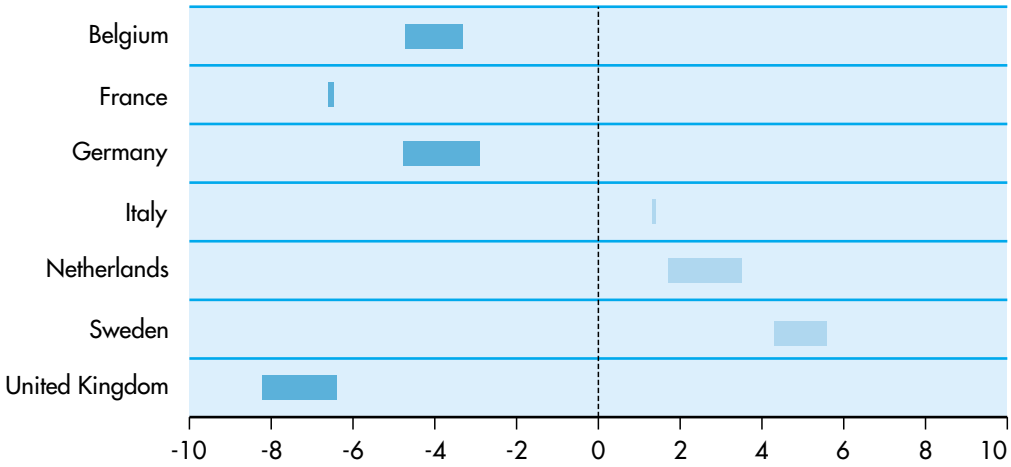
Figure 1 presents our results for the calculated changes in the average performance of students from selected European countries in science and mathematics relative to the constant performance of US students, which is shown as the vertical line. Bars on the left side of the vertical line show a decline in the performance of students relative to the performance of US students, bars on the right side of the vertical line show a relative improvement. The size of the bars reflects the range of our estimates derived under three statistical assumptions regarding the mean and the standard deviation of the various subtests. A bar further away from the vertical line indicates a larger estimated change in relative student performance. However, since all bars are close to the vertical line we interpret our findings as suggesting that the relative performance of students in the selected European countries did not change by much. And since all bars are relatively small, our results appear to be robust with regard to alternative statistical assumptions.

**As student performance has not changed much, school expenditures rising faster than productivity growth cannot be justified by an improved quality of schooling.**

Given that student performance actually did not change by much, and especially not for the better in Belgium, France, Germany and the United Kingdom, schooling expenditures rising faster than the benchmark figure suggested by average productivity growth cannot be justified by pointing to an improved quality of schooling output. Therefore, it remains to be seen what the actual rise in the price of schooling in these European countries implies about changes in the productivity of

schooling. As outlined above, schooling productivity would have remained constant if the average rate of economy-wide productivity growth matched the rise in the price of schooling.

**Figure 1.** Changes in an index of the quality of schooling output in selected European countries between 1970 and 1995; the index in 1970 equals 100.




Note: The figure shows the estimated range of the change in the average performance of students in standardised achievement tests in science and mathematics, relative to the constant performance of US students (zero means constant performance). The estimated range reflects the impact of alternative assumptions about the mean and the standard deviation of the test distributions.

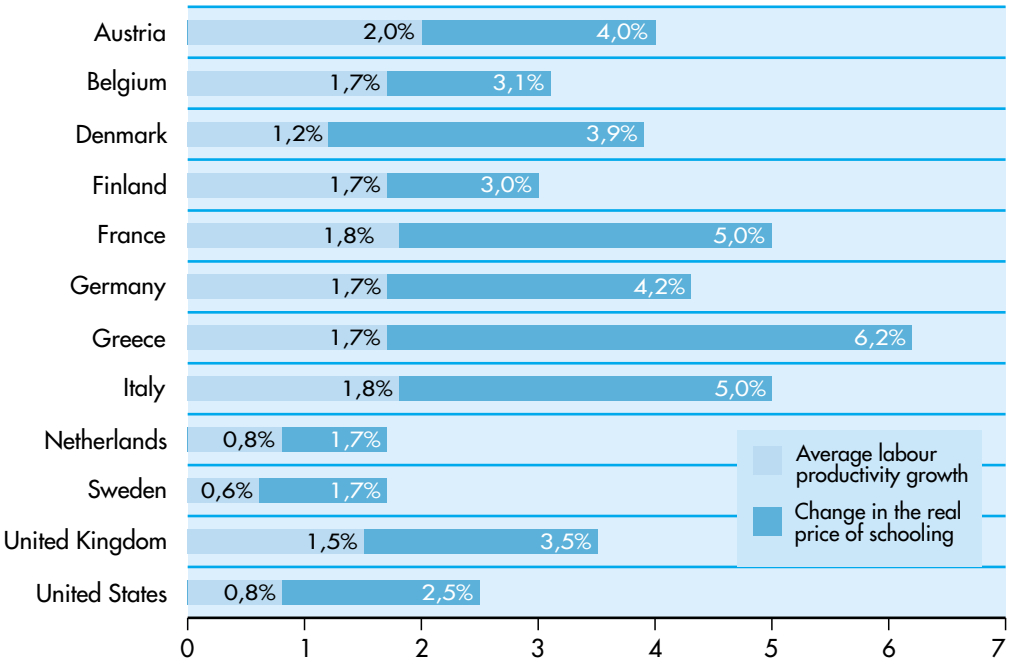
Unlike many other service sectors, there is a straightforward way to calculate the price of schooling. While it is somewhat difficult to disentangle the price component from the quantity component in services such as banking, insurance, or government, the case of schooling can be settled more easily because a direct measure of quantity is available in the form of students enrolled. Since total expenditure is defined as price times quantity, the price of a unit of schooling output with constant quality follows as total expenditure on primary and secondary education divided by the number of students enrolled in primary and secondary education. Based on UNESCO data, we measure schooling expenditure as current expenditure on education, which mainly consists of remuneration for administrative staff and teaching staff. That is, we exclude capital expenditure from our measure to avoid an influence of possible cycles in spending on school buildings.

Alternative deflators can be used to derive a measure of the change in the price of schooling with constant quality. One possibility to assess changes in the productivity of schooling is to compare the GDP-deflated increase in the price of schooling with the average economy-wide growth rate of labour productivity. Our general finding is that the increase in the GDP-deflated price of schooling in the four large European countries exceeds the average annual growth rate of labour productivity by an order of magnitude (see Figure 2) (3). This finding does not fit with the assumption of a more-

*3) Another possibility is to compare the GDP-deflated increase in the price of schooling with total factor productivity (TFP) growth. Using consistent estimates of TFP growth for G7 countries from Dougherty and Jorgenson (1997) that match the relevant time period as closely as possible, we also find that the increase in the GDP-deflated price of schooling exceeds the TFP growth rates in the four large European countries by an order of magnitude.*

or-less efficient allocation of schooling resources, with Sweden and the Netherlands as possible exceptions. In all other cases, our results point to a substantial decline in schooling productivity in Europe that is larger than in the United States.

**Figure 2.** Changes in the real price of schooling and average labour productivity growth between 1970 and 1994



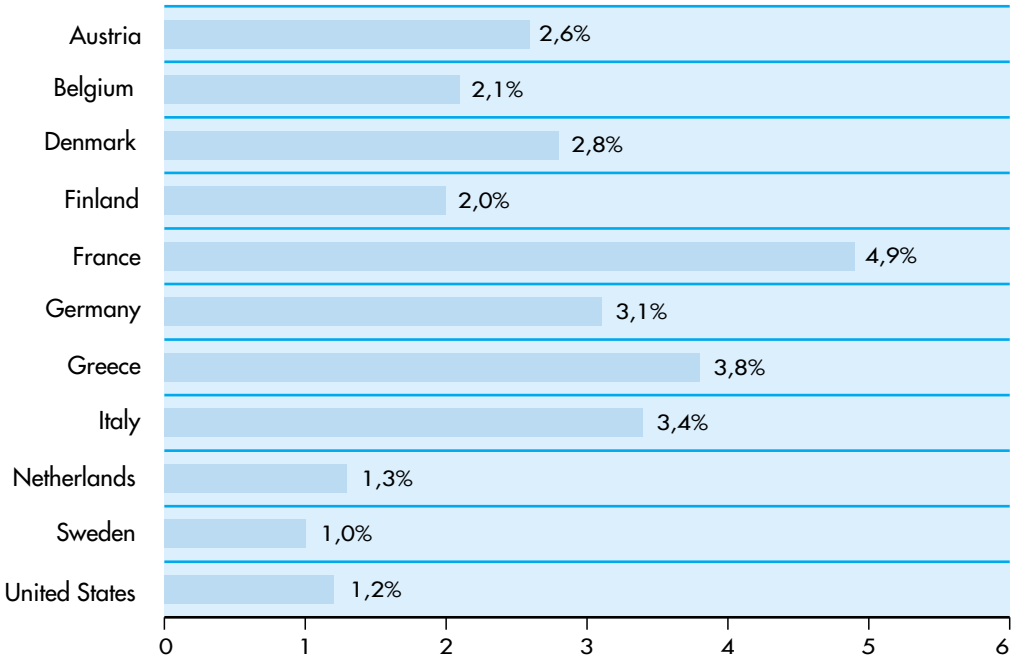

Note: The change in the real price of schooling equals average annual change in public current expenditures per student enrolled in primary and secondary education (UNESCO data), deflated with the GDP deflator (UN data). The average annual rate of change of real GDP per worker comes from World Bank data.

***Whatever the benchmark, there is a huge decline in schooling productivity in most European countries.***

The same result reappears if changes in the productivity of schooling are proxied by comparing the increase in the (nominal) price of schooling with the increase in the price of labour-intensive service categories such as "producers of government services" and "community, social and personal services" as reported in National Accounts data (4). Assuming that these two service categories exhibit stagnant productivity, any positive change in the price of schooling relative to these service-sector deflators should indicate a relative decline in schooling productivity. Figure 3 does indeed show relatively large positive changes in the price of schooling relative to other labour-intensive services for all European countries. In most cases, the amount of the implied productivity decline is again larger than in the United States, and it is larger than in Figure 2. As before, the two less dramatic cases are Sweden and the Netherlands.

*4) Given that labour markets in Europe are not as flexible as assumed in the Baumol-model, it may be useful to compare the estimated change in the price of schooling with the change in the price of government services only, since developments in teacher wages could be expected to match those of other public sector workers. However, for some countries there is no difference in the two service deflators that we employ (Belgium, Sweden and the United States), and in some countries the deflator for government services actually increased by less than the deflator for community, social and personal services (Denmark, Germany, Greece and the Netherlands). A larger difference between the two deflators does occur for France and Italy. Nevertheless, the comparison of the change in the price of schooling with the deflator for government services would still imply an annual decline of schooling productivity of 2.6 percent in France and 2.9 percent in Italy. For details of the data, see Gundlach* et al., *(2001).*

**Figure 3.** Changes in the price of schooling relative to other labour-intensive service sectors between 1970 and 1994.




Note: The figure shows the difference between the average annual change in the price of schooling (UNESCO data) and the average annual change in the price of government services and community, social and personal services (UN data).

Our figures imply that it does not matter much in practice whether changes in the GDP-deflated price of schooling are compared with the average growth rate of labour productivity (or TFP) or whether changes in the nominal price of schooling are compared with changes in prices of other stagnant-productivity services. On both counts, there is a huge implied decline in schooling productivity in most European countries between 1970 and 1994. For instance, an average annual decline in schooling productivity of about 3 percent over a time span of 25 years, as in Germany, Italy and France, could only be regarded as irrelevant if the average performance of students in the 1994 achievement tests would have been more than twice as good as in 1970. But we do not find any evidence for such an outcome. By contrast, the countries where we find a slight improvement in student performance are those which report the lowest decline in schooling productivity, namely Sweden and the Netherlands.

In the other European countries, even substantial increases in schooling resources did not boost schooling quality. This finding confirms a large microeconometric literature, which has failed to identify a positive relation between additional schooling inputs and student performance (see, for example, Hanushek, 1996; Hoxby, 2000). A potential explanation for our finding is that the family background of the students might have worsened. Students coming to school today may lack many of the basic capabilities required for a successful education and may, therefore, be increasingly expensive to educate. Such effects may play a significant role in countries with a large inflow of immigrant families with school-aged children or in countries with rising levels of poverty. But

especially in Europe, there are also counterbalancing effects. On average, parents in the European countries considered enjoy higher incomes and are better educated than parents 25 years ago, and the number of children per family has declined. Hence children may actually start schooling with better basic capabilities than ever before. For European countries, the net effect of the trends in the different family background influences is not known. For the United States, Grissmer et al., (1994) estimate that the net effect has worked in the direction of making students better prepared for learning. In case such an outcome would also apply for European countries, the missing positive performance effects of increased educational spending would be even more severe than indicated by our calculations.

On balance, we conjecture that the schooling sector is inefficient in many European countries. Our interpretation of the evidence suggests that there is a need for institutional reform of European schooling systems because additional schooling resources apparently did not improve student performance. In the age of globalisation, countries with inefficient schooling systems are likely to face a loss of international competitiveness, which would limit the possibilities for further economic development. Therefore, it is important to understand which institutional reforms might work in order to increase the productivity of schooling.

### 3. Policies to increase the productivity of schooling: Institutions matter (5)

In most European countries (and worldwide), the great majority of schools are publicly financed and managed. The institutions and policies established by various levels of government create incentives for students, teachers and the school administration to use available resources in ways that maximize the individual utility of these actors, given the constraints they face. In many sectors of the economy, competition imposes penalties on actors who fail to use their resources efficiently. But schooling may be different: A lack of competition and the prevailing institutions may create incentives that are not conducive to student performance, but result in an inefficient allocation of schooling resources. This, in turn, would lead to rising costs and rising prices as reported in the previous section.

Within a country's educational system, various institutions determine the ways in which a society finances and manages its schools, how a society assesses student performance, and who is empowered to make basic educational decisions such as which curricula to follow, teachers to hire, and textbooks to purchase. The challenge of all these institutions is to create a set of incentives that encourages students, teachers, and the school administration to behave in ways that do not necessarily further their vested interests but instead further students' educational performance. For instance, without the right incentives, teachers may avoid using the most promising teaching techniques, but instead prefer to use the techniques most convenient to themselves. In terms of policy, one might speculate that if a country assesses the performance of students with some sort of national exam and uses this information to monitor teachers, teachers will focus more on raising student achievement than would otherwise be the case.

**To find out which schooling institutions are most conducive to student performance, we turn to the international evidence on student achievement.**

To find out which schooling institutions are most conducive to student performance, we turn to the international evidence on student achievement. This is because the institutions within a country do not vary enough and are relatively stable over time. So testing how different institutions may impact

5) This section draws on Wößmann (2001).

on student achievement is almost impossible on the basis of within-country studies. Only the international evidence, which encompasses many education systems with a wide variety of institutional structures, has the potential to show whether institutions heavily impact on student performance. Our working hypothesis is that differences in educational institutions explain more of the international variation in student performance than differences in the resources which countries devote to schooling.

We use data from the Third International Mathematics and Science Study (TIMSS) to analyse how various institutions impact on educational performance at the student level. As mentioned, TIMSS is the latest international student achievement test for which data is currently available, and it is the most extensive one ever conducted both in its coverage of countries and in the scope of its contents (6). Here, we focus on the middle school years, where students enrolled in the two adjacent grades containing the largest proportion of 13-year-old students were tested, which are 7th and 8th graders in most countries.

The students' achievement levels in mathematics and science were tested by a combination of multiple-choice and open-ended-response questions which covered a wide range of topics and capabilities in the two subjects. The test items were chosen to reflect most closely the current curricula of the students of all participating countries. A test-curriculum matching analysis conducted by TIMSS showed that omitting those items for each country which measure topics not addressed in the curriculum had little effect on the overall pattern of achievement results across all countries. All in all, the TIMSS test results are most probably the best one can currently get in measuring student achievement in mathematics and science (7).

Combining the performance in the different questions of a subject, proficiency was mapped onto an international scale with a mean of 500 and a standard deviation of 100 to yield the international achievement scores (Beaton et al., 1996). The top performer of the international sample in both mathematics and science was Singapore (with average test scores of 622 and 576 points), while South Africa was at the bottom of the list (with 351 and 322 points). As for Europe and the US, the scores were as follows (listed in order of the maths score):

| | Mathematics | Science |
|---|---|---|
| Dutch students | 529 points | 539 points |
| French students | 515 points | 475 points |
| German students | 497 points | 515 points |
| British students | 491 points | 532 points |
| US students | 488 points | 521 points |

Overall, the data set used in Wößmann (2000, 2001) includes data on more than 250 000 individual students, who form a representative sample of a population of more than 30 million students in the 39 countries considered. Roughly two thirds of these countries are in Europe.

6) TIMSS was conducted under the auspices of the International Association for the Evaluation of Educational Achievement (IEA), which has gathered 40 years of experience with international comparative studies on educational achievement and learning contexts. More information about the design, development, implementation, and analyses of TIMSS is available on the internet homepage at http://timss.bc.edu/.

7) For more details regarding the TIMSS micro data, see Wößmann (2000).

TIMSS also contains student-level data on family background and school-level data on schooling resources, and it contains various institutional data: class-level data on teachers, and school- and country-level data on the distribution of decision-making powers within the education system. Further country-level data on institutional features of the education system are taken from the OECD educational indicators. Details of the various variables used for the empirical analysis are discussed in Wößmann (2000).

We deal with four main institutional features of a country's educational system: centralised exams; the distribution of decision-making power between schools and their governing bodies; the level of influence that teachers and teacher unions have on school policy; and the extent of competition from the private-school sector. But before we can test the empirical relevance of these factors, we must control for the possible effects of family background and schooling resources on student performance. Without giving detailed results here, we find that the educational level achieved by parents is strongly positively related to their children's educational performance and that there is no strong positive relationship between spending and student performance (8).

### Centralised exams

Of the 39 countries in the TIMSS sample, 15 have some kind of centralised exams, in the sense that an administrative body beyond the schooling level writes and administers the exams to all students. This can profoundly alter the incentive structure within the educational system by making performance comparable across classes and schools. It makes it easier to tell whether a given student's poor performance is an exception within a class or whether the whole class is doing poorly relative to the country as a whole. Centralised exams introduce transparency: parents can assess the performance of children, teachers and schools; heads of schools can assess the performance of teachers; and the government and administration can assess the performance of different schools. Hence we should expect centralised exams to boost student performance.

**Centralised exams introduce transparency.**

Our findings, presented in Table 1, support these considerations and confirm previous evidence based on country-level estimations (Bishop, 1997). All other things equal, students in countries with centralised exams scored 16 points higher in mathematics and 11 points higher in science, although the science finding is not statistically significant due to the small number of countries in the sample (9). Furthermore, students in schools where external exams or standardized tests heavily influence the curriculum scored 4 points higher in maths, though there appears to be no effect in science (10). This probably suggests that science tests may lend themselves less readily to standardisation.

8) Using previous cross-country achievement tests, Hanushek and Kimko (2000) also do not find evidence on resource effects.
9) The mathematics effect is statistically significant at the 15 percent level, and, when imputed data are excluded in a more robust specification (not reported in Table 1), it is statistically significant at the 10 percent level.
10) In contrast to the figure reported in Table 1, the science effect is statistically insignificantly positive in a more robust specification which excludes imputed data.

**Table 1.** Selected institutional effects on student performance

| | Mathematics | | Science | |
|---|---|---|---|---|
| | Coefficient | Robust S.E. | Coefficient | Robust S.E. |
| **1. Centralised exams** | | | | |
| Central examinations | 16.062 | (10.574) | 10.650 | (8.743) |
| External exams influence curriculum | 4.271‡ | (2.199) | -4.364† | (1.881) |
| **2. Decision-making between schools and their governing bodies** | | | | |
| Central curriculum | 10.776 | (11.440) | 5.573 | (10.105) |
| Central textbook approval | 9.559 | (11.411) | 6.157 | (10.102) |
| School responsibility | | | | |
| School budget | -5.852† | (2.450) | -3.451 | (2.356) |
| Purchasing supplies | 0.538 | (3.488) | 2.867 | (3.308) |
| Hiring teachers | 12.723* | (1.772) | 5.247* | (1.473) |
| Determining teacher salaries | 10.588* | (2.112) | 15.162* | (1.817) |
| **3. The influence of teachers** | | | | |
| Teachers' responsibility | | | | |
| School budget | -13.318* | (3.805) | -4.583 | (3.025) |
| Subject matter | -0.830 | (1.585) | -1.213 | (1.186) |
| Purchasing supplies | 14.148* | (2.576) | 6.837* | (2.062) |
| Strong influence on curriculum | | | | |
| Teacher individually | 11.952* | (1.730) | 10.768* | (1.536) |
| Subject teachers | -6.855* | (1.897) | -4.573* | (1.625) |
| School teachers collectively | -12.659* | (1.836) | -5.034* | (1.575) |
| Teacher unions | -32.329* | (5.979) | -18.395* | (5.533) |
| Observations | 266545 | | 266545 | |
| Schools | 6107 | | 6107 | |
| Countries | 39 | | 39 | |
| $R^2$ (adj.) | 0.22 | | 0.19 | |

* Significant at the 1 percent level based on robust standard errors.

† Significant at the 5 percent level based on robust standard errors.

‡ Significant at the 10 percent level based on robust standard errors.

Note: The dependent variable is the TIMSS international test score, in mathematics and in science. Results are based on weighted least squares regressions using sampling weights for the stratified survey data. The reported results control for a host of variables including grade level, student characteristics, family background, parental educational level, educational resource measures, and teacher characteristics (for details, see Wößmann 2000). Robust standard errors based on robust linear regression are presented in parentheses, which account for the clustered data structure with countries as strata and schools as primary sampling units (PSUs). For the variables which are measured at the country level - central examinations, central curriculum, and central textbook approval - the reported robust standard errors are based on countries as PSUs.

### Decision-making between schools and their governing bodies

Across countries in the TIMSS sample, some school systems are characterised by a high degree of administrative centralisation, so that decisions on a wide range of issues are taken out of the individual school's hands. Other school systems are highly decentralised; so most decisions are made at the local level. For instance, schools have a high degree of autonomy in the Netherlands, where almost three-quarters of the decisions are taken at the local level, according to the OECD (1998). By contrast, Greece, Norway and Portugal allow local school personnel to make less than one-quarter of the decisions.

**More school autonomy may be good for student performance if, and only if, there are external standards and assessments.**

Whether granting more autonomy to schools will boost student performance is hard to predict. On the one hand, the educators within a given school should know more than central administrators about the most effective teaching strategies tailored for their specific sample of students. Heads of schools should also have more knowledge than central administrators of which teachers to hire and of who deserves promotion or a raise in salary, given a fixed overall school budget. On the other hand, putting decisions on the size of the school budget in the hands of the school may make it easier for school personnel to reduce their workload. Hence more school autonomy may be good for student performance if, and only if, there are external standards and assessments which can control for school performance.

We begin by looking at the impact of a centrally designed curriculum and a centralised list of approved textbooks on student performance. These are essentially decisions about what schools are expected to cover. We find that students in countries with centralised curricula scored 11 points better in maths, 6 in science (see Table 1). Students in countries with centralised textbook approval scored 10 points better in maths, 6 in science. These findings are suggestive, even though the small number of independent observations causes statistically insignificant regression coefficients.

Moreover, students in schools that had primary responsibility for setting their own budget scored 6 points worse in mathematics and 3 in science (the science effect is again statistically insignificant). But giving schools autonomy in purchasing their supplies goes hand in hand with superior achievement. This is also true for decisions on hiring teachers. Students in schools that hire their own teachers scored 13 points higher in maths, 5 in science. Students in schools that determine their own structure of teacher salaries scored 11 points higher in maths, 15 in science. Taken together, it seems that centralised decision-making on curriculum issues prevents schools from allocating resources inefficiently and thus raises student achievement. In turn, an easing of process and management regulations may allow schools to tailor their instruction in ways that fit their students.

### The influence of teachers

Besides a student's family, teachers probably have the largest impact on student achievement. Teachers often face conflicting interests. Like all other employees, they clearly have an interest in increasing their income at a given workload or decreasing their workload at a given income. But seeing their students learning also gives teachers pleasure, which encourages them to work harder no matter what their income may be. Furthermore, teachers who perform poorly may face negative consequences from their heads of school or from parents.

Since teachers account for a relatively large fraction of the workforce, they are also a potentially powerful political interest group when acting collectively. The very aim of teacher unions is to promote the interests of teachers, namely increasing their pay and decreasing their workload. Other things equal, strong teacher unions may result in weak student performance if they act to increase school resources but reduce the productivity with which these resources are used (Hoxby, 1996). By contrast, the predicted effect on student performance is uncertain when teachers act individually. A high degree of teacher leeway in making decisions about which textbooks to buy should be conducive to student learning, since they know best how to teach their students. But a high degree of influence in determining salary levels or the amount of subject matter to be covered should be detrimental to student performance.

Our empirical results come close to confirming the expected effects (see Table 1). Students in schools whose principals reported that teachers had primary responsibility for determining the school budget scored 13 points worse in maths, 5 in science. Likewise, students of class teachers who reported that they had a lot of influence on the subject matter to be taught performed worse in science, while the effect in mathematics was insignificant (11). But students scored 14 points better in mathematics and 7 points better in science if teachers had primary responsibility for buying supplies. As expected, teachers' influence on the curriculum needs to be divided according to how they exercise it. Students in schools where each teacher had a lot of influence on the curriculum performed 12 points better in maths, 11 points in science. But in schools where teachers acting collectively as a union had a lot of influence over the curriculum, students performed 32 points worse in maths, 18 points in science.

**Teachers' influence on the curriculum needs to be divided according to how they exercise it - whether individually or collectively via unions.**

### Competition from private schools

The level of competition that public schools face from private schools is another important institutional feature. Because the loss of students to private schools may harm the heads of public schools in terms of reputation and money income, increased competition from private schools should have a positive effect on the efficiency of resource use in public schools. As a result, aggregate student performance may increase if the share of privately managed educational institutions increases.

The degree of competition from private schools varies greatly worldwide (Robitaille, 1997). In Europe for instance, Austria, the Czech Republic, Denmark, France, Germany, Hungary, Iceland, Norway, Spain and Sweden have virtually no financially independent private schools in the sense that they receive less than half of their core funding from government agencies. Less than 1 percent of Dutch schools are financially independent. But the Netherlands has by far the highest share of students attending privately managed schools (76 percent), followed by the United Kingdom (36 percent). Our empirical results, based on OECD data, suggest that students in countries with larger shares of their enrolment in privately managed schools scored significantly higher in both mathematics and science (12). If the share of enrolment in privately managed schools was 14 percentage points (or 1 standard deviation) higher, students scored 10 points better in maths, 9 in science. The effect was even larger when only those private institutions that were financially independent were considered.

11) In the more robust specification excluding imputed data, the science effect is larger and statistically significant.
12) Since these results are based on a different sample of countries, namely OECD countries, they are only referred to in the text and not in Table 1.

Viewed from a different perspective, the Netherlands and Belgium are by far the countries with the largest share of public funds going to private educational institutions (75 percent and 63 percent). By contrast, less than half a percent of public funding goes to private schools in Austria, Greece and Ireland. We find that students from countries with a higher share of public-education spending going to private institutions performed better in mathematics and science (though the effect in science is statistically insignificant). The effect was even stronger when only those expenditures were counted which went to independent private institutions that received less than half of their core funding from government. Our empirical results imply that if the share of public funds going to independent private schools rose by 1 percentage point (or 1 standard deviation), there was a 10-point increase in mathematics achievement. This suggests that student performance is higher in educational systems where taxpayers' money is allocated by private schools rather than by the public schooling system.

Overall, our empirical results reveal that having centralised exams and a large private schooling sector seems to be conducive to student performance. Generally, school autonomy seems to have a positive impact - but only when schools are given extensive decision-making powers over the purchase of supplies, the hiring and rewarding of teachers within a given budget, and the choosing of instructional methods. Giving schools power over designing the curriculum syllabus, approving textbook lists, and determining the school budget seems to be detrimental to student performance. The effect of teachers' influence seems to depend on how it is exercised. Students seem to benefit from their teachers' having influence over the curriculum, but only when they act as individuals and not as part of a union.

### 4. Better schools for Europe

In the emerging knowledge economy, nothing seems to be more important for the wealth of nations than a skilled and well-educated workforce. If Europe wants to prosper in the future, it has to get its schools right. Since early learning begets later learning (Heckman, 2000), a sound basic education lays a lasting foundation on which specialized learning can build later on. And since specialized knowledge can quickly depreciate in the rapidly changing environments of a global economy, the basic knowledge learned in schools is the only enduring knowledge asset.

**If Europe wants to increase the educational performance of its students, it must improve the institutional structure of its schooling systems.**

An obvious problem for education policy is that spending more money on schools did not have any payoff in Europe over the last quarter of a century. If Europe wants to increase the educational performance of its students, it must improve on the institutional structure of its schooling systems. Our results show that differences in schooling institutions matter much more for international differences in student performance than differences in educational expenditures. For instance, a student who would face institutions that were all conducive to student performance would have scored more than 200 points higher on the TIMSS mathematics test and 150 points higher on the science test than a student who faced institutions that were all detrimental to student performance (Wößmann, 2000). Such a test-score difference is five times as large as the difference produced by one year of schooling.

Our results suggest that educational policy in Europe should not focus on providing more resources to schools. Rather, educational policy should focus on improving the institutional environment in which schools function. Spending more money within an institutional system that sets poor incentives will not improve student performance. More attention should be paid on how effective schooling systems can be organised. Educational policies will only be successful if they generate incentives within schooling systems to improve on performance and save on cost.

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# Second Prize

***Jan Fidrmuc***

The post-communist countries of Eastern Europe and the former Soviet Union introduced, at least initially, political and economic reforms simultaneously. This paper explores the consequences of simultaneous implementation of economic and political liberalisation for economic growth. It is found that democracy indeed had a negative marginal effect on growth during early phases of transition (1990-93). Nevertheless, democracy reinforces progress in economic liberalisation, which in turn has a strongly positive effect on growth. When accounting for this indirect effect, the overall effect of democracy on growth turns out overwhelmingly positive.

**Jan Fidrmuc** is a Senior Fellow at the Centre for European Integration Studies (ZEI) of the University of Bonn. From October 2001 he will be a lecturer at the Department of Economics, Trinity College, Dublin. In addition, he is a Research Affiliate of the Centre for Economic Policy Research, London, and a Research Fellow of the William Davidson Institute at the University of Michigan Business School. He graduated from the University of Economics in Bratislava, Slovakia in 1993, from the University of Missouri, USA in 1994, and received his doctorate from the Centre for Economic Research of Tilburg University in 1999. His research interests include transition economics, political economy and macroeconomics.

# Democracy in transition economies: Grease or sand in the wheels of growth?

## 1. Introduction

After the communist regimes collapsed throughout Eastern Europe and the former Soviet Union, they were replaced (at least initially) by relatively wide-ranging democracy. Measured by the indices of political freedom and civil liberties published by the Freedom House (see the Technical Annex for more details), by 1993-two to three years after political liberalisation began-the Czech Republic, Hungary and Slovenia attained the same extent of democracy as the United Kingdom or Germany. Although other countries did not democratise as rapidly as the three front-runners, they still made considerable progress. Between 1989 and 1991, the average of the two Freedom House indices rose from 0.26 to 0.57, on a scale from zero (no democracy) to one (full democracy).

This speed of political liberalisation reflected not only the desire of these countries' citizens to live in democracy, but also the pressure from Western governments, international organizations such as the IMF and the World Bank, as well as the European Union (which made democracy an explicit precondition for accession negotiations). This approach, based on simultaneous implementation of political and economic reforms, stands in sharp contrast with the experience of countries such as Chile, Taiwan and South Korea, where democratisation followed only after economic liberalisation proved successful, or with the current Chinese approach based on economic liberalisation without democratisation.

Ten years later, democracy and prosperity are far from being the norm in the former communist countries. Overall, the outcomes in terms of economic performance and political developments have been very diverse. While some countries have been successful in sustaining the reform momentum and eventually resuming growth, others experienced reform reversals, re-emergence of authoritarian regimes and/or protracted periods of economic decline. The objective of this paper is to examine the economic consequences of simultaneous implementation of economic and political reforms in the post-communist countries. Did the early introduction of democracy help or hinder growth of the advanced reformers? Did the countries that postponed or reversed political liberalisation in turn achieve higher growth?

The literature offers an abundance of opinions but no consensus on the impact of democracy on economic growth. On the one hand, North (1990, 1993) and Olson (2000) argue that democracy is a precondition for sustained long-term growth and prosperity, because it guarantees the protection and enforcement of property rights. Similarly, Rodrik (2000) posits that democracy is a meta-institution that helps create growth-enhancing institutions. On the other hand, empirical studies based on large cross sections of countries suggest that the relationship may be negative (Helliwell, 1994) or at best hump-shaped (Barro, 1996, 1997), but not robustly so (see Przeworski and Limongi, 1993). Barro explains the negative effect of democracy on growth (beyond an intermediate level of democracy) by pointing out that democratic countries typically implement excessive redistribution programs. Democracy can also lead to inefficient policy outcomes, especially in the case of economically costly policies. Fernandez and Rodrik (1991) show that rational voters may choose not to support efficiency-

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enhancing reforms because of individual uncertainty about payoffs. Similarly, Alesina and Drazen (1991) illustrate how war of attrition over asymmetric payoffs may lead to efficiency-enhancing reforms being delayed. Finally, governments facing elections may pursue policies that maximize the prospects of re-election, even if these are detrimental to long-term economic growth.

**The experience of post-communist countries can shed some new light on the relationships between democracy and growth.**

Experience of the post-communist countries can shed some new light on the relationships between democracy and growth. The transition process can be seen as a natural experiment, comprising a group of 25 countries starting off with little or no democracy and being ex-ante similar (though not identical) in terms of economic development. Subsequently, the paths followed by individual countries in terms of economic and political liberalisation diverged dramatically, with some introducing democracy and economic freedom essentially at level with Western Europe, and others reverting to authoritarian rule and central planning. By observing the variety of approaches to democratisation, as well as the outcomes in terms of economic growth, one can infer new insights about the importance of democracy for economic performance.

There is already a sizeable literature exploring the relationship between progress in economic liberalisation and economic growth during transition, spurred by the initial contribution of De Melo et al., (1996). In general, the evidence suggests that progress in economic liberalisation leads to better growth performance (see Havrylyshyn et al., 1998; Berg et al., 1999), although the progress in liberalisation may in part be predetermined by initial conditions (see Krueger and Ciolko, 1998; Heybey and Murrel, 1999). The literature, however, says little about the effect of political liberalisation on growth. Nonetheless, De Melo et al., (1996) and Dethier et al., (1999) observe that the extent of democracy is positively correlated with the progress in liberalisation and suggest that democratisation reinforces economic liberalisation and, in this way, has an indirect positive effect on growth. The direct effect of democracy on growth has been left unexplored though.

The paper at hand attempts to fill this gap. The analysis explores the effect of democracy on growth, both indirectly (through facilitating economic liberalisation) and directly. Moreover, the paper studies the direction of causality between democracy and economic liberalisation (the previous contributions merely pointed out the positive correlation) and shows that democracy indeed causes liberalisation rather than the other way around. The results obtained with a sample of 25 transition economies suggest that democracy is good for growth, but only because it reinforces economic liberalisation (which in turn has a positive effect on growth). The marginal effect of democracy after controlling for progress in economic liberalisation, in contrast, is negative, at least during the initial transition period. Hence, democracy alone, if unaccompanied by a correspondingly far-reaching liberalisation, actually appears to hinder growth.

## 2. Patterns of growth during transition

The initial response of output to economic reforms was similar across all post-communist economies-output declined sharply in the first few years of transition. The subsequent patterns of growth, however, turned out to be very diverse. While some countries bottomed out and resumed growth after two to four years of transitional recession, others experienced protracted periods of stagnation or continued decline. According to official statistics, the average transition economy saw its real output shrink cumulatively by 42% (this corresponds to the lowest point on the output trajectory, i.e. not taking account

**While some countries bottomed out and resumed growth, others experienced protracted periods of stagnation and continued decline.**

of the subsequent rebound of output). The range of decline was between 17% (Uzbekistan) and 75% (Georgia); for comparison, US GNP fell by 34% during the Great Depression. By 1998, the average transition economy experienced only a ten-percent cumulative recovery. Only in Poland and Slovenia output exceeded the pre-transition level of output by 1998. In contrast, Russia, Ukraine, Moldova and Kazakhstan, reported essentially no recovery as of 1998. Table 1 presents summary statistics on growth as well other variables of interest for the 25 countries covered by the analysis in the present paper.

**Table 1.** Indicators of economic performance, liberalisation and democracy

| | Avg. Growth 1990-93 | Avg. Growth 1994-98 | Output Fall 1990-98 | Output Recovery 1990-98 | GNP p.c. [USD] 1989 | Liberal. Index 1990-93 | Liberal. Index 1994-98 | Democr. Index 1990-93 | Democr. Index 1994-98 |
|---|---|---|---|---|---|---|---|---|---|
| Czech Rep. | -3.65 | 2.28 | 85.24 | 10.54 | 8600 | 0.68 | 0.83 | 0.854 | 0.917 |
| Slovakia | -6.83 | 5.86 | 74.97 | 24.67 | 7600 | 0.66 | 0.79 | 0.771 | 0.733 |
| Hungary | -4.78 | 3.08 | 81.89 | 13.36 | 6810 | 0.73 | 0.84 | 0.854 | 0.917 |
| Poland | -3.05 | 6.00 | 82.21 | 34.94 | 5150 | 0.76 | 0.81 | 0.833 | 0.900 |
| Slovenia | -4.08 | 4.28 | 82.04 | 21.95 | 9200 | 0.73 | 0.79 | 0.729 | 0.917 |
| Bulgaria | -7.40 | -1.94 | 63.69 | 2.23 | 5000 | 0.58 | 0.63 | 0.729 | 0.783 |
| Romania | -6.45 | 0.18 | 74.99 | 1.10 | 3470 | 0.40 | 0.65 | 0.396 | 0.717 |
| Albania | -8.83 | 5.68 | 60.38 | 26.02 | 1400 | 0.40 | 0.63 | 0.479 | 0.517 |
| Croatia | -12.35 | 5.50 | 58.58 | 17.94 | 6171 | 0.69 | 0.75 | 0.500 | 0.500 |
| Macedonia | -13.05 | 0.86 | 55.11 | 4.09 | 3394 | 0.68 | 0.67 | 0.563 | 0.600 |
| Estonia | -11.23 | 4.16 | 60.76 | 14.98 | 8900 | 0.49 | 0.80 | 0.646 | 0.867 |
| Latvia | -14.33 | 3.06 | 50.97 | 8.27 | 8590 | 0.40 | 0.72 | 0.625 | 0.850 |
| Lithuania | -12.05 | 2.30 | 53.47 | 12.12 | 6430 | 0.45 | 0.74 | 0.688 | 0.900 |
| Russia | -7.80 | -4.82 | 55.89 | 0.00 | 7720 | 0.31 | 0.67 | 0.563 | 0.567 |
| Ukraine | -10.63 | -10.02 | 36.76 | 0.00 | 5680 | 0.13 | 0.52 | 0.563 | 0.583 |
| Belarus | -5.35 | -0.10 | 62.69 | 15.06 | 7010 | 0.17 | 0.41 | 0.479 | 0.250 |
| Moldova | -12.33 | -9.90 | 32.36 | 0.00 | 4670 | 0.26 | 0.62 | 0.375 | 0.567 |
| Armenia | -22.98 | 5.68 | 31.00 | 9.84 | 5530 | 0.25 | 0.57 | 0.479 | 0.483 |
| Azerbaijan | -14.53 | -2.86 | 36.96 | 6.65 | 4620 | 0.16 | 0.45 | 0.313 | 0.250 |
| Georgia | -25.80 | 3.08 | 25.38 | 7.42 | 5590 | 0.23 | 0.55 | 0.354 | 0.483 |
| Kazakhstan | -6.38 | -4.16 | 61.26 | 0.00 | 5130 | 0.22 | 0.58 | 0.375 | 0.250 |
| Kyrgyzstan | -9.25 | -1.32 | 50.39 | 9.99 | 3180 | 0.25 | 0.70 | 0.500 | 0.483 |
| Tajikistan | -12.18 | -5.76 | 39.19 | 2.78 | 3010 | 0.15 | 0.41 | 0.313 | 0.067 |
| Turkmenistan | -4.50 | -11.38 | 41.99 | 1.76 | 4230 | 0.09 | 0.31 | 0.188 | 0.000 |
| Uzbekistan | -3.08 | 0.44 | 83.36 | 6.23 | 2740 | 0.16 | 0.54 | 0.208 | 0.050 |
| Average | -9.71 | 0.01 | 57.66 | 10.08 | 5432 | 0.401 | 0.640 | 0.535 | 0.566 |

Sources: EBRD Transition Report (various issues), De Melo et al., (1996, 1997), Freedom House, World Bank World Development Report 1996.

Notes: Output Fall is the lowest level of GDP attained between 1990 and 1998, with 1989=100. Output Recovery is the cumulative increase in GDP since reaching the lowest level. GNP per capita in 1989 is in USD at purchasing power parity as reported by De Melo et al., (1996). Liberalisation Index is the un-weighted mean of the indices constructed by De Melo et al., as extended by Havrylyshyn et al., (1998) using the EBRD progress-in-transition indicators. The index ranges between zero (no liberalisation) and one (complete liberalisation). Democracy Index is the average of political rights and civil liberties, respectively, both constructed by the Freedom House, re-scaled to range between zero (no democracy) and one (complete democracy).

It is generally accepted that official statistics exaggerate the severity of output fall. The statistics directly measure the production of medium-sized and large firms but only estimate the output of small firms, which make up most of the new and growing private sector. Over-reporting under communism (for political reasons) and under-reporting at present (for tax purposes) also play a role. The official statistics only imperfectly estimate the transfer of economic activity from the official to the unofficial economy. Finally, part of the measured output fall is due to the elimination of undesired production, reduction of waste, and fall in inventories as the shortage economy turned into a surplus one, all of which are in fact efficiency enhancing development, even though they show up with a negative sign in output statistics. Nonetheless, even if overestimated by the official statistics, the reform-induced output fall in CEE and FSU was undoubtedly severe.

Several theoretical explanations have been suggested to account for the output fall. Calvo and Coricelli (1993) blame it on the credit crunch-credit restrictions and high real interest rates-due to overly restrictive monetary policy. Blanchard and Kremer (1997), and Roland and Verdier (1999) develop supply-side explanations based on disorganization of production (supplier-buyer) relationships due to asymmetric information about outside options in bargaining, or search frictions and relation-specific investment, respectively. Hillman and Ursprung (2000) suggest that the output fall occurred because economic and political reforms were not accompanied by a change of political culture. Accordingly, the political culture of rent seeking remained in place, and time and resources spent for rent-seeking activities even increased, thus precipitating the output fall (see Shleifer, 1998, for comparisons of political elites in Poland and Russia).

### 3. Democracy and growth during transition

**Democracy brings about political constraints and increases uncertainty. New democracies may be easy pray to populists and nationalists. But democracy also ensures property rights are guaranteed.**

Post-communist countries generally implemented, at least initially, economic and political reforms simultaneously. This approach may have affected their economic performance in several ways. First, democracy brings about political constraints (see Roland, 2000) that may limit the government's ability to proceed with far-reaching economic liberalisation and, in turn, harm economic performance during transition. Second, democracy increases uncertainty, as future governments may not necessarily continue policies and honour commitments introduced by the previous government. Third, new democracies without stable institutions and deep democratic traditions may prove to be easy pray to populists and nationalists. On the other hand, as emphasized by North (1990, 1993), Olson (2000) and others, democracy ensures that property rights are guaranteed and is therefore a necessary condition for sustained long-term growth.

As discussed in the introduction, the direct relationship between democracy and growth during transition has not been explored in the literature. Nevertheless, De Melo et al., (1996) and Dethier et al., (1999) point out that the extent of democracy among post-communist countries is positively correlated with the progress in economic liberalisation. They argue therefore that democracy facilitates economic liberalisation and thus has a positive, albeit indirect, effect on growth. Yet, they leave the precise nature of this relationship, as well as the possible direct impact of democracy on growth, unexplored.

The relationship between progress in economic liberalisation and economic growth during transition has already received considerable attention in the literature (see the discussion in section 1). Although the discussion is still ongoing, the evidence appears to be largely supportive of a positive

impact of liberalisation on growth (although initial conditions also played an important role). The effect of liberalisation on growth can be illustrated by means of regression analysis (the sample includes 25 post-communist countries in Eastern Europe and the former Soviet Union for which data are available, see Table 1). When the average growth rate of per-capita GDP is regressed on the liberalisation index (1), its sign is positive and strongly significant and the regression produces an adjusted $R^2$ of 0.57 (in a regression pooling together observations on average growth over 1990-93 and 1994-98; besides the liberalisation index, the regression also includes the intercept and dummy for 1994-98). When additional explanatory variables are added, the following regression equation obtains (2):

$$\begin{aligned}\mathbf{Growth} = {} & \underset{(1.11)}{1.41} + \underset{(2.88)}{3.94}*\mathbf{D9498} - \underset{(4.75)}{41.25}*\mathbf{LI} + \underset{(5.84)}{57.00}*\mathbf{LI^2} - \underset{(1.16)}{0.43}*\mathbf{BRU} \\ & + \underset{(2.89)}{0.18}*\mathbf{SEC} - \underset{(5.80)}{9.35}*\mathbf{WAR} + \underset{(2.65)}{4.73}*\mathbf{WARlagged} - \underset{(3.00)}{3.28}*\mathbf{GNP89}\end{aligned}$$

[adjusted $R^2$ = 0.802; 50 observations]

where Growth is the average growth rate of per-capita GDP over 1990-93 and 1994-98 (the regression thus pools observations over the two sub-periods), D9498 is a dummy variable for the second sub-period, LI is the liberalisation index, BRU is the distance from Western Europe (Brussels) used as a proxy for initial conditions (thought to be correlated with social, cultural and religious legacies and institutions, initial economic development, as well as the costs of engaging in trade with Western Europe) (3), SEC is the secondary school enrolment (as a percentage of the relevant age category, taken from Denizer, 1997), WAR is a dummy variable denoting countries that engaged in military conflicts (internal or external) during 1990-93 whereas WARlagged denotes the same countries during 1994-98 (when most conflicts ended or subsided), and, finally, GNP89 is the log of per-capita GNP in 1989 in purchasing power parity (from De Melo et al., 1996).

**Either no liberalisation or complete liberalisation is better than intermediate liberalisation.**

The results suggest that the effect of liberalisation on growth is positive and strongly significant, although it appears better approximated by a non-linear (U-shaped) relationship (see also the results reported in the Technical Annex, Table A1, obtained with different regression specifications). Accordingly, liberalisation hinders growth at low levels but improves growth after a moderate level has been attained. Either no liberalisation or complete liberalisation is better than intermediate liberalisation. The minimum effect of liberalisation is attained with liberalisation index around 0.36, which is close to the average levels of liberalisation attained by Azerbaijan, Belarus, Ukraine and

1) The liberalisation index used in the analysis is based on the index constructed by De Melo et al., (1996), and extended by Havrylyshyn et al., (1998) using the progress-in-transition indicators published annually by the European Bank for Reconstruction and Development (EBRD). The index measures progress in implementation of economic reforms. It is scaled to range between zero (an unreformed socialist economy) and one (a liberal market economy such as the US. Among the transition economies, Hungary achieved the highest value (0.88) of this index in 1998, followed by the Czech Republic, Estonia and Poland (0.82). In contrast, Belarus and Uzbekistan appear almost unreformed (with 0.34 and 0.35, respectively).

2) Heteroskedasticity-robust t-statistics in parentheses - see the Technical Annex for more details on the estimation and Table A1 for additional results.

3) Of course, better measures of initial conditions would be desirable. However, reliable data are hard to find, in part because many historical data are not available for the individual successor countries of the Soviet Union, Yugoslavia and Czechoslovakia. Moreover, given the low number of degrees of freedom, inclusion of many more additional variables would dramatically reduce the feasibility of estimation.

Uzbekistan during 1990-98. Once the minimum level has been exceeded, there are increasing returns to further liberalisation. When considering patterns of growth over 1990-93 and 1994-98 separately (see Table A1 in the Technical Annex), the U-shaped relationship appears particularly pronounced during the early transition period (1990-93). In contrast, growth during 1994-98 is better explained by a linear pattern. Importantly, the results are sustained also when the liberalisation index is instrumented by its lagged value, a quadratic transition-time trend, and measures reflecting initial conditions (initial GNP per capita, number of years under communism, and the war dummy-see the Technical Annex for more details). The instrumentation is intended to remedy the possible endogeneity of the liberalisation index, as countries that experienced favourable economic performance may have found it easier to implement radical reforms. Hence, the results suggest that economic liberalisation indeed has had a strong a positive effect on growth. Next, the analysis proceeds examine the effect of democracy on growth-directly, as well as via the effect that democracy may have had on the progress in economic liberalisation.

At first sight, democracy seems associated with better growth performance among the transition economies. The countries that introduced widest democracy (as measured by the indices of political freedom and civil liberties (4) achieved the best results in terms of economic performance. In contrast, some of the countries that implemented only moderate democracy (for example Russia, Ukraine and Moldova) saw their economies plunge with little signs of subsequent recovery. This pattern is unlikely to be merely due to reverse causality-faster growing countries being able to introduce greater democracy-in fact, the countries of Central Europe and the Baltics introduced relatively wide democracy already at the outset of transition, before the resumption of growth.

Estimating the effect of democracy on growth during transition is complicated by the high correlation between democracy and liberalisation (the correlation coefficient between annual values of the liberalisation and democracy indices over 1990-98 is 0.66). Democracy then appears with a positive and significant coefficient when entered in a growth regression without controlling for the progress in liberalisation (see Popov, 2000). However, the result is strikingly different when democracy is entered alongside liberalisation (heteroskedasticity-robust t-statistics in parentheses):

$$\begin{aligned}\mathbf{Growth} = {} & 8.31 - \underset{(0.75)}{1.83}*\mathbf{D9498} - \underset{(0.55)}{26.64}*\mathbf{LI} + \underset{(2.36)}{44.89}*\mathbf{LI}^2 + \underset{(4.04)}{1.42}*\mathbf{DI} - \underset{(0.38)}{8.71}*\mathbf{DI}*\mathbf{D9093} \\ & - \underset{(2.05)}{0.36}*\mathbf{BRU} + \underset{(0.75)}{0.16}*\mathbf{SEC} - \underset{(2.92)}{10.11}*\mathbf{WAR} + \underset{(5.77)}{4.91}*\mathbf{WARlagged} - \underset{(2.70)}{2.72}*\mathbf{GNP89} \\ & \underset{(2.16)}{}\end{aligned}$$

[adjusted $R^2 = 0.802$; 50 observations]

4) The democracy index is the average of indices of political freedom and civil liberties reported annually by the Freedom House (see www.freedomhouse.org). The former reflects freedoms pertaining to electoral processes while the latter focuses on personal freedoms such as the freedom of expression and association. The average index has been re-scaled so as to range between zero (no democracy) and one (complete democracy). For example, the US and The Netherlands are examples of countries with full democracy. Iraq is an example with no democracy at all. In 1988, Albania, Romania and Bulgaria attained a value of 0.0, the former Soviet Union, while still non-democratic, scored 0.25, while Hungary was moderately democratic with 0.42. By 1998, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland and Slovenia all attained the same level of democracy as Germany or the UK (0.92), while Turkmenistan, Uzbekistan and Belarus effectively reinstated dictatorships (with 0.0, 0.8 and 0.17, respectively).

with DI denoting the democracy index and DI*D9093 standing for the product of the democracy index and a dummy for 1990-93-this interaction variable thus captures the differentiated effect of democracy on growth during the first sub-period (see the Technical Annex for additional details and Table A2 for further results). Since the regression equation holds the progress in liberalisation constant, the coefficient estimate of the democracy index captures the marginal effect of democracy on growth. Over the entire transition period, the marginal effect of democracy on growth appears insignificant. Nevertheless, the effect turns out negative and significant during the first part of transition, as reflected in the negative coefficient on an interaction term between the democracy index and a dummy for 1990-93, with the overall effect remaining insignificant. This pattern is confirmed also by the separate regression for 1990-93 (see Table A2 in the Technical Annex), although only with a marginally significant coefficient (this can largely be attributed to the smaller sample size). Hence, after controlling for progress in economic liberalisation, democracy was apparently harmful to growth, at least during the early transition period.

However, the overall effect of democracy on growth need not be negative. As argued by De Melo et al., (1996) and Dethier et al., (1999), democracy may reinforce progress in economic liberalisation and, because liberalisation has a positive effect on growth, the total effect of democracy may in fact be positive. Indeed, a simple Granger-causality test reveals democracy does cause liberalisation rather than the other way around (see technical notes in the Technical Annex for details).

**Democracy alone, when not accompanied by far reaching liberalisation, has had a negative affect on growth during the initial transition period.**

To account for the indirect effect of democracy on growth through its impact on economic liberalisation, the liberalisation index is replaced by an index of residual liberalisation, constructed as the residual from a regression relating the progress in economic liberalisation to the extent of democracy (see the Technical Annex for details). The index of residual liberalisation so constructed measures the progress in economic liberalisation that exceeds the level that can be attributed to prevailing democracy and political freedom. With this procedure, the coefficient obtained for the democracy index measures the overall effect of democracy on growth, i.e. including the indirect effect going through the positive impact of democracy on liberalisation. (heteroskedasticity-robust t-statistics in parentheses, see Table A3 in the Technical Annex for additional results):

$$\begin{aligned}\textbf{Growth} = {} & -0.87 - \underset{(2.44)}{9.05}*\textbf{D9498} + \underset{(4.22)}{20.80}*\textbf{ResLI} + \underset{(1.95)}{27.52}*\textbf{ResLI}^2 + \underset{(3.48)}{10.10}*\textbf{DI} \\ & - \underset{(4.71)}{20.02}*\textbf{DI}*\textbf{D9093} - \underset{(0.20)}{0.11}*\textbf{BRU} + \underset{(1.89)}{0.11}*\textbf{SEC} - \underset{(5.22)}{10.63}*\textbf{WAR} \\ & + \underset{(2.64)}{4.50}*\textbf{WARlagged} - \underset{(1.17)}{1.58}*\textbf{GNP89}\end{aligned}$$

[adjusted R2 = 0.771; 50 observations]

where ResLI stands for residual liberalisation. The effect of residual liberalisation remains positive and significant at least at the 10 percent level-additional liberalisation, beyond the level attributable to the extent of democracy, is beneficial for growth. Importantly, the overall effect of democracy turns out positive and strongly significant.

In summary, democracy indeed has exerted a positive overall effect on growth during transition through its positive impact on progress in economic liberalisation. However, democracy alone, when not accompanied by correspondingly far-reaching liberalisation, has had a negative marginal effect on growth during the initial transition period. The negative marginal effect can be ascribed to two factors (at least). First, democracy is associated with greater political uncertainty, as democratic governments are faced with political backlash in the wake of short-term adverse effects of the reforms. Such uncertainty may reduce the incentives for economic agents to engage in long-term profit-seeking activities. Second, governments facing election may pursue short-term political aims or implement policies that constrain actions of the future government (see Chapter 2 in Roland, 2000) even if the outcome of such actions is detrimental to economic performance. Both factors become less important during the later phase of the transition, as economic and political developments consolidate.

## 4. Conclusions

This paper has investigated the repercussions of political liberalisation and democratisation on growth during the post-communist transitions in Central and Eastern Europe. Previous literature pointed out that democracy facilitates economic liberalisation, which in turn has a positive effect on growth. The effect attributed to democracy thus is only indirect, whereas the direct effect has been left largely unexplored. The present paper explores the specific nature of the impact democracy has had on growth during post-communist transition, accounting for the direct as well as the indirect effect of democracy. The results confirm that democratisation indeed reinforces economic liberalisation - in the sense of Granger causality, democracy causes liberalisation, not the other way around. Economic liberalisation, in turn, improves growth performance. Because of the reinforcing effect of democracy on liberalisation, its overall effect on growth therefore is overwhelmingly positive. Nevertheless, the marginal effect of democracy - when holding progress in liberalisation constant - appears negative, although only during the early transition period (1990-93). In other words, democracy that is not accompanied by economic liberalisation has had a negative effect on growth during the initial transition period. Hence, rapid democratisation without simultaneous economic liberalisation may worsen economic performance-possibly because of increasing uncertainly about future political developments and/or creating incentives for the government to pursue measures aimed at increasing its political support rather implementing sound economic policies. Nevertheless, the joint effect of democratisation and economic liberalisation is unambiguously positive.

**Democracy has a positive effect on growth because it facilitates economic liberalisation. This is an important lesson for those countries that may reinstate autocratic regimes in the hope of improving economic performance.**

These results have important policy implications. In particular, they show that simultaneous implementation of economic and political reforms in the post-communist countries did not bring about lower growth. On the contrary, democracy has a positive effect on growth because it facilitates progress in economic liberalisation. This is an important lesson for those post-communist countries that retained or reinstated autocratic regimes (Belarus, much of Central Asia, and until recently Serbia) or may currently be doing so (Russia), in the hope of improving economic performance.

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# Technical Annex

As is standard in growth literature, most of the regressions are estimated with the growth rate of per-capita GDP as the dependent variable. Nevertheless, since the previous literature on growth patterns during transition typically used the growth rate of GPD, results with this dependent variable are presented as well. As the objective of the analysis is to investigate long-term patterns of growth rather than annual fluctuations, the regressions are estimated with averages of all variables over four or five year periods rather than annual observations (cf. Havrylyshyn et al., 1998; Berg et al., 1999; and Wolf, 1999, who use annual data). This approach should minimize the noise component in the data originating from measurement errors or short-term fluctuations caused by external factors, at the cost of having fewer degrees of freedom. The transition period is split for the purposes of the analysis into two sub-periods: 1990-93 and 1994-98. This increases the sample size when running pooled regressions with both sub-periods, and, on the other hand, allows separate analysis of growth determinants during early transition (when virtually all countries experienced dramatic output contractions) and the later period, characterized by stabilization and recovery (albeit not in all countries).

The explanatory variables are the liberalisation index, the distance from the country's capital to Western Europe (Brussels) as a proxy for initial conditions (5), a dummy for countries engaging in military conflicts, secondary school enrolment, and initial income per capita. Several other variables were tried, most notably primary school enrolment and the investment, but proved insignificant. The distance from Western Europe is used instead of the common dummy for the former Soviet Union because it offers a continuous measure of initial conditions—undoubtedly, initial conditions in Estonia were dramatically different from those in Tajikistan.

The results are summarized in Table A1. Columns (1) through (4) were obtained by pooled regressions over 1990-93 and 1994-98 whereas columns (5) and (6) present results separate regressions over the two sub-periods. The variable of interest—the liberalisation index—appears to exert a significant and strongly positive effect on growth, although the effect may be non-linear (U-shaped), especially during 1990-93. Nevertheless, even when allowing for non-linearity, the worst impact of liberalisation is attained at a relatively low level (0.35-0.39) and full liberalisation is clearly superior to no liberalisation.

Regressions reported in columns (7) through (9) of Table A1 were estimated with the liberalisation index instrumented by its lagged value ($LI_{t-1}$), the initial GNP per capita (GNP), the number of years under communism ($YrsCom$), the conflict dummy and a quadratic transition-time trend (the first-stage regression is thus estimated with annual observations). The resulting fist-stage regression (with heteroskedasticity-robust t-statistics in parentheses) is:

5) For Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan, the distance to Brussels is estimated as 6 000 km.

**Table A1.** Economic liberalisation, initial conditions and growth

| **Period:** | **1990-98** | **t-stat** | **1990-98** | **t-stat** | **1990-98** | **t-stat** |
|---|---|---|---|---|---|---|
| **Growth Rate of:** | GDPpc | | GDPpc | | GDPpc | |
| | (1) | | (2) | | (3) | |
| Constant | -7.438 | -0.68 | -2.335 | -0.21 | 11.409 | 1.11 |
| Dummy 1994-98 | 4.160 | 2.92 | -8.479 | -1.64 | 3.937 | 2.88 |
| Liberalisation Index | 12.941 | 4.08 | 8.752 | 2.57 | -41.252 | -4.75 |
| Liberalisation Squared | | | | | 56.998 | 5.84 |
| Liberalisation 1994-98 | | | 20.657 | 3.12 | | |
| Dist. fr. Brussels [ths km] | -0.356 | -0.83 | -0.145 | -0.30 | -0.427 | -1.16 |
| Sec. School Enrolment | 0.1389 | 1.57 | 0.097 | 1.39 | 0.175 | 2.89 |
| War Dummy | -8.404 | -4.02 | -9.011 | -4.49 | -9.346 | -5.80 |
| War Dummy (lagged) | 2.865 | 1.55 | 4.056 | 2.44 | 4.725 | 2.65 |
| 1989 GNP p.c. [log, ths $] | -1.908 | -1.47 | -1.957 | -1.61 | -3.275 | -3.00 |
| Adj.$R^2$ | 0.705 | | 0.757 | | 0.802 | |
| Joint Sign. Liberalisation | | | | | 0.000 | |
| Number of observations | 50 | | 50 | | 50 | |
| Min/Max effect at: | | | | | 0.36 | |

| **Period:** | **1990-98** | **t-stat** | **1990-93** | **t-stat** | **1994-98** | **t-stat** |
|---|---|---|---|---|---|---|
| **Growth Rate of:** | GDP | | GDPpc | | GDPpc | |
| | (4) | | (5) | | (6) | |
| Constant | 18.264 | 1.64 | 16.048 | 1.46 | -15.582 | -0.88 |
| Dummy 1994-98 | 3.926 | 2.85 | | | | |
| Liberalisation Index | -51.148 | -5.44 | -40.539 | -2.98 | 22.675 | 3.13 |
| Liberalisation Squared | 66.337 | 6.40 | 58.712 | 4.09 | | |
| Liberalisation 1994-98 | | | | | | |
| Dist. fr. Brussels [ths km] | -0.194 | -0.51 | 0.037 | 0.08 | -0.796 | -1.47 |
| School Enrolment | 0.164 | 2.79 | 0.088 | 1.36 | 0.225 | 2.73 |
| Dummy | -9.529 | -5.73 | -10.037 | -6.71 | | |
| Dummy (lagged) | 4.981 | 2.93 | | | 4.567 | 2.92 |
| GNP p.c. [log, ths $] | -3.779 | -3.11 | -3.183 | -2.93 | -1.939 | -1.00 |
| Adj.$R^2$ | 0.793 | | 0.735 | | 0.546 | |
| 0.800 | | 0.723 | | 0.576 | | |
| Joint Sign. Liberalisation | 0.000 | | 0.000 | | | |
| Number of observations | 50 | | 25 | | 25 | |
| Min/Max effect at: | 0.39 | | 0.35 | | | |

| **Period:** | **1990-98** | **t-stat** | **1990-93** | **t-stat** | **1994-98** | **t-stat** |
|---|---|---|---|---|---|---|
| **Growth Rate of:** | GDP | | GDPpc | | GDPpc | |
| | (7) | | (8) | | (9) | |
| Constant | 6.427 | 0.61 | 19.632 | 1.62 | -21.395 | -1.23 |
| Dummy 1994-98 | 1.768 | 1.18 | | | | |
| Liberalisation Index | -29.365 | -2.87 | -52.121 | -2.63 | 28.103 | 3.79 |
| Liberalisation Squared | 48.758 | 4.45 | 74.249 | 3.66 | | |
| Liberalisation 1994-98 | | | | | | |
| Dist. fr. Brussels [ths km] | -0.021 | -0.05 | -0.112 | -0.20 | -0.263 | -0.45 |
| Sec. School Enrolment | 0.173 | 3.08 | 0.083 | 1.49 | 0.256 | 3.62 |
| War Dummy | -9.518 | -5.58 | -10.218 | -6.60 | | |
| War Dummy (lagged) | 4.978 | 2.65 | | | 5.079 | 3.03 |
| 1989 GNP p.c. [log, ths $] | -3.082 | -2.75 | -3.222 | -2.81 | -2.196 | -1.13 |
| Adj.$R^2$ | 0.800 | | 0.723 | | 0.576 | |
| Joint Sign. Liberalisation | 0.000 | | | | | |
| Number of observations | 50 | | 25 | | 25 | |
| Min/Max effect at: | 0.30 | | 0.35 | | | |

Notes: Estimated by OLS with heteroskedasticity robust t-statistics, for the 25 countries included in Table 1. Dependent variable is the growth rate of GDP per capita (GDPpc), or the growth rate of GDP. Columns (1) through (4) are estimated with observations for 1990-93 and 1994-98 pooled together. In columns (7) through (9), the liberalisation index has been instrumented by its lagged value, initial GNP, years under communism, conflict dummy, and quadratic time trend (see the Technical Annex for details). The liberalisation index is the average annual liberalisation index over the respective period, as constructed by De Melo et al., (1996) and extended by Havrylyshyn et al., (1998). Liberalisation 1994-98 is an interaction term between the liberalisation index and the dummy for 1994-98. The conflict dummy equals one for Croatia, Macedonia, Armenia, Azerbaijan, Georgia and Tajikistan. The initial per capita GNP is in purchasing power parity terms, in US dollars. The distance from Brussels for Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan is estimated as 6 000 km. Secondary school enrolment is according to Denizer (1997), in percent. Joint Significance Liberalisation is the joint significance level of the liberalisation index and its squared value. Minimum/Maximum effects refer to the level where the effect of liberalisation reaches its minimum or maximum in the non-linear specification.

$$\mathbf{LI_t} = \underset{}{0.343} + \underset{(5.72)}{0.607}*\mathbf{LI_{t-1}} + \underset{(7.85)}{0.010}*\mathbf{GNP} - \underset{(2.53)}{0.004}*\mathbf{YrsCom} - \underset{(4.43)}{0.014}*\mathbf{Conflict} + \underset{(0.93)}{0.053}*\mathbf{t} - \underset{(3.63)}{0.006}*\mathbf{t^2} \qquad [\text{adj. } R^2 = 0.875]$$
$$(4.32)$$

The transition-time trend, $t$, is set to zero for years preceding the onset of transition. The starting date of transition is defined following Fischer and Sahay (2000, Figure 1).

The results on the marginal effect of democracy on growth (i.e. the effect of democracy when holding liberalisation constant) are reported in Table A2. The regressions are analogous to those discussed above and reported in Table A1, with the addition of the democracy index among explanatory variables. Columns (1) through (3) report the results of regressions pooling data over

1990-93, whereas columns (4) and (5) contain results of separate regressions for the two sub-periods. The marginal effect of democracy is insignificant in the regressions spanning the entire period but appears negative and significant during the first sub-period. This is evidenced by the negative and significant coefficient on the interaction variable in column (2) and marginally significant coefficient on the democracy index in the regression for 1990-93 (column 4).

The specific nature of the relationship between democracy and liberalisation is explored by means of a simple Granger-causality test. When regressing annual observations of the democracy index on the liberalisation index, and vice versa, the following results obtain (6):

$$\underset{}{\mathbf{LI_t}} = \underset{(8.12)}{0.108} + \underset{(15.58)}{0.720}*\mathbf{LI_{t-1}} + \underset{(3.73)}{0.166}*\mathbf{DI_{t-1}} \qquad [\text{adj. } R^2 = 0.884]$$

$$\underset{}{\mathbf{DI_t}} = \underset{(4.32)}{0.109} - \underset{(1.37)}{0.068}*\mathbf{LI_{t-1}} + \underset{(21.89)}{0.921}*\mathbf{DI_{t-1}} \qquad [\text{adj. } R^2 = 0.771]$$

where $\mathbf{LI_t}$ and $\mathbf{DI_t}$ stand for the liberalisation and democracy indices, respectively. The results clearly show that whereas the lagged value of the democracy index is significant as a determinant of subsequent liberalisation, the lagged value of the liberalisation index does not cause subsequent democracy. The results are analogous when additional variables (initial per-capita GNP, years under communism, military conflict dummy and quadratic time trend) are included (not reported). Hence, the causality indeed runs from democracy to liberalisation rather than the other way around.

Finally, to examine the overall effect of democracy on growth, a two-step procedure is implemented. First, the liberalisation index is regressed on the democracy index. This yields the following estimates (t-statistics in parentheses):

$$\text{1990-98: } \mathbf{Liberalisation} = \underset{(5.42)}{0.185} + \underset{(12.45)}{0.632}*\mathbf{Democracy} \qquad [\text{Adj.R2: } 0.759]$$

$$\text{1990-93: } \mathbf{Liberalisation} = \underset{(2.70)}{-0.111} + \underset{(15.34)}{0.956}*\mathbf{Democracy} \qquad [\text{Adj.R2: } 0.662]$$

$$\text{1994-98: } \mathbf{Liberalisation} = \underset{(11.06)}{0.393} + \underset{(8.78)}{0.435}*\mathbf{Democracy} \qquad [\text{Adj.R2: } 0.752]$$

Second, the residual is used as an explanatory variable, denoted residual liberalisation, alongside the democracy index. This residual liberalisation measures liberalisation beyond, or falling short of, the extent corresponding to the level of democracy. The results are reported in Table A3. Again, columns (1) through (3) report results pooling observations over 1990-93 and 1994-98, while columns (4) and (5) contain regressions estimated separately for the two sub-periods. The overall effect of democracy on growth appears clearly positive, although it was apparently weaker during 1990-93 (as reflected in the negative coefficient on the interaction term in columns 2 and 3).

**Table A2.** Democracy and growth: Marginal effect

| **Period:** | **1990-98** | **t-stat** | **1990-98** | **t-stat** | **1990-98** | **t-stat** | **1990-93** | **t-stat** | **1994-98** | **t-stat** |
|---|---|---|---|---|---|---|---|---|---|---|
| **Growth Rate of:** | GDPpc | | GDPpc | | GDP | | GDPpc | | GDPpc | |
| | (1) | | (2) | | (3) | | (4) | | (5) | |
| Constant | 11.284 | 1.10 | 8.308 | 0.75 | 15.876 | 1.32 | 12.312 | 1.25 | -14.138 | -0.82 |
| Dummy 1994-98 | 4.024 | 3.05 | -1.828 | -0.55 | -0.965 | -0.27 | | | | |
| Liberalisation Index | -40.846 | -4.73 | -26.635 | -2.36 | -39.631 | -3.32 | -35.507 | -2.78 | 16.307 | 1.61 |
| Liberalisation Squared | 56.046 | 5.83 | 44.886 | 4.04 | 57.663 | 4.97 | 57.623 | 4.40 | | |
| Democracy | 0.854 | 0.22 | 1.423 | 0.38 | -0.029 | -0.01 | -8.016 | -1.56 | 4.861 | 0.90 |
| Democracy 1990-93 | | | -8.709 | -2.05 | -7.203 | -1.58 | | | | |
| Dist. fr. Brussels [ths km] | -0.385 | -0.82 | -0.357 | -0.75 | -0.196 | -0.41 | -0.120 | -0.25 | -0.567 | -0.87 |
| Sec. School Enrolment | 0.176 | 2.95 | 0.162 | 2.92 | 0.152 | 2.75 | 0.089 | 1.22 | 0.267 | 2.91 |
| War Dummy | -9.274 | -5.40 | -10.109 | -5.77 | -10.263 | -5.93 | -10.732 | -6.61 | | |
| War Dummy (lagged) | 4.791 | 2.54 | 4.910 | 2.70 | 5.042 | 2.82 | | | 4.912 | 2.90 |
| 1989 GNP p.c. [log, ths $] | -3.340 | -2.96 | -2.724 | -2.16 | -3.231 | -2.30 | -2.388 | -2.20 | -2.453 | -1.23 |
| Adj.$R^2$ | 0.798 | | 0.802 | | 0.789 | | 0.739 | | 0.530 | |
| Joint Sign. Liberalisation | 0.000 | | 0.000 | | 0.000 | | 0.000 | | | |
| Number of observations | 50 | | 50 | | 50 | | 25 | | 25 | |
| Min/Max effect at: | 0.36 | | 0.30 | | 0.34 | | 0.31 | | | |

Notes: Estimated by OLS with heteroskedasticity robust t-statistics, for the 25 countries included in Table 1. See also Notes to Table A1. Democracy Index is the based on the average of political rights and civil liberties according to the Freedom House and normalized so that it ranges between zero and unity. The indices used in the regressions are the averages for the respective periods. Joint Significance Liberalisation is the joint significance level of the liberalisation index and its squared value. Minimum/Maximum effect refers to the level where the effect of liberalisation reaches its minimum or maximum in the non-linear specification.

**Table A3.** Democracy and growth: Overall effect

| **Period:** | **1990-98** | **t-stat** | **1990-98** | **t-stat** | **1990-98** | **t-stat** | **1990-93** | **t-stat** | **1994-98** | **t-stat** |
|---|---|---|---|---|---|---|---|---|---|---|
| **Growth Rate of:** | GDPpc | | GDPpc | | GDP | | GDPpc | | GDPpc | |
| | (1) | | (2) | | (3) | | (4) | | (5) | |
| Constant | -3.897 | -0.38 | -0.869 | -0.06 | 2.925 | 0.22 | -6.848 | -0.64 | -7.725 | -0.45 |
| Dummy 1994-98 | 4.820 | 3.31 | -9.049 | -2.44 | -10.004 | -2.36 | | | | |
| Residual Liberalisation | 9.961 | 2.47 | 20.796 | 4.22 | 20.651 | 3.98 | 17.213 | 3.85 | 16.307 | 1.61 |
| Res. Liberalisation Sqrd. | 16.967 | 1.08 | 27.522 | 1.95 | 29.028 | 1.92 | 35.741 | 1.76 | | |
| Democracy | 13.815 | 3.23 | 19.099 | 3.48 | 18.811 | 3.36 | 9.130 | 1.60 | 11.947 | 2.87 |
| Democracy 1990-93 | | | -20.015 | -4.71 | -21.412 | -4.23 | | | | |
| Dist. fr. Brussels [ths km] | 0.000 | 0.00 | -0.112 | -0.20 | 0.121 | 0.21 | 0.703 | 1.09 | -0.567 | -0.87 |
| Sec. School Enrolment | 0.142 | 1.65 | 0.111 | 1.89 | 0.092 | 1.37 | 0.012 | 0.18 | 0.267 | 2.91 |
| War Dummy | -8.022 | -3.60 | -10.631 | -5.22 | -10.853 | -4.95 | -11.331 | -5.35 | | |
| War Dummy (lagged) | 3.714 | 2.05 | 4.496 | 2.64 | 4.492 | 2.73 | | | 4.912 | 2.90 |
| 1989 GNP p.c. [log, ths $] | -2.679 | -2.02 | -1.580 | -1.17 | -1.774 | -1.10 | -1.056 | -0.88 | -2.453 | -1.23 |
| Adj.$R^2$ | 0.712 | | 0.771 | | 0.730 | | 0.617 | | 0.530 | |
| Joint Sign. Liberalisation | 0.048 | | 0.000 | | 0.000 | | 0.001 | | | |
| Number of observations | 50 | | 50 | | 50 | | | | 25 | |
| Min / Max effect at: | -0.29 | | -0.38 | | -0.36 | | -0.24 | | | |

Notes: Estimated by OLS with heteroskedasticity robust t-statistics, for the 25 countries included in Table 1. See also Notes to Table A1. Democracy Index is the based on the average of political rights and civil liberties according to the Freedom House and normalized so that it ranges between zero and unity. The indices used in the regressions are the averages for the respective periods. Joint Significance Liberalisation is the joint significance level of the liberalisation index and its squared value. Minimum / Maximum effect refers to the level where the effect of liberalisation reaches its minimum or maximum in the non-linear specification.

# Third Prize

**Gilles Duranton and Vassilis Monastiriotis**

Data on average regional earnings point at a worsening of UK regional inequalities and a rise in the North-South gap. In this paper, we decompose regional inequalities in the UK and apply earnings equations for UK regions over 1982-1997. We find evidence of rapid convergence across regions regarding the determinants of individual wages (i.e., regional fixed-effects, gender gaps and returns to education and experience). Education accounts for most of the discrepancy between aggregate divergence and disaggregated convergence. First, London gained because its workforce became relatively more educated over the period. Second, returns to education increased nation-wide, which favoured the most educated regions (i.e., London). Third, returns to education were initially lower in London but they (partially) caught up with the rest of the country. Had returns to education and their distribution across UK regions remained stable over the period, the UK North-South divide would have decreased.

**Gilles Duranton** is a senior lecturer in the Department of Geography and Environment at the London School of Economics. He is also affiliated with the Centre for Economic Performance at the London School of Economics and the Centre for Economic Policy Research in London. His research interests are currently threefold. From the theoretical perspective, he is interested in urban systems and tries to understand questions relating to the distribution of economic activity across cities and to the size distribution of cities. From a more empirical perspective, he carries out research on differences across local labour markets. He also tries to develop new methods to measure the spatial distribution of economic activity.

**Vassilis Monastiriotis** is a research officer currently undertaking his PhD at the Department of Geography and Environment at the London School of Economics. His research focuses mainly on the regional and national economic effects of labour market flexibility, the evolution of wage inequalities between and within regional economies and the impact of human capital on wages, productivity and growth. Other research interests include the size distribution of cities and the investigation of spatial spill-overs in the determination of school performance and criminal behaviour.

# The evolution of the UK North-South divide: Should we mind the gap?

## 1. Introduction

Inequalities across regions in Europe are a matter of great interest to policy makers and politicians as well as members of the general public. Numerous studies have shown that income inequalities across European regions are large and persistent (Quah, 1996; Esteban, 2000). Interestingly, the decomposition of European regional inequalities into a cross-country and a within-country component shows that the former is declining, whereas the latter has risen significantly over the last 15 years (Esteban, 1999; Dunford and Smith, 2000).

This increase in within-country regional inequalities has been particularly strong in the United Kingdom. According to aggregate figures given by the Office for National Statistics, in 1982, average earnings in London and the South East were respectively 121% and 103% of the national average. By 1997, earnings in London and the South East had risen to respectively 137% and 109% of the national average. Broadening the analysis to regional GDP per capita instead of average earnings does not make much difference. Comparable inequalities across UK regions are also found for unemployment, educational attainments and even mortality. This has been identified as the UK "North-South Divide", opposing a prosperous South to an increasingly relatively impoverished North. In this paper we use the UK experience as a case study in order to analyse the forces that are behind the evolution of regional inequalities in a large open economy.

**Although it is possible that the UK is a particular case, it is a particularly interesting country to investigate.**

Although it is possible that the UK is a particular case, we believe that this is a particularly interesting country to investigate. This trend of rising regional inequalities in the UK suggests indeed significant policy implications. First, the UK has one of the most flexible labour markets in Europe, where the constraints imposed by institutional factors are expected to be weaker, compared to other European economies. Second, the UK is one of the largest EU economies and probably the one that is most deeply integrated in the global economy. Third, this increase of regional inequalities has taken place despite the determination of EU regional policy to narrowing regional differences in economic opportunities and economic outcomes. It goes without saying that further research for other EU economies is of course necessary for more general conclusions to be drawn.

Our starting point is that the aggregate figures quoted above are quite misleading. A more useful comparison would be to use not the average wages of workers across regions, but the wages of specific groups of workers across regions. This makes it possible to distinguish those inequalities which result from workers in the same jobs being paid different rates from inequalities which reflect the different composition of the workforce in different regions. The result is a somewhat different picture of the extent and nature of regional inequalities.

This essay summarises a longer report on the same subject (Duranton and Monastiriotis, 2000), which is available at http://cep.lse.ac.uk/~duranton. We are grateful to Chris Hurst and Gareth Jones for useful comments on this article.

Figure 1 uses the conventional approach: it plots the average relative nominal wage for three regional groupings between 1982 and 1997 (1). Figure 2, by contrast, plots average nominal wages for a specific hypothetical worker, a 25 year-old with secondary education. For this hypothetical case, the contrast between his/her own situation and the aggregate picture is stark. London and the South East are much closer to the national average with London being below the South East at the end of the period. There is also evidence of convergence between the three regions.

The patterns revealed for this particular hypothetical case of Figure 2 is also found for most of the other hypothetical cases. More generally, this research shows that, once the distribution of human capital is controlled for, the *regional returns* (i.e., market value) of all key labour market characteristics (education, experience and sex) and regional fixed-effects converged during the 1980s and 1990s. With the term regional fixed-effects we mean the estimated (average) regional wage that is independent of all key labour market characteristics or, in other words, the wage of a male employee with no education or labour market experience.

**Figure 1.** Average regional earnings in the UK 1982-97 (UK average = 100%)

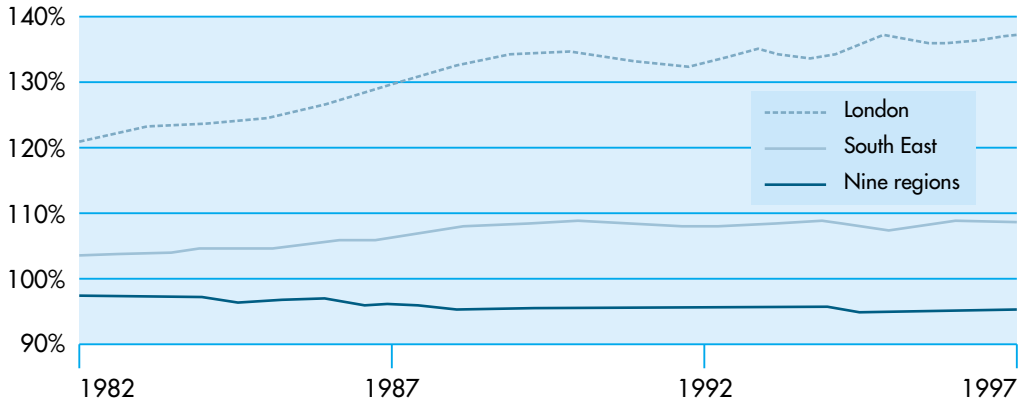
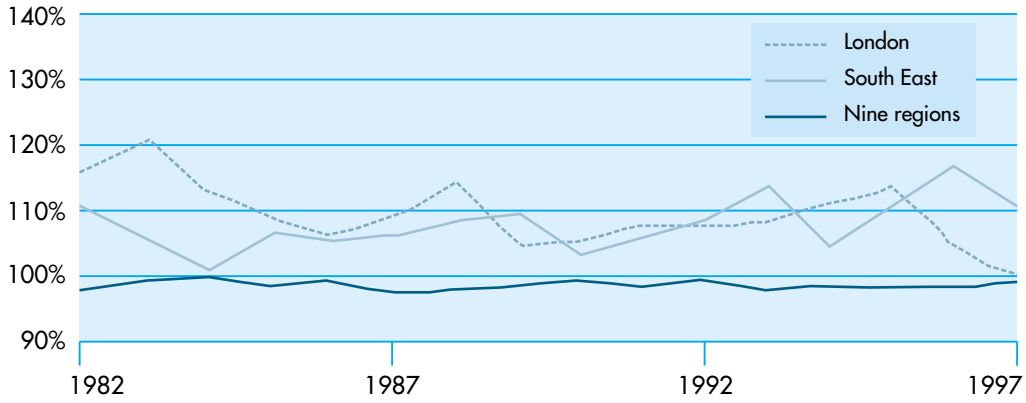



**Figure 2.** Nominal regional earnings for a 25 year old with 15 years of education, employed full-time (UK average = 100%)




*1) Our analysis uses the twelve Standard Statistical Regions (SSRs) of the UK as our spatial units. For presentational reasons, however, Figures 1 and 2 exclude N. Ireland and group the nine regions outside the wider urban agglomeration of London (North, Northwest, Yorkshire, West Midlands, East Midlands, East Anglia, Southwest, Scotland and Wales) into one group, hereafter called "the nine regions".*

The main explanations we offer to reconcile the apparent contradictions between Figure 1 and Figure 2 are threefold. First, London had initially lower returns to education. The catch-up in returns to education implied large gains in average wages in London. In other words, disaggregated convergence caused aggregate divergence. Second, during the 1980s and 1990s, a rise in personal inequalities took place in all UK regions (see Machin, 1996 and 1998 for reviews of evidence on this). Rising inequalities between skilled and unskilled, in combination with the uneven spatial distribution of human capital, also contributed to magnify aggregate UK regional inequalities. Third, rising average educational attainment in London and the South East relative to the rest of the country also played a role in explaining the aggravation of regional inequalities.

Before commenting further on these results and their policy implications, we need to examine briefly how they were obtained.

## 2. The method

The two questions we seek to address are the following:

- Do "similar" individuals have the same wage across UK regions?
- How have the differences, if any, evolved in the last 20 years?

**We regress real wages on a set of individual characteristics, including sex, education and labour market experience for each region and each year.**

To answer these questions, we exploit data from the Family Expenditure Survey over the period 1982-1997. We regress individual real wages on a set of individual characteristics, including sex, education and labour market experience, for each region and each year. The reason is that individual characteristics like age, education and sex tend to impact on the wage in systematic ways. For instance, educated workers earn on average more than less educated workers, males earn more than females and experienced workers earn more than workers with no labour market experience. Furthermore, very experienced workers earn less than experienced workers. Workers tend to accumulate skills at the beginning of their career which in many cases become obsolete later on. Over one's life cycle, therefore, wages first increase, then peak before starting to decrease. To deal with these conflicting effects and the resulting non-monotonic pattern in a regression, two different terms related to experience are needed. Hence in addition to labour market experience, we also introduce its square in the regression. Labour market experience captures the accumulation of skills and its square captures its depreciation. Note also that the wages are adjusted by regional prices indices, i.e., they are real and not nominal wages. More details of data definitions and of the model specification are given in the Technical Annex.

To put things simply, this analysis allows us to control for composition effects and it yields five coefficients for each region and each year:

- The gender gap, that is how much being a woman affects one's wage, all else being equal.
- The returns to education, which indicates by how much wages increase for each extra year of schooling.

- The returns to experience, which captures the positive effects on the wage of one year of experience.
- The depreciation of skills, which captures the negative effect on the wage of having stayed longer in the labour market (and, hence, away from education).
- The regional fixed-effect, i.e., the base wage that would be obtained by someone with no experience and minimum education in the region being analysed.

It is difficult in practice to plot the evolution over 16 years of a given variable for all 12 regions in the same Figure and get a clear picture. To analyse our results, three main devices are used: Firstly, we compare the range for the coefficients of each variable at the beginning and the end of the period. This informs us about the evolution of the gap between the region with the highest coefficient and that of the lowest one. A reduction in the range indicates a decrease in disparity between extreme cases. Secondly, we examine the evolution of the coefficient of variation for each variable over the period. This measures the evolution of average relative dispersion across regions. A negative trend indicates a decrease in average disparities for the variable being considered. Finally, we analyse the correlation across regions between the time trend and the initial level for each variable. The simplest way to do this is to draw a simple plot for each variable, where each region is an observation. The time-trend for 1982-97 appears on the vertical axis and the initial level for the variable shows on the horizontal axis. Mean-reversal is observed when the trends for 1982-1997 are inversely correlated with the initial levels, that is, when regions that initially had a high coefficient experienced a relative decline. By contrast, a positive correlation between the intercepts and the trends would indicate divergence. This measure is especially important as it tells us how individual regions have moved within the distribution.

### 3. The results

Before turning to regional differences, it is helpful to look at the evolution of the mean of the coefficients on each variable over the 12 regions (2). The trends are very clear. The main changes that affected the country as a whole are:

- A slight decline in the fixed-effects, i.e., a decline in the wage of a hypothetical uneducated male with no experience.
- A strong decrease of around one fourth in the gender gap.
- A strong increase of around one fifth in the returns to education.
- An increase of around one sixth in the returns to experience.
- An increase in the speed at which skills depreciate (over the life cycle, wages peak about three years earlier in the mid-90s than in the early 80s).

**The most important feature of our results is the tendency of the coefficient on all characteristics to converge across regions.**

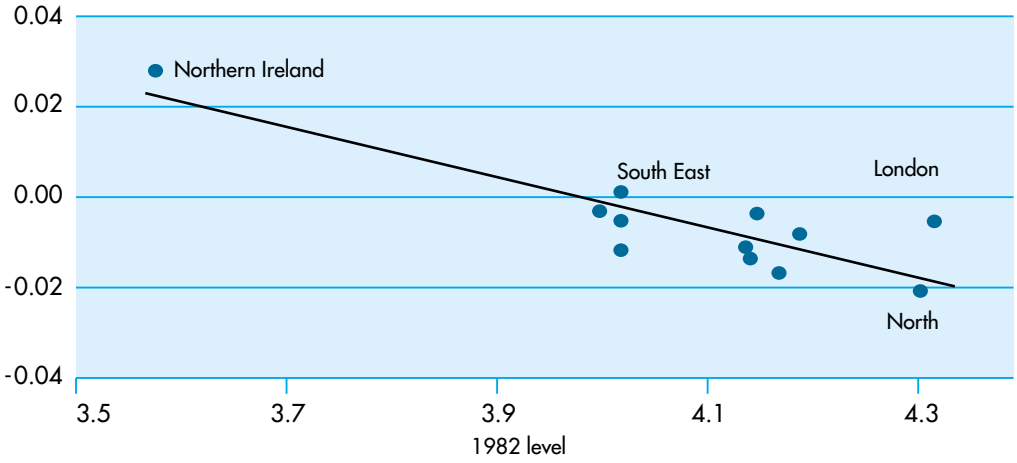
These results are very much in line with previous findings regarding the evolution of wage inequalities in the UK. However, despite these marked national trends, regions have behaved differently. If we treat regions as separate units of observation, the most important feature emerging from our results is the tendency for the coefficients on all characteristics to converge across regions.

2) Note that all our variables have followed an upward trend over the study period. However, this trend was stronger for wages and female employment (as a share to total employment) and less so for education and labour market experience.

The range in the real regional fixed-effects at the beginning of the period (average for 1982 and 1983) was very large at 0.90 (from 3.35 in Northern Ireland followed by the North West with 3.77 to 4.25 in London at the other extreme). For the end of the period (average for 1996 and 1997), the range is much smaller at 0.41 (minimum for Northern Ireland at 3.72 and a maximum for London at 4.13). The evolution of the coefficients of variation, which decreased by around one fourth over the period confirms this finding. Figure 3 gives further support to convergence in real regional fixed-effects. The convergence period can be computed at 22 years.

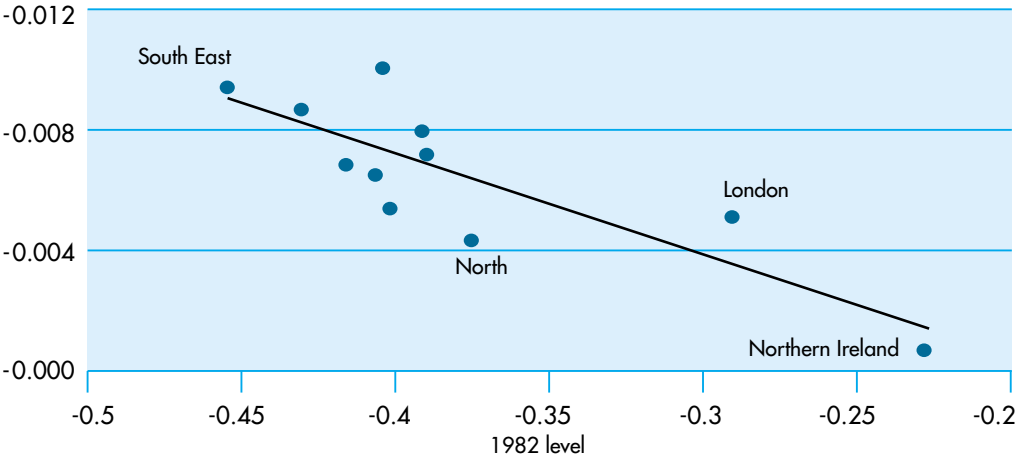
Turning to the gender gap, the initial range was also very large at 19% (from 43% in South East to 26% in Northern Ireland and 24% in London). By the end of the period, the range for the gender gap had fallen to 14% (19% in London and 33% in East Anglia). Further evidence of convergence can be gathered from Figure 4.

**Figure 3.** Regional convergence in the real fixed-effects




Note that analysing nominal wages, i.e., wages not deflated by regional price indices, instead of real wages does not change the results regarding regional fixed effects very much and leaves results for the other variables the same.

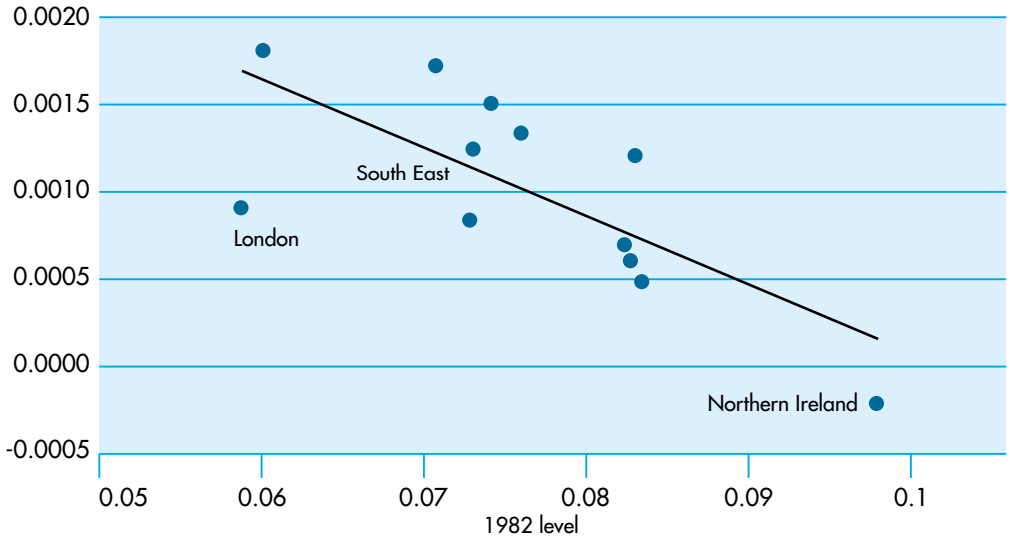
**Figure 4.** Regional convergence in the gender gap



The convergence period is 26 years. Even when the two regions with the lowest gender gaps are ignored, mean-reversal is still found. Regarding the coefficient of variation, there was an increase between 1982 and 1986 and then a sharp decline until 1990 and since then a slight increase. Hence, the evidence about relative dispersion appears to be mixed. But this has a simple explanation since, on average across regions, the gender gap fell very significantly, by 9 points over the period. This decline has been faster than convergence in absolute terms. Consequently, differences in relative terms (as captured by the coefficient of variation) have risen slightly.

For education, the annual returns initially ranged from 6.0% in London to 9.6% in the North West and 10.5% in Northern Ireland. At the end of the period the extremes remained London with 7.4% at the bottom end and Northern Ireland with 10.4% followed by Yorkshire with 10.3% at the top end. Thus the range fell by more than one third from 4.5% to 2.9%. Convergence is also supported by Figure 5. Convergence in this figure, as was the case with the previous ones, is robust to the exclusion of Northern Ireland.

**Figure 5.** Regional convergence in the returns to education




The convergence period, at 35 years, is slower than for the other variables. This is partly due to London, which has persistently lower returns to education and is converging only slowly with the rest of the country. Convergence is also found when looking at the evolution of the coefficients of variation.

For the returns to experience and its depreciation (i.e., experience and squared experience), convergence is very strong. The lowest returns were initially in the North with 4.8% whereas the highest were in Northern Ireland with 7.9%. By the end of the period, the range had fallen from 3.1% to 1.4% with the extremes being the South West with 5.5% and East Anglia with 6.9%. For both variables, the coefficients of variation nearly halve during the period. Figures 6 and 7 also show remarkable mean-reversal for both variables. The convergence periods are respectively 12 years for experience and 9 years for the depreciation of experience.

**Figure 6.** Regional convergence in the returns to experience

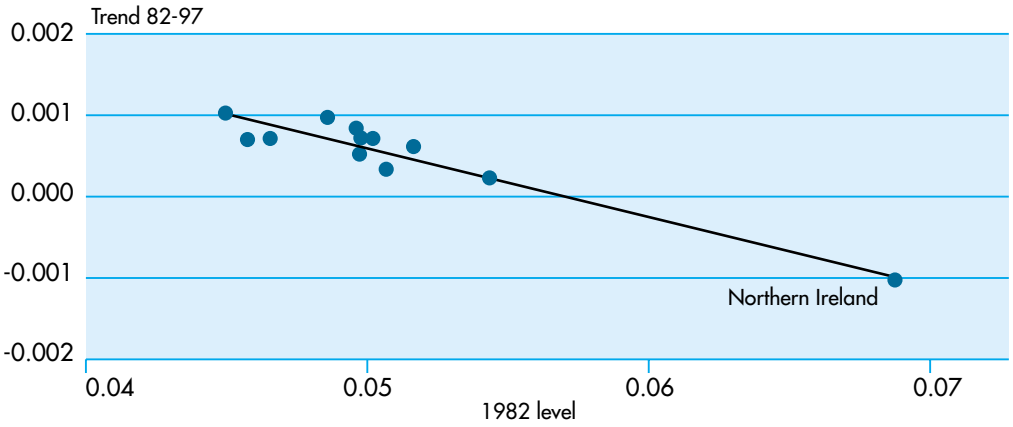
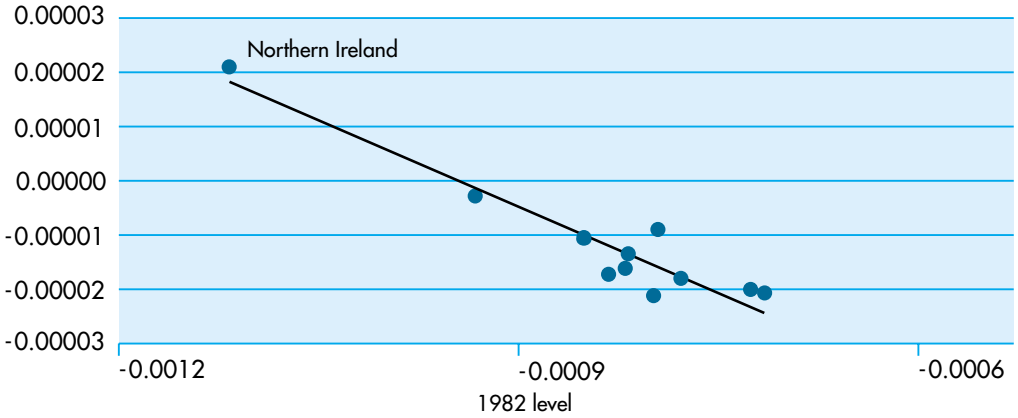



**Figure 7.** Regional convergence in the depreciation of experience




***Convergence in every single dimension stands in sharp contrast with the rising wage gaps observed in the aggregated figures. This can only be resolved by looking at regional structures.***

Overall, the market values of labour market characteristics, alongside regional fixed-effects, have converged across UK regions over 1982-1997. Convergence is very strong for the coefficients on experience and its depreciation. It is also significant, albeit less dramatic, for education, the gender gap and regional fixed-effects. Convergence in every single dimension stands in sharp contrast with the rising wage gaps observed in the aggregated figures. This discrepancy can only be resolved by looking at regional structures.

Note that the analysis employed does not allow us (and is not intended) to draw any conclusions regarding the determinants of the convergence trends identified here. For example, the decline in the gender gap could be possibly attributed to the changing nature of female employment, especially given the observed nation-wide increase in female wages. On the other hand, the possibility that the decline in the gender gap is due to a diffusion of the same social norms throughout the country cannot be excluded on the basis of the information presented here. Likewise, the observed convergence in the returns to education could be due to a more equal cross-regional distribution of skills or due to changes in the patterns of labour migration. Note, however, that the results obtained from our further empirical analysis (see the Technical Annex) do not seem to confirm any of these explanations.

## 4. A breakdown of the evolution of UK regional inequalities

Regarding regional structures, the first interesting variable to look at is female participation. There has been a large increase in female participation in the UK of around 7 points and this increase has been strongest in regions where the gender gap was initially highest. In the beginning of period, the range for female participation was 9% (26% in the East Midlands and 35% in London). By the end of the period, it was at 6% (34% in East Anglia and 40% in London). For experience the pattern is more complex. Overall, mild structural divergence is observed. The initial range was around two years (19.8 years in London and 21.8 in the North) whereas the final range is about four years (18.3 in London and 22.3 in Wales). For education, divergence is also evident, with London getting relatively more educated than the rest of the country by around 9 months over the period.

Further insights can be gained by decomposing the evolution of regional inequalities. For simplicity, we consider only the evolution of regional inequalities between London and the nine regions between 1982-83 and 1996-97 (Northern Ireland has a behaviour that is different from the rest of the UK whereas the South East is somewhat half way between London and the nine other regions of Great Britain). This decomposition breaks down the aggregate increase in regional inequalities into four components:

1. What can be attributed to changes in national characteristics (e.g., an increase in average education);
2. What can be attributed to changes in the differences in characteristics across regions (e.g., the increase in education being stronger in London);
3. What can be attributed to changes in the estimated model coefficients at the national level (e.g., higher returns to education); and,
4. What can be attributed to changes in the differences in the estimated model coefficients across regions (e.g., a narrowing in cross-regional differences in the returns to education).

**The evolution of fixed-effects, the wage of a male employee of no education or no labour market experience, led to greater regional equalisation.**

The results are presented in Table 1, which is split according to these four components. It must be noted first that the evolution of the nominal fixed-effects led to greater regional equalisation. The decline of the London premium accounted for –32% of the rise in regional inequalities between London and the nine regions (component 4).

In total, the gender variable accounts for 10% of the increase in regional inequalities. This small aggregate effect is the result of conflicting market value (or price) and composition effects. The national increase in female participation implied an increase in regional inequalities due to the lower gender gap in London (component 1). The relatively stronger increase in female participation in the nine regions reinforced this push towards greater inequalities (component 2). The national decline in the gender gap also led to greater inequalities due to the higher female participation rate in London (component 3). However, the stronger relative decline in the gender gap in the nine regions pushed towards equality (component 4).

Regarding experience, the overall effect is one of cross-region equalisation (–25%). Its four components are of different signs. The most important of them is the increase in the experience gap

between London and the nine regions (component 2) where the relative decline in experience in London pushed towards greater equalisation.

**Table 1.** Decomposition of aggregate increase in regional inequalities.

| Increase in regional inequalities 1982-1997 | | |
|---|---|---|
| **Component 1:** | part due to changes in national characteristics | –31.6% |
| | Gender | 9.7% |
| | Education | –51.0% |
| | Experience | 9.7% |
| **Component 2:** | part due to changes in cross-region differences in characteristics | 39.0% |
| | Gender | 16.0% |
| | Education | 58.8% |
| | Experience | –35.8% |
| **Component 3:** | part due to changes in the benefit gained from having | |
| | (or market value of) a particular characteristic at the national level | 23.8% |
| | Gender | 6.3% |
| | Education | 23.9% |
| | Experience | –6.4% |
| **Component 4:** | part due to changes in cross-region differences in market values | |
| | of a particular characteristic | 68.9% |
| | Fixed-effects | –32.0% |
| | Gender | –21.9% |
| | Education | 114.9% |
| | Experience | 7.9% |
| **Total** | | **100.0%** |

**If it were not for educational differences, regional inequalities between London and the nine regions would have decreased significantly.**

The combined effect of the regional fixed-effects, gender, and experience variables is negative and accounts for –47% of the rise in inequalities. In other words, if it were not for education regional inequalities between London and the nine regions would have decreased significantly. Overall education accounts for 147% of the increase in regional inequalities. However, when the contribution of education is broken down into four components, they do not all go in the same direction. The national rise in educational attainment of the workforce reduced regional inequalities fairly significantly because of lower returns to education in London (–51%, component 1). However the stronger increase in education of the London workforce (component 2) accounts for 59% of the overall increase in inequalities. The national rise in returns to education also favoured London at the expense of the nine regions and accounts for 24% of the rise (component 3). The most important term is however, the part due to the returns to education in London slightly catching-up with those in the rest of the country (component 4). This term alone explains 115% of the increase in regional inequalities.

It is interesting to note that across all variables, the fourth component, which is the part due to the evolution of cross-regional differences in the returns to individual characteristics (i.e., convergence

**The most important cause of the increase in aggregate inequalities is convergence in the returns to labour market characteristics, notably experience and education.**

in this case), accounts for 69% of the rise in inequalities. This highlights the importance of taking a disaggregated approach to regional inequalities. In the UK between 1982 and 1997, the most important cause of the increase in aggregate inequalities is convergence in the returns to labour market characteristics (experience and education). In other words, differences in average wages across regions in 1982 were lower than what differences in characteristics across regions would have predicted. Regional differences in the returns to labour market characteristics in the early 1980s indeed contributed to hiding regional inequalities due to the differences in labour force composition. The decline in these price differences over the 1980s and 1990s, then, contributed to increased differences in average wages.

It is possible to go a little further in the analysis by noting that the evolution of regional prices for goods and housing on the one hand and that of the returns to labour market characteristics on the other are unrelated. There is however, a positive link between the evolution of regional prices and that of the population in UK regions. Over the period, the population of London and the South East increased by 6.5% against 3.3% for the nine regions. There is thus an agglomeration movement of the population towards London and the South East. This agglomeration movement may have been triggered by the initially more favourable sectoral composition of this area (business services, high tech, etc.). This rise in demand for labour attracted more workers, which in turn caused a rise in the demand for other types of workers (personal services, etc.). This may be a case of cumulative and circular causation leading to more agglomeration in the South East of England. This created some stress on regional prices -and in particular land prices - with large increases in London and the South East. These price effects may be so important as to make these two regions unaffordable for the least skilled workers - many of whom end up leaving. This may explain the increasingly uneven distribution of skills observed in the country.

### 5. Potential caveats

How far are these results a good reflection of regional inequalities in the UK and their evolution? There are many problems that may bias our results. The first important issue is the following. Imagine two workers of the same age, education and sex, working for the same bank as branch managers. The first one works in a very small branch in Scotland whereas the second one manages a large branch in the City of London. Their employer did not assign these two workers randomly although statistically they cannot be distinguished. It is very likely that the London manager has higher abilities than the other one. More generally, people with high unobserved abilities (talent, ambition, motivation, etc) in the UK may tend more often to work in London. This may bias our results.

Note first that such a bias may just reinforce some of our conclusions since it will exaggerate the regional fixed effect in London (i.e., after controlling for their observed characteristics, higher unobserved abilities in London imply a higher basic wage on average). Note also that with respect to the evolution of regional inequalities, this bias does not matter, provided it remains constant over time (static errors cancel each other out when looking at differences over time). Finally we also dealt directly with this problem by running regressions with variables trying to proxy for these unobserved abilities. To do this we used some information in our data regarding occupation and past mobility of our workers. These richer regressions gave similar, if not stronger, results.

A second important problem is that the probabilities of being in full-time employment may differ across regions. For instance in a region facing severe economic difficulties, only the most able may be in full-time employment whereas in prosperous regions, nearly everyone may be at work. This is an important potential source of distortions. Note however, that our analysis controls for key characteristics that influence the probability of finding a job like education and experience so that this bias concerns only unobserved abilities. To deal with this problem, we also used empirical methods that explicitly take into account this kind of issue. They do not significantly change our basic results. If anything, they reinforce them again.

Another two potential problems are the following. First, our conclusions might be to some extent biased due to the omission of significant wage determinants, like sectoral and firm-specific characteristics. However, as explained earlier, such factors were considered as endogenous and, hence, were excluded from the econometric analysis. Further, the robustness of our results across different specifications makes us less worried of any such potential problem. The second issue refers to the quality of the variables used in our analysis. There is increasing literature on the growth effects of human capital suggesting that formal education and labour market experience are possibly less appropriate proxies for skills than are for example on-the-job training, vocational education and the like. Although we are sympathetic to this argument, we cannot ignore the importance of formal education and labour market experience for skills acquisition. Further, data limitations meant that these two measures were the only skill proxies that could be used in our empirical analysis.

## 6. Conclusions and policy implications

**Our results suggest there is no large labour market unfairness across regions. If the objective is to equalise earnings for comparable individuals, then policy intervention may not be warranted.**

Our results suggest that there is no large labour market unfairness across UK regions. When controlling for the composition of the labour force, we find that regional inequalities caused by differences in returns to labour market characteristics have decreased fairly significantly. At the same time, the differences in the composition of the labour force across regions have become more accentuated. If the objective is to equalise earnings for comparable individuals, policy interventions towards regional equalisation may not be warranted.

In any case, this does not mean that regional policy changes cannot lead to efficiency gains, for individual outcomes. In particular, the increasingly uneven distribution of skills across regions can be partially explained by the strong institutional restrictions on the supply of land in London and the South East. It may be tempting to argue for some liberalisation on this side. Further work is needed, however, as a greater concentration of population in London and the South East may have a significant environmental/congestion impact. Furthermore, such reforms are also likely to have distributive effects through potentially large changes in house prices everywhere in the country.

One potential bias in our conclusions should be noted. The analysis presented here refers to only one particular geographical scale: the region. Admittedly, the 1980s and 1990s have also seen a marked pattern of rising inequalities within regions, across UK counties. On the other hand, even at the regional level, what may be true for wages may not be true for other important issues like health or the educational attainment of youngsters. Thus, our findings regarding the labour market need to be replicated for other forms of economic and social inequalities across UK regions.

However, the most pressing issue at this stage is to see whether this type of finding holds for other European countries. Indeed, as in the UK, regional inequalities in most European countries have increased significantly over the last twenty years. Admittedly, the UK economy may be a "special case" in Europe because of its labour market regulation, cyclical behaviour, currency, etc. On the other hand, as many European countries become increasingly integrated in the global economy and - as they seem - follow more closely the Anglo-Saxon paradigm of enhanced labour market flexibility, it is possible that inequalities across regions in Europe have increased through the same sort of mechanism as in the UK. This would warrant a thorough re-examination of European regional policy and its objectives.

**To reduce aggregate disparities, one can only try to make the spatial distribution of skills more even across regions.**

What the UK example shows is a regional equalisation in terms of wages for comparable individuals as well as greater disparities in the distribution of skills across regions. In such a situation, to reduce aggregate disparities, one can only try to make the spatial distribution of skills more even across regions. This may not be such a wise move if the economic prosperity of nations is fostered by the concentration of skilled workers in large metropolitan regions such as London, Paris or the Rhine region. At the same time, the concentration of the most educated in London might be the result of labour market failures in the non-metropolitan parts of the UK with the most educated workers being drawn into London for lack of professional opportunities elsewhere.

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# Technical Annex

The analysis uses the Family Expenditure Survey (FES) and the General Household Survey (GHS), both from the Office for National Statistics (ONS). The FES is a continuous random sample survey of private households in the United Kingdom. It collects information about incomes as well as detailed information on expenditure. When considering only full-time employees, our total sample size varies between 4 357 observations in 1996 and 5 992 in 1992. For most regions and most years, more than 300 observations per year are available. For Northern Ireland however, only 85 observations are available for the typical year. Like the FES, the GHS is an annual national survey. It is a multi-purpose survey, providing information on aspects of housing, employment, education, health and social services, transport, population and social security. It is a continuous survey based on an achieved sample of about 9 000 households. The data is collected by face-to-face interview. It encompasses all English regions, Wales and Scotland but not Northern Ireland.

For both FES and GHS data, the sample that we actually used in our wage equations consists of males and females between 16 and 65 years of age who reported to be in full-time employment. Because of known problems about self-reporting on employment status, we excluded cases that reported less than 30 hours a week. We also excluded cases for people earning hourly wages outside a "reasonable" range (GBP 1- GBP 200 in 1990 UK prices), to avoid extreme cases and apparent data-input mistakes.

Data on regional prices are from Reward Group Ltd (http://www.reward-group.co.uk). All other aggregate data used in this paper come from Regional Trends 34 (1998 and 1997 editions) series published by the ONS. Most of it is freely available electronically at http://www.statistics.gov.uk/.

The empirical analysis uses standard wage determination equations, regressing individual wages for full-time employees on sex, education, experience and its square. Each regression is run using a full set of regional dummy variables. As far as the estimated coefficients are concerned, this is equivalent to running separate regressions for each region. As individuals cannot be identified and followed over time, a separate cross-section is run for each available year of observation. This allows for each coefficient to vary across regions and across time. Thus for each region-year we obtain a constant (the regional fixed effect), a gender gap and some returns to education and experience. Such a regression can be formally written as follows:

$$(1)\quad LW_i(j,t) = \beta_0(j,t) + \beta_1(j,t)SEX_i + \beta_2(j,t)EDU_i + \beta_3(j,t)EXP_i + \beta_4(j,t)SQEXP_i + \varepsilon_1(j,t)$$

where $LW_i(j,t)$ is the log of weakly earnings in year $t$ for full-time employee $i$ who lives in region $j$. We interpret this variable as the nominal wage. The sex variable, $SEX_i$ is coded 1 for females. $EDU_i$ is the number of years in full-time continuous education. Labour market experience is not recorded but it can be proxied by potential experience, $EXP_i$, calculated as the age minus the age of completion of full time education which is traditionally measured as the number of years in full-time education plus 5. Finally $SQEXP_i$ is the square of the previous term.

Data on regional prices allow us to calculate $LRW_i(j,t) = Log(W_i(t)/PRICE(j,t))$, the logarithm of the real weekly earnings. Equation (1) can thus be re-written:

(2) $$LRW_i(j,t) = \beta_0^R(j,t) + \beta_1(j,t)SEX_i + \beta_2(j,t)EDU_i + \beta_3(j,t)EXP_i + \beta_4(j,t)SQEXP_i + \varepsilon_1(j,t)$$

where the real regional fixed-effect, $\beta_0^R(j,t)$, is equal to the nominal regional fixed-effect minus the log of regional prices: $\beta_0^R(j,t) \equiv \beta_0(j,t) - LPRICE(j,t)$. Thus the same analysis can be performed for real wages without any further regression. The coefficients on sex, education and experience are not affected. The real regional fixed effect of a given region-year can be calculated directly as the difference between the corresponding nominal fixed and log regional prices.

The extensions of the analysis attempt to identify and correct for potential caveats. This is done by amending the initial wage equations and adding a number of skill dummies and variables measuring household mobility. We also used the Heckman two-step estimation method to control for potential sample selection bias. These extensions are discussed in more detail in Duranton and Monastiriotis (2000).

# The Mediterranean Region

## A Special Report

**Armin Riess, Patrick Vanhoudt and Kristian Uppenberg**

**Chief Economist's Department, EIB**

**Summary**

This paper provides a broad survey of the economic situation in nine Mediterranean Partner Countries, and assesses the impact of the Euro-Mediterranean association agreements. The starting point of the analysis is the observation that overall economic performance of the region has been relatively poor when measured as growth of income per capita. Several factors are likely to have contributed to this. Investment in physical and human capital has both been lower and less efficient than in more successful developing economies. In addition, inward-looking development strategies have been combined with extensive state ownership and overall involvement in the economies to produce a high degree of protection. This has hampered competition and limited the gains from trade, leading to low productivity growth.

In light of this experience, it is argued that the Euro-Mediterranean trade agreements are a necessary but not a sufficient element in bringing the region onto a more promising path of economic development. The freeing-up of trade with the EU needs to be accompanied by domestic economic reforms on a broad scale to facilitate needed structural transformation and to reduce the fiscal dependency on tariffs. Similarly, the Mediterranean countries need to remove trade barriers also between each other, so as to create a sufficiently large regional market to attract the foreign direct investment necessary to modernise their economies.

# Further integration with the EU: Just one ingredient in the reform process

"There can be no greater error than to expect or calculate upon real favours from nation to nation"
George Washington

## 1. Introduction

Too much inequality in a neighbourhood may result in socio-economic disruption. Indeed, there is a consensus within the European Union that increasing the standard of living in neighbouring countries in the Mediterranean is pivotal to prevent political instability in the area with the associated risk of large-scale economic migration to the EU. With EU unemployment still being substantial - especially in Southern Member States - and given the recent revival of extreme right parties across Europe, both the Council and the Commission have identified this area as a key external relations priority for the EU.

The EU's policy toward the Mediterranean region is governed by the Euro-Mediterranean Partnership, which was launched at the 1995 Barcelona Conference (hence called the Barcelona Process). The central idea is that further integration with the EU provides considerable potential to foster economic growth for small and rather closed economies such as those in the Mediterranean (here and elsewhere in this paper we use the term Mediterranean loosely to mean the 12 Partner countries located around the southern and eastern borders of the Mediterranean Sea (1)). The Partnership aims at establishing a Euro-Mediterranean free trade area by 2010 (Box 1 recalls in a general fashion different stages in the process of regional integration). To help this process the Union has promised a major financial contribution to support the modernising efforts in the region.

The Euro-Mediterranean free trade area is to be achieved mainly through "Euro-Mediterranean Association Agreements" between the EU and individual Mediterranean countries. Table 1 summarises the status of the Euro-Med Agreements. The process seems to have been slower than expected given that Agreements with only four partners - namely the Palestinian Authority, Tunisia, Morocco and Israel - have become effective since 1995 (2).

Institutional factors in the Mediterranean countries are likely to have contributed to the moderate pace of putting the Agreements into place. However, more fundamental concerns as to the merits of such Agreements for the Mediterranean countries appear to have played a role as well. It is this paper's thesis that the further integration of the Mediterranean countries with the EU in the framework of the Euro-Med Partnership will contribute to the development of the region. At the same time, we see significant scope for accelerating the development process. For one thing, a case can be made for trade liberalisation that goes beyond what is envisaged under the Agreements. For another, there remains considerable room for improvement outside the realm of trade policy.

Armin Riess is Deputy Division Chief in the Chief Economist's Department of the EIB. Kristian Uppenberg and Patrick Vanhoudt are both Economists in the same department. Thanks are due to Chris Hurst and Daniel Ottolenghi for insightful comments. The views expressed here are strictly personal, and do not necessarily reflect those of the EIB.

1) These are Morocco, Algeria, Tunisia (Maghreb); Egypt, Israel, Jordan, the Palestinian Authority, Lebanon, Syria (Mashrek); Turkey, Cyprus and Malta. Libya currently has observer status at certain meetings. Since Cyprus and Malta have started accession negotiations with the EU, they are omitted from this analysis. Turkey has also become a candidate for EU membership since the Barcelona Conference. In any case, most of the issues to be covered by the Euro-Med Agreements already apply to Turkey. Its Association Agreement with the EEC/EU came into force on November 1, 1964 and its Customs Union Agreement on December 31, 1995.

2) Egypt has finalised its agreement, which is expected to become operational in the near future.

### Box 1. From shallow to deep regional integration

**Preferential Trade Agreements** (PTAs) reduce trade barriers between countries that are signatories to the Agreement. The reduction is not granted to non-PTA members and thus constitutes a deviation from the most-favoured-nation principle (MFN), which stipulates that a country's trade barriers - including their reduction - should apply in a non-discriminatory way to all other countries. Members of the PTA are free to choose their external trade policy that governs their trade with non-member countries.

The preferential reduction in trade barriers can be asymmetrical or reciprocal. In the former case, one country - or a group of countries - offers trade concessions to another country without requesting the same concessions. Under a reciprocal PTA, partner countries grant each other the same reduction in trade barriers.

**Free Trade Agreements** (FTAs) are PTAs that establish free trade between partner countries while still leaving it up to them to set external trade policies vis-à-vis non-members. As there is no external trade policy, a FTA can fulfil its purpose only if member countries follow rule of origin and contents rules. Both need to be applied to ensure that goods traded freely among members are really member countries' products and not goods that are merely transhipped - possibly with only token value added generated in the FTA area - through the country with lowest external trade protection.

In a **Customs Union**, FTA partners pursue a common external trade policy. This substantially reduces the "whose is whose" problem. A further deepening of integration is the objective of forming a **Common Economic Area** and a **Single Market**. The former adds the use of common rules and technical standards to the Customs Union and the latter tops that by completely dismantling all barriers to trade, the exchange of services, and to the movement of capital and labour.

The remainder of the paper is organised as follows. The next section starts off with a description of the economic situation in the Mediterranean region, and includes a closer look at three countries (Egypt, Turkey and Tunisia). Section 3 moves on to a review of the cooperation between these countries and the EU. The benefits and costs of the regional trade integration envisaged under the Agreements take centre stage. From this, section 4 draws some conclusions on the ways and means of putting the southern frontier of the EU on a more promising path of economic development.

**Table 1.** Status of Euro-Mediterranean Association Agreements

| Partner | Conclusion of negotiations | Signature of agreement | Entry into force |
|---|---|---|---|
| Tunisia | June 1995 | July 1995 | March 1998 |
| Israel | September 1995 | November 1995 | June 2000 |
| Morocco | November 1995 | February 1996 | March 2000 |
| Palestinian Authority | December 1996 | February 1997 | July 1997 |
| Jordan | April 1997 | November 1997 | - |
| Egypt | January 2001 | June 2001 | - |
| Lebanon | in progress | - | - |
| Algeria | in progress | - | - |
| Syria | in progress | - | - |

Source: European Commission, 2000b, and the EU DG External Relations web site: http://europa.eu.int/comm/external_relations/med_mideast/euro_med_partnership/conf/marseilles/bp_5_yr_en.pdf

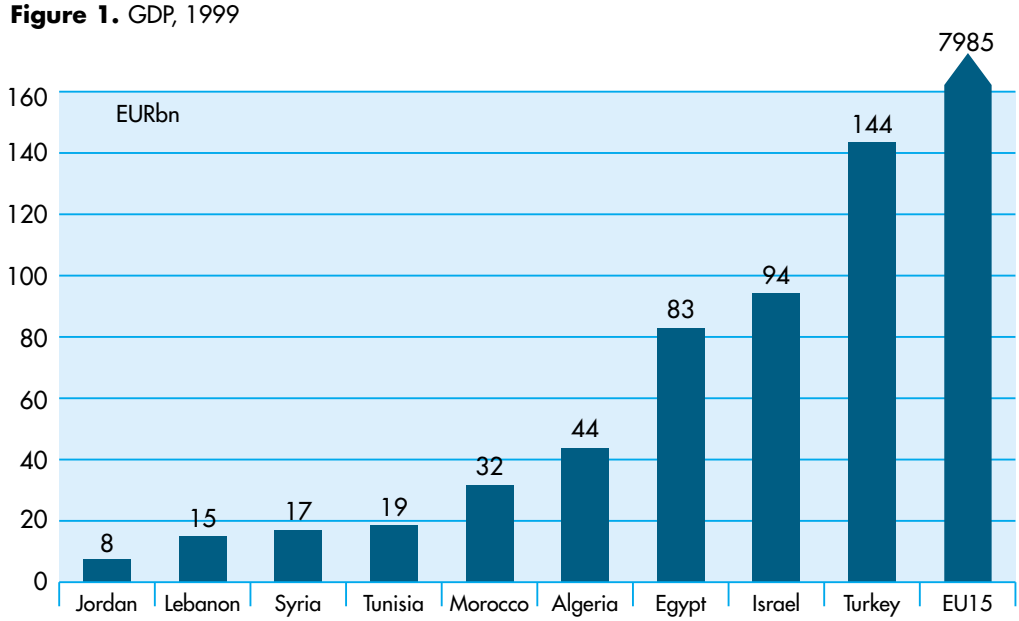
## 2. A brief overview of the Mediterranean region

### 2.1 Growth, human capital and investment

*After decades of moderate economic performance and high population growth, the Mediterranean countries face low standards of living.*

While the Mediterranean countries have a population that is equivalent to around 60 percent of the EU population, Figures 1 and 2 reveal that their economic size is considerably smaller. For instance, in 1999 the region's GDP reached just 6.5 percent of Europe's - it was, in fact, only slightly higher than that of Spain. Only three countries account for about three quarters of the regional product (namely, Turkey, 32 percent; Israel, 21 percent and Egypt, 18 percent), but it is only in Israel where this is due to much greater income per capita rather than population size (see Table 2) (3). Thus, after decades of moderate economic performance and high population growth, the Mediterranean countries still have comparatively low income levels. With the exception of Israel, Mediterranean standard of living - measured as income per capita in terms of purchasing power parities - stands at merely 10 percent of that in the Union.

**Figure 1.** GDP, 1999

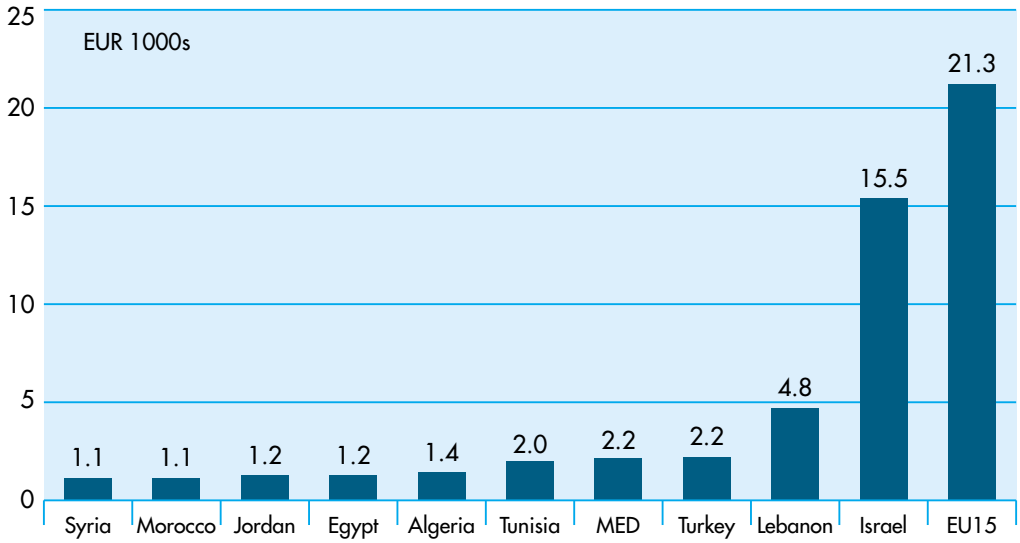



Source: IFS, Eurostat and World Development Indicators

Most of the economies suffer from a substantial handicap concerning human capital. In spite of an improvement since 1990, between one third and half of the labour force is illiterate in Algeria, Egypt, Morocco and Tunisia - and these countries account for almost 60 percent of the region's population. In middle-income countries, the average stood at 15 percent in 1997, and was of the order of 1 percent in the most advanced Central and Eastern European countries (see Table 3).

*3) These tables and charts are based on a variety of sources, including IFS, Eurostat and the World Development Indicators. However, data for the region is often criticised for its unreliability. Syrian and Egyptian statistics are known to be particularly problematic. In Syria, for instance, there is a large difference (of roughly 4:1) between the official and unofficial - but widely used - market exchange rates. Using the official exchange rate would tend to overstate the size of the Syrian economy relative to other countries in the region. For comparative reasons we have therefore chosen instead to apply the market rate in this case.*

**Figure 2.** GDP per capita, PPP, 1999




Source: IFS, Eurostat and World Development Indicators

**Table 2.** Size and growth of population, and real GDP growth

| | People | Population growth | | GDP | |
|---|---|---|---|---|---|
| | | historical | forecast | average real growth | |
| | 1999 | 1995-99 | 1999-15 | 1980-90 | 1995-99 |
| | Million | % | % | % | % |
| Algeria | 30.8 | 2.3 | 1.7 | 2.7 | 0.8 |
| Egypt | 67.2 | 1.8 | 1.5 | 5.4 | 3.0 |
| Israel | 6.1 | 2.4 | 1.6 | 3.5 | 3.5 |
| Jordan | 6.5 | 3.1 | 2.3 | 2.5 | 1.3 |
| Lebanon | 3.2 | 1.9 | 1.2 | .. | 7.3 |
| Morocco | 28.2 | 1.7 | 1.4 | 4.2 | 2.4 |
| Syria | 16.1 | 3.3 | 2.1 | 1.5 | 7.4 |
| Tunisia | 9.5 | 1.4 | 1.2 | 3.3 | 5.8 |
| Turkey | 64.4 | 1.5 | 1.2 | 5.4 | 0.4 |
| EU | 374.9 | 0.3 | -0.1 | 2.2 | 2.5 |
| MED | 232.0 | 1.9 | 1.5 | 4.0 | 3.0 |

Source: IFS, Eurostat and World Development Indicators

***Most of the economies suffer from a substantial handicap concerning their human capital.***

With such low levels of schooling, indicators for knowledge generating activities in the region are bound to be low. Table 3 for instance, shows that, except for Israel, average expenditures on R&D stand at only about 0.3 percent of gross national product - compare this with the 1 percent of other middle-income countries. In Egypt, the number of scientists and engineers in the population reaches a quarter of the EU level, but for the region as a whole this figure still stands far behind that observed in Central and Eastern Europe.

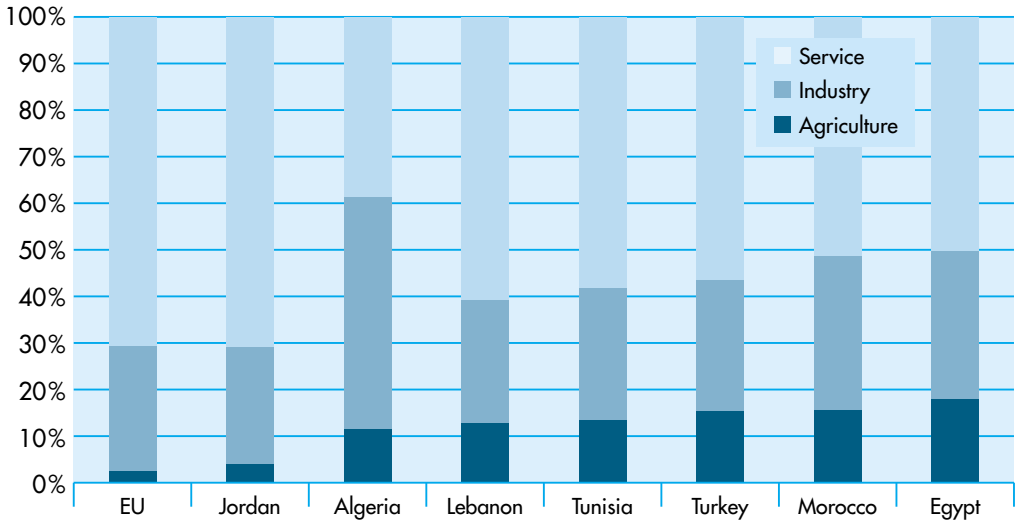
**Table 3.** Adult illiteracy rate and knowledge generation indicators

| | Adult illiteracy rate (%) of people over 15 years old | | Knowledge generation | |
|---|---|---|---|---|
| | | | Expenditures for R&D as % of GNP | Scientists and engineers in R&D per million people |
| | 1997 | 1990 | 1994-97 | 1994-97 |
| Algeria | 40 | 47 | .. | .. |
| Egypt | 47 | 53 | 0.2 | 495 |
| Israel | 5 | 6 | 2.2 | .. |
| Jordan | 13 | 19 | 0.3 | 94 |
| Lebanon | 16 | 20 | .. | .. |
| Morocco | 54 | 61 | .. | .. |
| Syria | 28 | 35 | 0.2 | 30 |
| Tunisia | 33 | 41 | 0.3 | 119 |
| Turkey | 17 | 21 | 0.4 | 264 |
| Czech Rep | .. | .. | 1.2 | 1210 |
| Hungary | 1 | 1 | 0.8 | 1049 |
| Poland | 0 | 0 | 0.8 | 1358 |
| EU | .. | .. | 2.0 | 2126 |
| Middle-income | 13 | 15 | 0.9 | .. |

Source: Eurostat and World Development Indicators

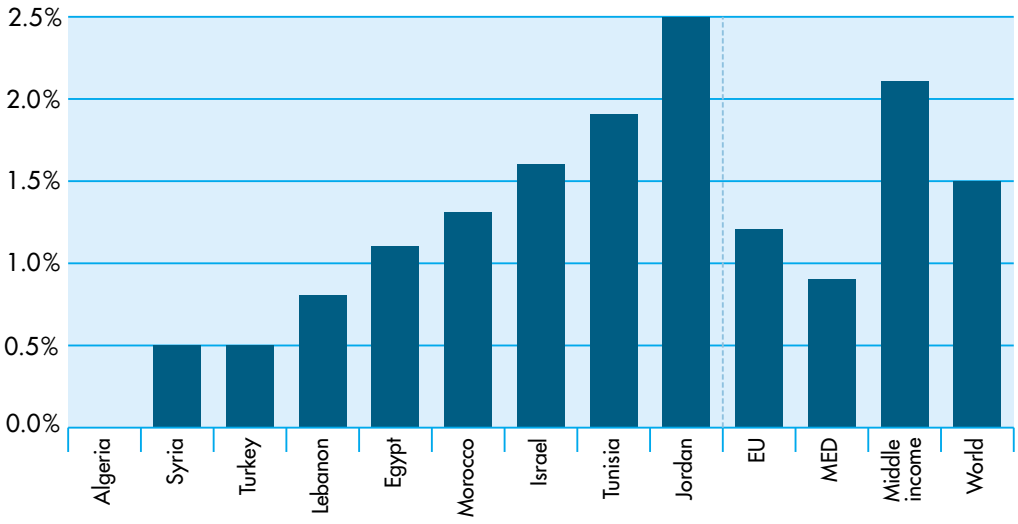
Lack of investment in skills and technology may also explain why agriculture still is important in the area (see Figure 3). For instance, in Egypt and Turkey, together good for nearly half of the region's production, agricultural value added contributes 15 - 20 percent of GDP. Industrial activity is more important in Algeria, but this is mainly due to gas production. In general, manufacturing is dominated by non-human capital-intensive sectors such as textiles, chemicals and food processing account.

**Figure 3.** Composition of GDP, 1997




Source: World Development Indicators

**Figure 4.** FDI (net inflows) as a percentage of GDP, average 1995-98




Source: World Development Indicators

***Importing technological know-how through FDI would be a way out for the region, but actual FDI is lagging far behind that observed in other medium income countries.***

One way for countries to deal with these issues is to import technical know-how via foreign direct investment (FDI). However, Figure 4 illustrates that, on average, net foreign direct investment reached only 0.9 percent of the region's GDP in the second half of the 1990s (increasing from 0.7 percent in the late 1980s). This should again be compared with the performance of other middle-income countries, which experienced an increase in net inflows up to 2.1 percent of GDP. Drivers behind this are meagre FDI inflows particularly in the larger economies (Egypt, Syria, Turkey), with some of the smaller countries doing better. The FDI that takes place in the region is dominated by a relatively small number of sectors including petroleum and mining (e.g. phosphates), basic industries such as chemicals, cement and steel, labour intensive export industries such as textiles and clothing, and tourism.

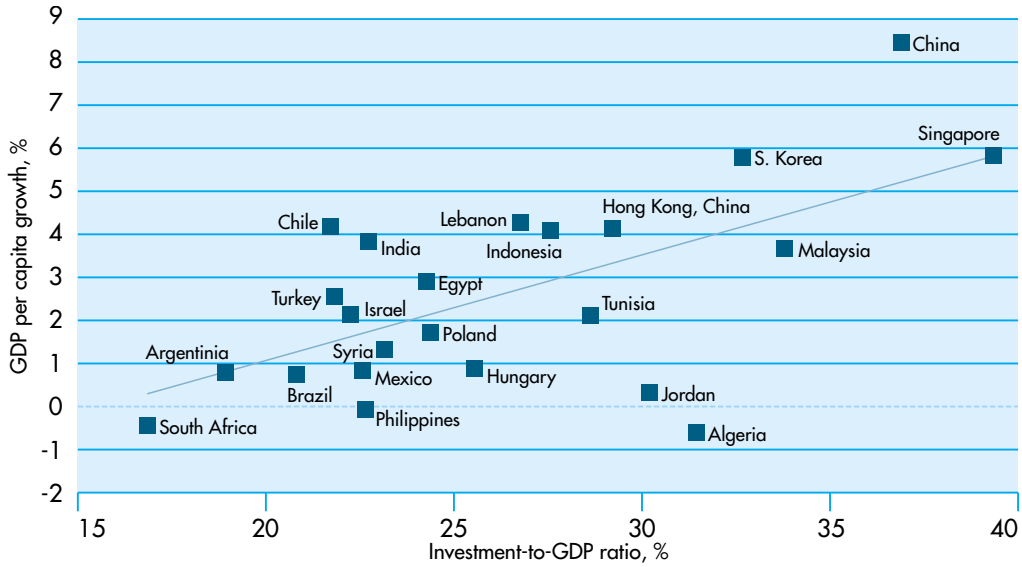
Weak capital inflows coupled with low domestic savings means that investment is too low to allow a catch-up with the EU average standard of living within a reasonable time horizon even if investment were to become much more efficient. For instance, in order for the Mediterranean region to reach 50 percent of the EU average standard of living by 2050 requires an additional 3 percent on top of the EU annual rate of growth of income per capita, or a Mediterranean per capita growth rate of roughly 4 ½ percent per annum. Figure 5 indicates this will require a high investment share - most likely of well over 30 percent. Instead, the actual regional investment level has been just over 20% of GDP. It should also be mentioned that a number of countries are situated far below the regression line, in spite of reasonably high investment shares. This observation implies that the *efficiency* of investment has been poor in these economies.

Low efficiency of investment should not surprise us too much, as a number of indicators illustrate the overextended government involvement in the region. Abrahart, *et al.*, (2000) show that public enterprises accounted for around 30 percent of GDP in Egypt and Tunisia in the early 1990s, and nearly 60 percent in Algeria, compared with only around 10 percent in other middle-income

***Capital formation is too low and too inefficient to induce catch-up growth. Weak capital inflows, low domestic savings and a large public sector are key to this outcome.***

countries (4). Since the pace of privatisation has been moderate, this situation has not changed substantially in the past decade. The World Bank (2000a) reports that non-military government employment still accounts for approximately one-fifth of total employment in the Mediterranean countries, twice the global average. The same study shows that this situation has been persistent. A side effect of the predominance of state enterprises is that public investment accounted for close to 40 percent of total investment in the 1995-98 period, nearly the double of that of the middle-income countries and roughly four times that of the European Union. In combination with a highly distorted incentive structure stemming from price controls, subsidised loans and import protection, it is highly unlikely that these investments have gone to projects enjoying the highest economic and social rate of return. State ownership is thus likely to be another key factor behind the persistence of low economic growth.

**Figure 5.** Investment-to-GDP ratio versus GDP per capita growth, 1980-98




Source: World Development Indicators

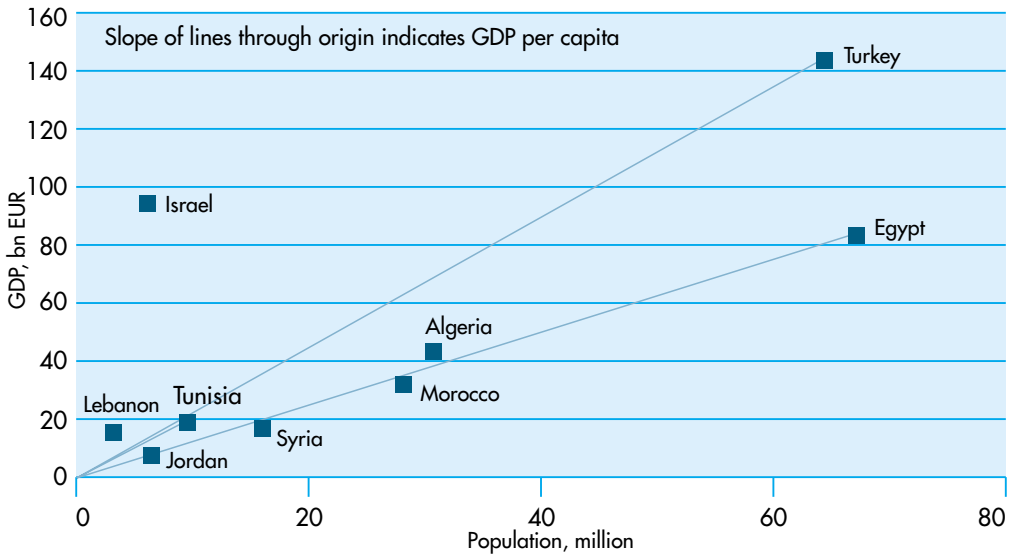
## 2.2 Three case studies

The general economic and structural trends outlined above apply to most non-EU Mediterranean countries. With the notable exception of Israel, all countries have relatively low levels of income as a result of a long history of modest per capita growth rates. These poor growth performances are in most cases the outcome of misguided development strategies. Behind these common threads, however, lie differences across countries. In order not to over-generalise the Mediterranean region, in this section we discuss three separate case studies of Egypt, Turkey and Tunisia (5). Figure 6 shows how these countries relate to the others in the region in terms of GDP and population. The comparison aims to show that improving economic performance may require a much more broad-based approach to reform than most Mediterranean countries have so far employed, while partial and selective reforms may continue to yield relatively small returns in terms of growth.

*4) Ottolenghi (1998) notes in his context that an important problem is also the economic soundness of public banks, as they hold important portfolios of bad loans. These loans had been given priority to State-owned enterprises that turned out not to be profitable.*

*5) This section draws on country analysis by the Economist Intelligence Unit (2000a,b,c), the Institute of International Finance (2000, 2001a,b), the International Monetary Fund (2001a,b), and the World Bank (1998, 2000b).*

**Figure 6.** GDP, population scatter plot




Source: World Development Indicators and Eurostat

### *Egypt*

Recall that Egypt accounts for about one-fifth of the region's GDP; however, on a per-capita basis the country's income level is relatively low. GDP per capita stands at around EUR 1000 - only half of the regional average. This low income level is the result of a growth in per capita GDP of around 3.5 percent since 1950, or around 1.5 percentage points above that of the EU. Obviously, this means that the rate of income convergence with the richer countries is extremely slow.

While sharing some of the growth-impeding characteristics of the Mediterranean region, such as a mid-range investment ratio and a rather low stock of human capital, these factors alone may not be enough to explain Egypt's poor growth performance. Several additional factors have further undermined its ability to fully reap its growth potential. The most important such factors are:

- Competitive distortions from oil exports: The large but transitory inflows of foreign currency from oil exports in the 1980s undermined non-oil industry through the so-called "Dutch Disease", as the extra boost to domestic demand pushed up prices on non-traded goods and services more than on traded goods, thus causing the real exchange rate to appreciate. As it became more profitable to engage in domestic sales rather than exports, investment in non-traded goods sectors crowded out tradable goods production. Egypt's exports currently stand at only 7 percent of GDP, which can be compared with over 20 percent for Indonesia, an open economy that otherwise shares many of Egypt's economic and demographic characteristics. Egypt's problem with distortive oil exports has been shared by a few other Mediterranean countries, notably Algeria and Syria.
- A high reliance on non-trade income sources: The problems from oil production have been augmented by other sources of non-trade incomes. Out of total current account receipts of around USD 15 billion in 2000, non-oil goods exports accounted for only 4 billion, with the rest consisting mostly of oil exports (USD 2 billion), tourism (USD 2 billion), Suez Canal receipts (USD 2 billion) and remittances from expatriates (USD 4 billion).

- An inward-looking growth strategy: Unlike many faster-growing emerging market economies, especially in Asia and Eastern Europe, Egypt has never fully moved away from its protectionist model of economic development. Domestic industries have continued to be protected from competition with high import tariffs (averaging 30 percent in the mid-1990s compared with 4–9 percent in East Asia). As a result, domestic industries have become largely uncompetitive in the international market.

- Heavy regulation and inefficient state intervention in the running of the economy: Despite growing private sector activity, a large portion of the Egyptian economy has been kept in state hands. Low productivity growth in the public sector stands out as a key source of Egypt's overall poor growth performance. This is immediately observable in comparison with private sector productivity growth. Whereas the public sector still accounted for 60 percent of employment in 1997 (down from 80 percent in 1980), it only accounted for 50 percent of value added (down from 85 percent in 1980).

The growth-impeding factors outlined above have been included in empirical studies to explain cross-country differences in growth performance. Based on this research, a recent World Bank (1998) study suggests that Egypt could substantially raise its per capita growth rate by changing its economic institutions and policies. For example, Egypt could boost its per-capita growth rate by two percentage-points if its economic efficiency was raised to the East Asian level, and another two percentage-points by raising its saving rate to the East Asian level. While such studies suffer from the difficulty of disentangling different causes from each other, they indicate that Egypt's weak growth performance is largely home-made rather than the result of exogenous factors.

Some progress has been made in macroeconomic management in the past decade. A series of IMF arrangements - coupled with massive external debt relief resulting from Egypt's participation in the Gulf war coalition - helped Egypt improve its macroeconomic performance during the 1990s. Through improved fiscal and monetary policies, the government has tamed inflation, reduced budget deficits, and built-up foreign reserves.

Despite its tendency to move slowly in the areas of structural reforms and liberalisation, Egypt also faces growing pressure for change here too. Firstly, several key sources of foreign currency, such as Suez Canal income and oil exports, are stagnant or falling in nominal terms. The need to finance key imports may necessitate policies more favourable to non-oil exports. A second challenge to the status quo is that the high birth rates of the 1970s and 1980s (having fallen only in the last decade) will continue to send a great number of young adults into the labour market. Unless economic growth accelerates to create enough jobs to absorb this inflow, a growing pool of unemployed may pose a greater threat to social stability than that stemming from economic restructuring. Thirdly, by signing an Association Agreement with the EU, Egypt's government has committed itself to phasing out its barriers to trade over the next decade. This will expose the true costs of existing economic distortions.

**Egypt may increase its per capita growth by reforming its institutions and economic policies.**

In comparison both with the rest of the region and with more successful emerging markets elsewhere, Egypt's likely key impediment to higher economic growth is its reluctance to move away from an inward-looking development strategy. Regardless of its relative progress in macroeconomic stabilisation, high economic performance will likely continue to be elusive unless economic policies are improved on a broader front.

## Turkey

With a current GDP of around EUR 144 billion and a population of 65 million, Turkey is by far the Mediterranean region's largest economy. On a per-capita basis, however, Turkey is only marginally richer than the Mediterranean region as a whole. As with Egypt, Turkey has suffered from a rather meagre growth performance, with real per capita GDP gaining around 3 percent between 1950 and 1990. The growth rate corresponds fairly well to Turkey's mid-range investment and literacy rates - at around 22 percent and 80 percent respectively. But that in itself does not explain why Turkey has not succeeded in raising either of these ratios to levels that would support higher economic growth in the medium term.

In light of Egypt's experience, a lack of openness would be a natural starting point in trying to find an explanation for Turkey's similarly weak growth. Historically, this is indeed a characteristic shared by Turkey as well. Exports of goods and services did not exceed 5 percent of GDP until around 1980. This has improved dramatically in the past two decades, however. A string of trade and capital market reforms in the early 1980s has pushed up Turkey's export ratio to some 30 percent of GDP. Turkey's greater openness, along with higher investment and literacy rates, suggests that its growth potential should have improved in recent years. But recorded performance does support such a conclusion, as per capita GDP growth has indeed slowed further from 2 percent in the 1980s to only 1.8 percent in the 1990s.

**In Turkey, highly volatile growth has hampered investment.**

Perhaps the best clue to Turkey's poor average growth performance is given by the highly volatile pattern of growth itself. Occasional high-growth periods have typically been interrupted by frequent and large contractions in economic activity. This growth volatility has if anything been accentuated in recent years. If another steep recession were to take place in 2001, Turkey would have experienced three contractions in excess of 5 percent within less than a decade. Understanding the causes of this macroeconomic instability is key to understanding why Turkey has failed to attain a higher average growth rate in the past two decades.

A key element of Turkey's macroeconomic instability is high inflation, which has risen to an annual average of 80 percent in the 1990s, up from 50 percent in the 1980s. Behind this high inflation rate lie large - and indeed growing - fiscal deficits, averaging a staggering 12 percent of GDP in the 1990s, up from 6 percent in the 1980s. Since these deficits have by far exceeded the growth rate of the economy, an explosive accumulation and eventually default on domestic debt has only been avoided by partially financing the deficits through central bank credit, i.e. printing money and imposing an inflation tax on money holders.

Such persistent fiscal weakness does not typically arise out of nowhere, but is the result of underlying structural and political causes. In the case of Turkey, the deteriorating fiscal situation in the 1990s can be broadly described as the outcome of incomplete and half-hearted market reforms over the past two decades. Although the economy opened up to trade and market-based activities were expanded in the 1980s, an environment suitable for a market-based economy was not created. One of the most serious policy failings was in the area of budgetary control. The mid-1980s saw a proliferation of extra budgetary funds and other quasi-fiscal entities (including State banks) over which the central government had very little control. Through its explicit or implicit backing of these institutions, the

**Incomplete reforms have caused a deteriorating Turkish fiscal situation in the 1990s.**

central government could not prevent the same inflationary money creation from these deficits as from its own. While some of the deficits were monetised, a rapid build-up of debt also took place in the 1990s, attracting private sector savings only by means of high real interest rates. These high real interest rates distorted economic incentives and reduced productive business investment. As a direct result of the runaway fiscal deficits, the growth potential of the economy was seriously impaired. Repeated IMF-led rescue packages have so far done little to change these dynamics.

### Tunisia

Tunisia has a diverse economy, with important agricultural, mining, energy, tourism, and manufacturing sectors. However, with a population of just below 10 million and a GDP of EUR 19 billion, its economy is small by any standard. At around EUR 2 000, GDP per capita is on par for the Mediterranean region. At some 2.5 percent per annum, Tunisia's post-war per-capita growth record has been poor, although notable improvement has been seen in the past 15 years.

Looking at some underlying economic fundamentals, the reasons for the weak growth performance are at first not obvious. Tunisia has, for example, scored relatively well in the areas of aggregate investment and human capital. Averaging just below 30 percent of GDP in the past two decades, Tunisia's investment ratio also looks healthy by international standards.

As with Egypt and Turkey, the explanation for Tunisia's moderate post-war growth performance is more likely to be found in its institutional and policy environment. In particular, inefficient State ownership and protection from foreign competition have hampered innovation and productivity growth in the domestic economy. However, Tunisia has done notably better in the area of macroeconomic stability than Turkey and has a more open economy than Egypt. To the extent that its economic performance is still below its potential, Tunisia may thus represent a third distinct economic model in the Mediterranean region.

As in several other Mediterranean countries, the impetus for economic reform has sprung from crisis in the aftermath of collapsing oil revenues in the late 1980s. In the three decades following independence in 1956, moderately rising living standards were achieved in an environment of state ownership, protectionism and exports of oil and phosphates. The unsustainability of this economic model became apparent when high real interest rates and the international debt crisis hit Tunisia in the mid-1980s. In response to this, the government began implementing reforms that have gradually transformed Tunisia into a market-based economy.

Key to these reforms has been to establish macroeconomic stability through fiscal discipline, low inflation and exchange rate stability. The success in reaching these goals are likely to be key elements behind a notable recent acceleration in per capita GDP growth, from a meagre 1.6 percent in 1980-95 to 4.5 percent since 1996. However, it remains uncertain how sustainable this growth acceleration is unless macroeconomic stabilisation is accompanied by equally strong strides in trade liberalisation and structural reforms.

Starting with foreign trade, it is highly unlikely that a small economy such as Tunisia's can permanently boost growth unless this acceleration continues to be underpinned by an expansion of

trade (its current export ratio stands at over 40 percent). A look at trade flows gives a reasonably favourable impression of Tunisia's competitive position. The EU market absorbs four-fifths of Tunisia's exports and this trade has helped bring about a beneficial structural shift in exports. Having been largely dependent on agricultural, oil and ore exports, Tunisia is now increasingly exporting manufactured goods. This group now accounts for four-fifths of total exports, up from less than one-third in 1980. This shift is important for economic growth because manufacturing has a greater potential for high productivity growth than is the case for primary goods.

Another positive development in opening up Tunisia's economy is its success in attracting more foreign direct investment (FDI) in recent years. Averaging 2.5 percent of GDP in the past five years, FDI inflows are above that of other low-income countries and only slightly below that of the middle-income country average. However, FDI flows to Tunisia still compare relatively poorly with that of Central and Eastern Europe, which receive FDI inflows to the order of 5 – 6 percent of GDP.

**Tunisia's economic performance stands out in the region, but further structural reforms are required to ensure sustainable high growth.**

Having achieved macroeconomic stability and making progress in expanding trade, the main impediment to sustainable high growth in Tunisia is likely to be in the area of structural reforms. But after decades of protection, there is also some justification for the fears of painful economic adjustments to economic and trade liberalisation. When Tunisia signed the EU Agreement in 1995, it was estimated that one-third of its industrial firms would collapse had they been exposed overnight to the full competitive pressures of free trade. To prepare the economy ahead of trade liberalisation, the government has begun implementing a programme (known as mise à niveau) aiming at upgrading the quality of industry, services and infrastructure before being exposed to free trade in 2008. So far, the programme's success rate has been moderate. While those firms undertaking the programme have succeeded in boosting output and exports substantially, two-thirds of the firms targeted by the programme had still not had their modernisation plans approved by the end of the 1990s. This has also resulted in growing pressure from businessmen to slow down the pace of trade liberalisation to give firms more time to prepare for the competition.

Despite these ongoing challenges, Tunisia stands out as the best example of a Mediterranean success story. For all its shortcomings, Tunisia has shown that better macroeconomic policies and export promotion do pay off in terms of higher growth and thus serves as a valuable role model for the region. It also shows that, despite these efforts, an even broader approach to economic reforms is required to reap the full benefits of its growth potential.

### 2.3 Some conclusions

The Mediterranean countries' consistent poor growth performance has prevented income convergence with the EU and the large remaining income gap poses a continuing threat to social stability on the EU's southern border. While the EU has a strong interest in assisting economic convergence, it is faced with the challenge of how best to promote such a development. It is evident from the discussion above that achieving this goal may require more decisive and broad-based economic reforms than are currently being undertaken in the region. The impediments to economic growth in the region are plentiful and often interconnected. For example, the absence of free trade is a key element in the weak state of domestic competition and innovation, which has in turn made many state enterprises unprofitable and increasingly dependent on state subsidies and soft bank

loans. The overextended government sector that sustains these enterprises is in turn dependent on import tariffs as a key revenue source.

***Ideally, all the different areas of the protected state-centered economies in the region should be reformed simultaneously.***

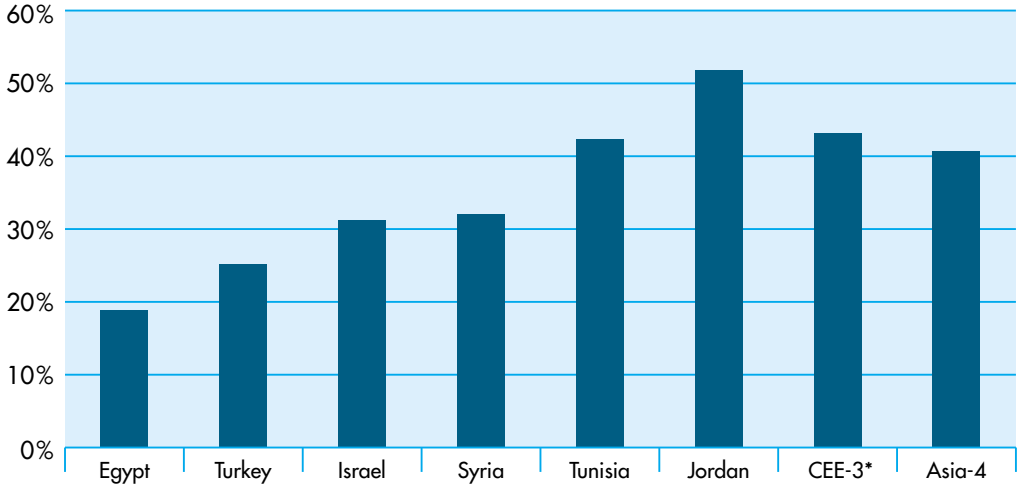
This interdependency between different areas of the protected state-centred economies in the region means that, optimally, they should all be reformed simultaneously. Even though the EU may have good reasons to encourage a more radical and broad-based transition process in the Mediterranean region, the means to achieve this are not necessarily available. On the other hand, the interdependency of different areas of economic reform can also be used to the advantage of a speedier reform process. By encouraging an economic opening-up of the region, the EU may facilitate in increasing pressures for faster reforms in other areas, such as government spending and domestic liberalisation. Even though one cannot conclude that trade agreements by themselves are sufficient in boosting substantially the growth prospects of the region, they may still serve as catalysts for broader reforms that may in the end bring the Med countries up on a higher sustained growth path. With this background let us turn to look more closely at the Euro-Med Agreements planned for the region.

## 3. The Euro-Mediterranean partnership

### 3.1 Trade in the region

As the major plank of the EU-Med strategy is trade related, it is useful to start with some more background on trade relations in the region. The case studies of the last section have already illustrated the limited openness of some Mediterranean economies. Figure 7 shows that, with the exception of Tunisia and Jordan, this is a more general phenomenon, and many countries have export ratios well below the level seen in the faster-growing economies in Central and Eastern Europe and East Asia. As mentioned in the case studies, Tunisia is an exception to the region's relative closeness in its recent progress in expanding trade, especially manufactured exports. Jordan has benefited from a free-trade agreement with the United States, although its high export ratio may also be affected by re-exports from neighbouring countries.

**Figure 7.** Exports of goods and services as a share of GDP, 1995-98 averages




** CEE-3 = Poland, Hungary and Czech Rep.; Asia-4 = Thailand, Philippines, Indonesia and Korea*

Source: World Development Indicators

**There is a lack of diversity in the composition of trade, and the region depends heavily on the EU market.**

In addition, there is a lack of diversity in the composition of trade as illustrated in Table 4. Data for the major sectors suggests that the region consists of economies whose exports are strongly focussed on fuels (Algeria, Syria, and to a lesser extent Egypt), manufactured goods (Israel, Turkey and Tunisia), or economies building on the tourism sector (Jordan, Morocco and Tunisia). Industrial goods account for the largest share in the region's imports.

**Table 4.** Exports and imports as percent of total, average 1995-98 or latest data

| | Percent of merchandise exports or imports | | | | | | | | | | Percent of commercial service exports or imports | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Food | | Agri-cultural raw materials | | Fuels | | Ores and metals | | Manu-factures | | Trans-port | | Travel | | Other | |
| | Exp | Imp | Exp | Imp | Exp | Imp | Exp | Imp | Exp | Imp | Exp | Imp | Exp | Imp | Exp | Imp |
| Algeria | 0 | 3 | 0 | 6 | 98 | 3 | 0 | 2 | 2 | 65 | 45 | 57 | 22 | 14 | 33 | 29 |
| Egypt | 10 | 6 | 5 | 6 | 40 | 2 | 6 | 3 | 39 | 61 | 32 | 34 | 35 | 25 | 33 | 41 |
| Israel | 5 | 1 | 2 | 1 | 1 | 7 | 1 | 2 | 91 | 82 | 24 | 42 | 35 | 25 | 41 | 33 |
| Jordan | 25 | 2 | 2 | 2 | 0 | 13 | 24 | 3 | 49 | 61 | 21 | 50 | 43 | 30 | 36 | 21 |
| Lebanon | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Morocco | 32 | 5 | 3 | 5 | 2 | 16 | 13 | 4 | 50 | 57 | 19 | 45 | 67 | 25 | 15 | 30 |
| Syria | 15 | 3 | 6 | 3 | 65 | 2 | 1 | 2 | 12 | 75 | 15 | 54 | 77 | 40 | 8 | 6 |
| Tunisia | 9 | 3 | 1 | 3 | 9 | 7 | 2 | 3 | 80 | 76 | 25 | 48 | 63 | 21 | 13 | 31 |
| Turkey | 19 | 5 | 1 | 5 | 1 | 11 | 3 | 5 | 75 | 71 | 13 | 28 | 36 | 20 | 51 | 52 |
| EU | 9 | 3 | 2 | 3 | 2 | 7 | 2 | 4 | 82 | 74 | 25 | 25 | 31 | 31 | 44 | 45 |
| Middle income | 12 | 3 | 3 | 3 | 16 | 9 | 5 | 3 | 61 | 72 | 29 | 34 | 38 | 26 | 34 | 39 |

Source: World Development Indicators

The Mediterranean basin depends heavily on the EU market for its trade. In fact, a study by FEMISE (2000), reports that the trade relations of the Mediterranean countries can be summarised succinctly as follows:

- The Mediterranean countries depend on the rest of the world for a number of agricultural products and raw materials except for petroleum - the deficits with non-EU countries range from 3/4 to 5/6 of their total deficits in these categories of products
- Mediterranean countries are much more dependent on Europe for manufactured products (the region has a deficit of USD 1 billion with the rest of the world compared to a deficit of USD 10 billion vis-à-vis Europe), and for equipment and chemicals (where Europe accounts for the vast majority of the region's trade deficit);
- On the other hand, the region enjoys a surplus in mineral fuels and, to a far lesser extent, in some commodities in the iron and steel industries. Here, the surplus is essentially directed to Europe.

**Trade among Mediterranean countries themselves is extremely low.**

Table 5 clearly illustrates this strong trade dependence on Europe. In general, roughly 50 percent of the Mediterranean region's overall trade takes place with the Union. Within Europe, the Mediterranean market is the most important for exporters in Greece. Over one-quarter of Greece's total exports cross the Mediterranean Sea (see Table 6). The region also accounts for about 12-15 percent of the exports from Spain, Belgium and Luxembourg, France and Italy. Southern EU countries import in turn about 10 percent of their total from the region (mostly energy imports), but the bi-lateral trade balances clearly remain in favour of the EU Member States, and have increased over time. In 1997, the European trade surplus amounted to roughly USD 30 billion, as against 12 billion in 1992.

**Table 5.** Share of EU in Mediterranean trade

| Country | percent of the country's total exports to the EU | | percent of the country's total imports from the EU | |
|---|---|---|---|---|
| | average 1991-95 | average 1996-99 | average 1991-95 | average 1996-99 |
| Algeria | 69.5 | 62.9 | 59.6 | 58.8 |
| Egypt | 41.9 | 39.0 | 41.6 | 36.6 |
| Israel | 33.2 | 31.1 | 51.9 | 49.4 |
| Jordan | 4.4 | 7.0 | 33.2 | 32.2 |
| Lebanon | 15.4 | 21.9 | 51.9 | 47.9 |
| Morocco | 63.1 | 67.3 | 55.4 | 57.4 |
| Syria | 57.2 | 57.2 | 38.4 | 32.7 |
| Tunisia | 78.5 | 79.7 | 73.0 | 72.9 |
| Turkey | 51.3 | 50.1 | 47.0 | 52.3 |

Source: Eurostat

**Table 6.** Share of Mediterranean basin in EU trade

| Country | percent of the country's total exports to the Mediterranean region | | percent of the country's total imports to the Mediterranean region | |
|---|---|---|---|---|
| | average 1991-95 | average 1996-99 | average 1991-95 | average 1996-99 |
| Austria | 4.9 | 4.4 | 4.5 | 4.1 |
| Belgium / Lux | 15.0 | 14.6 | 6.5 | 7.7 |
| Denmark | 4.5 | 4.4 | 2.3 | 2.2 |
| Finland | 4.7 | 4.9 | 1.2 | 1.3 |
| France | 13.0 | 13.5 | 10.0 | 10.0 |
| Germany | 7.0 | 6.9 | 5.7 | 5.4 |
| Greece | 27.6 | 26.3 | 10.5 | 10.9 |
| Ireland | 4.9 | 4.4 | 1.7 | 2.2 |
| Italy | 13.4 | 12.1 | 9.8 | 9.8 |
| Netherlands | 8.2 | 8.9 | 4.6 | 4.1 |
| Portugal | 8.3 | 8.6 | 8.3 | 6.3 |
| Spain | 12.4 | 14.8 | 8.0 | 9.2 |
| Sweden | 4.4 | 5.4 | 1.7 | 1.8 |
| UK | 5.9 | 6.5 | 3.1 | 3.5 |
| EU | 8.9 | 9.1 | 6.0 | 6.1 |

Source: Eurostat

Finally, the flow of trade among Mediterranean countries - so called South-South trade - is extremely low. Tovias (1997) illustrated that in the mid-1990s, for example, intra-regional exports averaged around 5 percent, ranging between roughly 2 percent of total exports for Algeria to about 18 percent for the outlier of Syria. Later studies, such as Comijs (2000), reinforce that South-South trade has roughly remained at that level. In fact, FEMISE (2000) reports that the development of South-South trade in the period 1970-98 has been flat, fluctuating between only 4 percent to 7 percent of the trade of the Mediterranean countries. This should be contrasted with the increase in intra-regional trade flows in other regions, i.e. a rise from 11 percent to 25 percent for South American countries (Argentina, Chile, Brazil, Paraguay), from 19 percent to 22 percent in East Asian countries, and from 1 percent to 11 percent for the Andean Pact (Colombia, Ecuador, Peru, Venezuela).

The question, then, is to what extent will new Association Agreements with the EU change this picture?

### 3.2 The evolving nature of EU-Mediterranean Agreements

As mentioned in introduction, the Barcelona Process calls for a Euro-Mediterranean free-trade area by 2010 covering goods, services and capital. This is to be achieved via Association Agreements between the EU and individual partner countries (5). These come with financial assistance through the MEDA program and loans from the EIB. In 2000-6, EU grants are expected to amount to about EUR 5 1/2 billion and loans from the European Investment Bank are currently envisaged to reach about EUR 7 1/2 billion. To illustrate the size of these resources note that, on an annual basis, they are equivalent to around half a percent of the region's GDP.

Although the Agreements are negotiated bilaterally between the EU and each Mediterranean partner, they have certain aspects in common. They envisage (i) reciprocal free trade in most manufactured goods, (ii) in the longer-term a move to preferential and reciprocal access for agricultural products, and (iii) working towards a gradual liberalisation of trade in services and capital. The Agreements will be implemented over a multi-year period. The freeing of trade in industrial goods is supposed to follow a specific timetable. By contrast, the Agreements are less specific in terms of opening up agricultural markets and trade in services and capital (6).

**The introduction of reciprocity is one important difference between the current EU Association Agreements and previous Cooperation Agreements.**

One of the key changes from earlier Cooperation Agreements between the EU and the region is the introduction of reciprocity, implying that Mediterranean countries have to grant the same concessions to the EU that they have already benefited from themselves. Another important difference is the mentioning of trade in services and capital. Finally, the new Agreements aim at encouraging intra-Mediterranean integration through the establishment of free trade not only between the EU and individual countries but also among Mediterranean countries.

5) This section draws on background material by the European Commission (1998, 1999, 2000a, 2000b, 2001a,b) and the World Bank (1993, 1995).

6) The first Agreement was negotiated with Tunisia in 1995. This became a benchmark for subsequent negotiations with other countries. Given the similarity of the Agreements and as we are interested in their general implications, the following discussion rests mainly on the Agreement between Tunisia and the EU.

### Box 2. Free trade and "new regionalism"

***Free trade: the ultimate goal***

Traditional trade theory suggests that multilateral free trade maximises world welfare and that small countries - like those in the Mediterranean region - would benefit from a unilateral move to free trade even if the rest of the world does not reciprocate. This raises the question of why such countries do not move unilaterally to free trade and instead seek Preferential Trade Agreements (PTAs) and participate in multilateral trade liberalisation mainly in the framework of the WTO. Three explanations are worth considering:

- First, while unilateral trade liberalisation is welfare enhancing, it inevitably has distributional implications and is thus opposed by import-competing sectors.
- Second, the adjustment to a higher-welfare equilibrium is not instantaneous but takes time. As a result, liberalisation often involves up-front costs (such as temporary unemployment and balance of payments problems) whereas benefits may not come immediately. This inevitably creates resistance to unilateral steps.
- Finally, although unilateral action has its merits, reciprocal trade liberalisation is even better. Against this background, a country may regard own trade concessions as leverage for negotiating better access for its exporters to foreign markets. Of course, it is also possible that deep-rooted mercantilism leads decision-makers to believe that removing import restrictions is beneficial only if other countries reciprocate.

***New regionalism***

Given these political economy considerations, multilateral and preferential trade agreements seem to have been more palatable than unilateral actions toward free trade. Regional PTAs, in particular, have mushroomed in recent years and there are now well over a hundred agreements, involving most nations.

Ethier (1998) has pointed out that the new regionalism differs considerably from attempts to establish regional PTAs in 1950-60s. For one thing, it takes place in an international environment that is characterised by a more open trading system, a greater trust in markets as a means for allocating resources, and a far more prominent role of foreign direct investment. For another, new regional arrangements link one or a number of small countries that have recently embarked on wide-ranging economic reforms to a large country or trading block, envisage a modest degree of trade liberalisation, and foresee this liberalisation to take place primarily in the small countries.

Box 2 recalls the merits of free trade, sketches the difficulties in establishing it, and describes what has become known as "new regionalism". The Euro-Med Agreements have many features of this new regionalism. First, they concern the relationship of small countries with a large regional trading block. Second, the degree of trade liberalisation is modest when compared to the reduction in trade barriers already achieved under previous preferential and multilateral trade agreements. Finally, they are one-sided as most of the reduction in trade barriers is envisaged to take place in the Mediterranean countries. This is mainly because - with the notable exceptions of agriculture and textiles - most exports of Mediterranean countries already have free access to EU markets.

To fully appreciate the character of the Agreements it is useful to point out a few differences between them and the Europe Agreements with the Central and Eastern European Countries. First, the Euro-Med Agreements do not aim at the same degree of deep integration envisaged with Central and Eastern Europe and they contain no commitment to eventual EU membership. Second - and maybe

related to the first point - the Euro-Med Agreements are with countries where the pace of economic reforms has been rather timid and in no way comes close to the fundamental reorientation of economic policies in Central and Eastern Europe. Third, the Euro-Med Agreements themselves seem to mirror the relative lack of reform ambition. For instance, while they aim at improving the conditions for the flow of capital to the region, (FDI) - an important impetus to economic revival in Central and Eastern Europe - has remained a sensitive issue. Last, but certainly not least, while it is a stated goal of the Euro-Med Agreements to encourage the integration among the Mediterranean countries, efforts to establish freer trade within the region have so far not been very successful. This is in stark contrast to what has happened in Central and Eastern Europe, which saw the creation and extension of free trade agreements between the countries of that region.

It is obviously futile to speculate whether or not the Mediterranean approach to economic reforms would have been akin to efforts in Central and Eastern Europe had there been the prospect of deeper integration with the EU (or whether the EU would have offered deeper integration had Mediterranean countries showed a stronger commitment to reforms). But just what may be the likely benefits and costs of the Agreements as they are currently conceived?

### 3.3 Benefits and costs

The main concepts relevant for this assessment are sketched in Box 3. In addition to the debate about the welfare effects of regional trade agreements on participating countries, there is a dispute as to whether such agreements foster or hinder the development of multilateral free trade: Are such agreements building or stumbling blocks on the road toward the ultimate goal of multilateral free trade? We will not address this issue, here the gist of the controversy is summarised in Box 4.

#### Benefits

**The Agreements will alleviate market access. This has the potential to reduce uncertainty and to stimulate investment.**

The Agreements confirm Mediterranean producers' free or preferential access to EU markets. At the same time they envisage the harmonisation and mutual recognition of standards, which should also alleviate market access. Overall, this should reduce uncertainty and as such the Agreements have the potential to stimulate investment for export production. However, the positive effect is likely to rest mainly on reducing uncertainty given that Mediterranean manufacturing has already fairly free access to EU markets and, more importantly, that a further opening of the EU for agricultural products is bound to be limited.

In assessing the potential benefits of the Euro-Med Agreements, a number of commentators, such as Hoekman and Djankov (1996) and Ghesquiere (1998), have emphasised that the Agreements provide an institutional framework for the Mediterranean countries to enhance the scope and credibility of far-reaching economic reforms. They highlight that such reforms would add to the dynamic benefits often associated with the creation and deepening of regional trade agreements, in particular if they stimulate the inflow of foreign direct investment.

The role of regional trade agreements as a catalyst for an overall economic reform strategy and for foreign direct investment has also been emphasised by Ethier (1998). Seen in the context of the Euro-Med Agreements, his analysis suggests, however, that not all countries can hope to attract foreign direct investment but only those that can positively differentiate themselves from their peers.

***Only those countries that will successfully differentiate themselves from their peers will be able to attract substantial foreign direct investment.***

### Box 3. Welfare consequences of regionalism

Intuition suggests that if free trade is welfare-enhancing for small countries and the world at large, any reduction of barriers to trade - even if on a preferential basis - will also be beneficial. Viner (1950) demonstrated that this conclusion is, in general, not correct. He introduced the by now classic distinction between the welfare effects of trade creation and trade diversion. Preferential Trade Agreements (PTA) result in welfare enhancing trade creation between PTA partners. At the same time, however, they could induce a welfare-reducing diversion of imports from cost-efficient non-members to less efficient PTA members. In addition to having these static welfare effects, PTAs may foster economic growth in member countries, eventually spilling over to non-member countries. In fact, the possibility that PTAs generate dynamic gains for non-members is the main reason why WTO rules allow a waiver for such agreements although they violate the principle of non-discrimination. A stimulation of economic growth can be expected if PTAs enable the exploitation of economies of scale, increase intra-industrial specialisation, enhance competition among firms in the PTA, accelerate innovation, and stimulate saving and investment.

Nevertheless, even with the possibility of dynamic gains the welfare consequences for PTA members - let alone the world at large - are *à priori* unclear. In essence, the underlying issue represents an application of second-best theory. A multilateral trade system that is characterised by non-discriminatory trade restrictions is clearly not as good as the first-best solution of free trade. However, introducing free(r) trade for a subset of countries and, thereby, deviating from the Most-Favoured-Nation (MFN) principle may make things worse. Under these circumstances, it would be better to stick with the second-best solution of multilateral, non-discriminatory trade restrictions.

The question of whether PTAs are good or bad remains controversial. Looking at the raw numbers we do typically see expansions both in trade within the blocs and in external trade, suggesting that there is no significant evidence of trade diversion. However, looking at the raw data alone fails to distinguish the trade effects of regional integration from other economic changes. For instance, a larger GDP or population will by itself induce more demand, and hence trade. To identify the effects of the regional integration agreement, the researcher must try to control for such other changes, and this can be done with varying degrees of sophistication.

The standard way to control for other effects is to build an econometric model of trade, and to see whether the estimated relationships change as consequence of implementing the regional trade agreement. The usual model for such purposes is the gravity model, which estimates bilateral trade between countries, generally for a sample of many countries and for several different dates. It explains trade between pairs of countries as a function of i) their GDPs and populations - as mentioned, larger economies trade more; ii) the distance between countries as a proxy for transport costs, cultural similarity and business contacts, and iii) physical factors such as sharing a land border, and being landlocked or an island. Subsequently researchers add to the list dummy variables that capture whether or not countries are in a particular regional integration agreement at the time. If these show up positively for pairs of countries, then they indicate that these countries trade more than would be suggested by the other factors as a result of the association. A fall in the value of a dummy for trade between a member and non-member is indicative of trade diversion, particularly if the fall shows up after formation of the association agreement.

Using this technique, Soloaga and Winters (1999a,b) investigated the effect of the revival or creation of nine major blocs over the period 1980 and 1996. The results indicate that following regional integration schemes the EU, EFTA, and NAFTA became more intensively involved in within-bloc trade than would have been suggested by other factors, but the effect has been fading away over time. The impact of the Association Agreements on between-bloc trade has in general been negative, and robustly so for the EU and EFTA. Taken together, these findings are seen as sufficient evidence for trade diversion within the regions as a result of the Association Agreement.

The analyses for four other regional integration agreements (CACM, Andean Pact, Mercorsur, and ASEAN), however, suggest no convincing evidence of trade diversion. By contrast, the Association Agreements could be identified as key to both increasing propensities to import and export, suggesting strong creative effects from general trade liberalization. The exception was Mercorsur, where imports and export propensities displayed opposite movements. The authors conjectured that here the increased trade performance has been more influenced by competitiveness than by trade policy.

What do we learn from all this? It is extremely difficult to control for other determinants of trade, but once one does there appears to be weak evidence that between-bloc trade is smaller than it otherwise might have been in at least some of the investigated revived or newly created associations. However, the picture is sufficiently mixed, so that it is not possible to conclude that trade diversion has been a major problem - if it did, it appeared to be in the relatively highly developed regions.

Moreover, Ethier (1998) considers the controversy about trade diversion less relevant for recent regional trade arrangements. Stressing the distinguishing features of new regionalism, he finds reform creation and investment diversion more pertinent consequences. For small, reform-minded countries, a regional agreement with a large partner provides an opportunity to lock-in political, institutional, and economic reforms - including trade liberalisation - making them difficult to reverse for subsequent governments. In that sense, the new regionalism may help, if not create, reforms. A regional agreement with a large partner also signals a country's commitment to reforms, making it a more attractive location for foreign direct investment. As Ethier finds it unlikely that the new regionalism will boost foreign direct investment in general, he anticipates investment diversion rather than creation. An important insight of Ethier's discussion is that the smaller partner country may find a regional agreement appealing even if it is expected to deliver most of the trade concessions. And then, if overall foreign direct investment is limited and tends to cluster geographically, an individual country may want to reach such an agreement before others do.

One could argue that the timely and determined implementation of the Euro-Med Agreements and, more importantly, of far-reaching economic reforms are a means of successfully attracting foreign investors. Overall, there may be a first-mover advantage, with a virtuous cycle of commitment to reform, foreign direct investment, and successful reform implementation occurring in those Mediterranean countries that step into the cycle first.

It seems obvious to mention EU financial assistance on the benefit side. However, to some extent the purpose of this assistance is to cover the costs arising from implementing the Agreements and, thus, there may not be any net benefit. But it is also true that most of the costs, which we analyse below, are temporary or address questions of income distribution in the countries concerned. After all, the general point made in Box 2 is that free trade, even if implemented unilaterally, is in the long-run interest of the Mediterranean countries. If this is so, the EU financial and technical assistance is indeed a net benefit and, in fact, the availability of such assistance is a strong incentive for Mediterranean countries to seek regional trade agreements in lieu of liberalising trade unilaterally or in the context of multilateral trade negotiations.

### *Costs*

Like any change in relative prices, a reduction in trade barriers forces structural change. As it takes time to put a new economic structure in place, there may be temporary costs such as transitional unemployment, idle capacity, and a weakening of the balance of payments. Although benefits are anticipated to more than offset costs later, the temporary burden is real and may slow down or even prevent the implementation of the associated reforms.

**Box 4. Building blocks or stumbling blocks**

Even if regional trade agreements are (world) welfare-enhancing in the short to medium term, they could eventually lead to results that are inferior compared to what can be achieved via multilateral trade agreements. In essence, the question is whether regional trade agreements are "building blocks or stumbling blocks" toward multilateral free trade (Bhagwati 1991). An optimistic scenario could read like this: An initially shallow Preferential Trade Agreement gradually turns into a single market with an increasing number of participants; due to its increasing strength, the single market succeeds in negotiating substantial trade liberalisation with the rest of the world, which may or may not include regional trading blocks and/or other single markets. A less promising outlook would envisage the emergence of a limited number of deeply integrated regional blocks, each having numerous PTAs or FTAs with countries not belonging to any of the blocks. Obviously, things could be worse: The regional blocks could clash, leading to an escalating trade war between blocks and an increase in intra-regional protection.

Walters (1999) reviews the literature about whether regional trade agreements are building or stumbling blocks and concludes: "We don't know yet". Dornbusch (1993) and Ethier (1998), for instance, present the case for regionalism whereas Bhagwati, Greenaway and Panagariya (1998) and Bagwell and Staiger (1999) - to name a few - see regionalism as a threat to the ultimate goal of multilateral free trade. In fact, Bhagwati (2001) considers the future of the multilateral trading system at risk and identifies as the main culprit the "European disease" of ever-expanding discriminatory trade liberalisation.

Despite many open questions, there is consensus that a positive impact of regionalism on free trade is the more likely the deeper the process of integration. As to the European context, Sapir (1999) makes the distinction between EU integration and EU regionalism, with the former capturing deep integration, such as the creation of the EU Single Market, and the latter characterizing various PTAs and FTAs between the EU and non-EU countries. He suggests that there is broad support for deep integration whereas shallow forms of integration rightly encounter scepticism.

In this context, it is worth noting that the Agreements could initially imply an increase in the "effective" protection of national manufacturing. This is because the sequencing of removing import tariffs is such that tariffs on inputs and machinery will be given priority relative to those on final products, thus reducing the domestic cost of inputs before output prices fall. As a result, the temporary costs discussed here are essentially shifted forward in time - indeed import-competing industries may reap transitory gains. As Hoekman and Djankov (1996) note this makes the Agreements politically more palatable but it is clear that the burden will be even larger as and when all import tariffs are finally abolished.

***The decline in import tariff revenue when trade barriers will be taken down is a particular issue in the Mediterranean political debate.***

As mentioned, regional trade agreements could induce partner countries to forego cheaper import options from non-member countries. Such negative trade diversion is the more likely (i) the smaller is the share of EU imports in overall imports of Mediterranean countries and (ii) the higher are import tariffs prior to implementing the agreements. How trade diversion will affect the Mediterranean regions remains essentially an empirical question, and, as we have seen in Box 3, the general evidence does not give clear guidance . Let us only note that countries such as Egypt, Jordan and Syria import less from the EU than other Mediterranean countries and are thus more exposed to negative trade diversion effects than other Mediterranean partners.

A particular worry of Mediterranean countries is the decline in import tariff revenue that is unavoidable if tariffs are abolished. Indeed, taxing external trade is an important source of government revenue in the region, typically accounting for about one-sixth of revenues (see Table 7). These numbers help explain some of the anxiety on the part of the Mediterranean countries and the slow pace in negotiating and ratifying the Agreements.

It is important to bear in mind that in the case of regional trade agreements the government revenue problem involves more than simply clawing back lost import tariff revenue with other government taxes and levies, which is clearly a challenge in its own right. In contrast to a non-discriminatory import tariff reduction, dismantling tariffs only for EU imports may not reduce domestic import prices if these are set by imports coming from the rest of the world. In these circumstances, there would be no trade creation, but only trade diversion. The decline in import revenue would accrue as a rent to EU exporters. In principle, EU financial transfers could compensate for the shifting of rents to the EU, but they would have to be additional to what Mediterranean countries would receive in the absence of the Euro-Med Agreements. In this context, Ghesquiere (1998) alludes to concerns of the Lebanese government that financial transfers are mainly determined by the size of the population, per capita income, and progress in carrying out economic reforms but that the costs of implementing the Agreements are not sufficiently taken into account.

**Preferential and free trade agreements may give rise to a "hub-and-spoke" problem.**

**Table 7.** Taxes on international trade and share of government revenue

| | percent of central government revenue | weighted mean import tariff, percent, 1998** based on effectively applied rates | | |
|---|---|---|---|---|
| | 1998 | all products | primary | manufactured |
| Algeria | 16 | 14.1 | 8.5 | 17.1 |
| Egypt | 13 | 13.7 | 7.4 | 17.5 |
| Israel | 1 | .. | .. | .. |
| Jordan | 23 | .. | .. | .. |
| Lebanon | 44 | .. | .. | .. |
| Morocco | 15 * | 21.1 | 26.0 | 19.6 |
| Syria | 12 | .. | .. | .. |
| Tunisia | 14 | 28.9 | 21.4 | 30.2 |
| Turkey | 2 | 6.0 | 8.1 | 5.2 |
| EU | 0 | 2.7 | 1.8 | 3.0 |

Notes: *) Morocco: 1995; **) Turkey and Morocco: 1997, EU: 1999.

Source: World Development Indicators

A final issue is examined in detail by Sapir (1998). Compared to a non-discriminatory tariff reduction, preferential and free trade agreements may give rise to a hub-and-spoke problem. In the presence of intra-Mediterranean trade restrictions, the Agreements provide an incentive to locate the production of goods for the Mediterranean region in the EU. EU producers, say, in Greece would use their location (the hub) to supply duty-free various Mediterranean countries (the spokes) although production in the Mediterranean region enjoys a comparative advantage.

### Net benefits

As the Agreements have been in existence for only a short period of time, it is too early to measure their actual impact on the Mediterranean countries. However, a number of studies gauge the net benefits on the basis of computable general equilibrium models for Morocco, Tunisia, and Egypt. Stern (1999) reviews these studies, emphasising the following results:

- In the case of Morocco, establishing free trade with the EU is estimated to increase welfare by 1.7 to 2.4 percent.
- For Tunisia, free trade with the EU is modelled to increase welfare by 3.3 to 4.7 percent.
- Egypt is estimated to reap a welfare gain of 2 percent following the creation of free trade with the EU. Another study indicates that under optimistic assumptions welfare gains of up to 5.3 percent are possible.

These estimates are broadly confirmed by Rutherford, Rutström and Tarr (1999). Using the same type of model, they expect welfare gains of 3 to 5 percent for the typical Mediterranean economy. In general, these analyses also find that a non-discriminatory unilateral removal of import restrictions and the creation of multilateral free trade would be somewhat more advantageous. While not negligible, the estimated welfare gains from the Agreements seem modest. One should bear in mind, however, that the dynamic gains are inherently difficult to model and the positive impact on the Mediterranean countries could be much larger.

**The Euro-Med Agreements will help the region on its way to a more prosperous path of economic development. They will not, however, suffice by themselves.**

Weighing the pros and cons of the Euro-Med Agreements, and taking the broader political economy view discussed before, we are confident that the Agreements help getting the Mediterranean region on a more prosperous path of economic development. Having said this, it is obvious that there is scope for improvement (7). Ideally, one would like to see the EU and its Mediterranean partners moving jointly toward further trade liberalisation on a multilateral basis. Not only would this address the problems of trade diversion and rent shifting within the Euro-Mediterranean trade area, but it would also bring benefits for the rest of the world.

The creation of free trade between Mediterranean countries is an important objective of the Agreements, but so far progress seems to have been very limited. Introducing the Agreements country-by-country rather than with a “big-bang” for the region may be part of the explanation. But a positive effect of intra-Mediterranean free trade would mitigate the hub-and-spoke problem if, at the same time, rules of origin and the content rule are not too binding. This would be further improved by establishing an EU-Mediterranean customs union - ideally coming along with a further reduction in common external tariffs. But even then, EU locations may still have an edge. When locational and technological externalities in the Member States outweigh transport costs to the Mediterranean countries, it remains in the interest of firms to locate in the economic “core” rather than the “periphery”.

When discussing this hub-and-spoke phenomenon we noted that it tends to stimulate investment in the EU rather than in the Mediterranean region. While this is true, it would be grossly misleading to consider this an important reason for the lack of foreign direct investment in Mediterranean

7) See also Hoekman and Djankov (1996) and Ghesquiere (1998).

countries compared to what we have witnessed in Central and Eastern Europe and in other emerging markets. The low level of foreign direct investment seems to largely reflect deficiencies in the economic framework of the Mediterranean countries, which - by and large - does not make them prime destinations for foreign investors. Improvements in economic policies may be more important than better aligning the Agreements with the objective of multilateral free trade.

This observation leads us to some final comments on the way ahead for the region.

### 4. The main ingredients for future prosperity

**Increased openness is only one ingredient in a broad range of required reforms.**

When one compares the poor growth performance documented in Section 2 with the likely benefits of the Association Agreements set out in Section 3, it becomes clear that increased openness is only one element in a broad range of economic reforms that the Mediterranean region would need to apply in order to permanently boost its growth prospects. Indeed, the region's historically low trade ratios are not exogenously determined, but are the result of decades of inward-looking development strategies, dominated by extensive trade protection, domestic regulation and state ownership.

The need to apply economic reforms on a broad scale stems from the mutual dependency of trade protection and state involvement in the Mediterranean economies. On the one hand, government ownership and subsidies are in many cases motivated by the desire to sustain inefficient and loss-making state enterprises for political reasons. These inefficiencies stem from a combination of trade protection, subsidies and domestic regulation, which distort incentives and hamper competition and innovation. On the other hand, the high levels of government spending are themselves a source of persistent high import tariffs because of the difficulty of replacing this key source of government revenue with more broad-based domestic taxes. As is often the case in underdeveloped fiscal systems, broad domestic tax bases are hard to develop due to poor administration, low incomes and widespread tax evasion in the unofficial economy. As a substitute for import tariffs, governments have been tempted to resort to taxing profits and capital gains in the official corporate sector, but doing so excessively risks undermining its further development and expansion. From this perspective, it is difficult to see how sharply reduced import tariffs can be achieved without simultaneously scaling back government spending to more sustainable levels.

Reducing trade barriers quickly has, of course, become a sensitive issue in the Mediterranean countries particularly because of the low level of efficiency and competitiveness of domestic industries. Decades of heavy import protection have contributed to an undermining of external competitiveness that has led to the perpetuation of tariffs. As we argued earlier in the case study of Egypt, import protection tends to raise the return on investment on import-substituting production relative to exportable goods. As a result, economic resources are allocated disproportionally to domestic import-substituting goods and services, starving the growth of export industries. The undermining of exports has been reinforced in several cases by extraordinary sources of hard currency, such as oil exports, foreign aid and remittances. These inflows of foreign currency have tended to appreciate real exchange rates and thus further undermined the competitiveness of exports. As a result, export ratios in the Mediterranean region have tended to be low by international comparison even though exports as such have not generally been subject to explicit trade barriers. While domestic concerns of a too rapid exposure of domestic industry to

international competition are understandable, they also seem to underestimate the ability of a freely determined exchange rate to restore competitiveness. Rather than wiping out domestic industries on a wide scale, free trade combined with a competitive exchange rate is more likely to stimulate a realignment of economic activity. In effect, slow progress in liberalising exchange rates is undermining the goal of removing trade barriers.

The Agreements between the EU and individual Mediterranean countries have largely neglected the opening up of borders to trade and capital flows between Mediterranean countries. The strategy so far seems based on "static comparative advantage" and inter-industry trade, essentially viewing individual countries as a cheap production base for low-tech manufactured goods, aiming at a world market. This view may be associated with some problems, however. Since manufacturing is typically characterised by increasing returns to scale, trade in manufactured goods tends to develop along the lines of scale economies and intra-industry rather than inter-industry trade. When economies of scale are key to competitiveness, the size of the market becomes crucial. FDI and other investment in the manufacturing industry typically target local and regional demand as much as they aim for exports to the rest of the world. In this sense, remaining trade barriers between the Mediterranean countries themselves may pose a serious problem for the development of a manufacturing-based export industry by fragmenting the regional market. While progressing slowly, there are promising signs in this area, with a free trade area having been established between Tunisia and Morocco in 1999 (8), and an agreement between Egypt, Jordan, Morocco and Tunisia this year working towards a free trade zone.

**The process is slow, but the interdependence of the various elements of reform raises the prospect that the region may embark on a more radical transformation to a market economy.**

On balance, the Mediterranean countries are continuing a gradual reform process that began with macroeconomic stabilisation and is now broadening to trade liberalisation. Unless this process is reversed, it is likely that increased economic openness will also reinforce the economic and fiscal pressures for deeper structural reforms and the scaling back of state-centred economic models. While the process remains relatively slow, the interdependency between different elements of the reform process at least raises the prospect that the region may eventually embark on a more radical transformation to market-based economic models that would allow it to realise its real growth potential.

8) The agreement of March 1999 provided for the suppression, with immediate effect, of all duties on some 2 000 non-agricultural products carrying a customs duty below 10 percent. Other custom duties will be gradually lowered up to 2007.

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