Economic Policy Reforms

Going for Growth

2006

OECD

OECDPUBLISHING

Structural Policy Indicators and Priorities in OECD Countries

Economic Policy Reforms

Going for Growth

2006

OECD

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

The OECD is a unique forum where the governments of 30 democracies work together to address the economic, social and environmental challenges of globalisation. The OECD is also at the forefront of efforts to understand and to help governments respond to new developments and concerns, such as corporate governance, the information economy and the challenges of an ageing population. The Organisation provides a setting where governments can compare policy experiences, seek answers to common problems, identify good practice and work to co-ordinate domestic and international policies.

The OECD member countries are: Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The Commission of the European Communities takes part in the work of the OECD.

OECD Publishing disseminates widely the results of the Organisation's statistics gathering and research on economic, social and environmental issues, as well as the conventions, guidelines and standards agreed by its members.

Publié en français sous le titre :
Réformes économiques
Objectif croissance – 2006

Editorial

Over the past two decades, living standards in a number of OECD countries, notably Japan and some Continental European economies, have fallen further behind the best performers. The social costs associated with this failure to converge are plain to see, and will only worsen with demographic ageing. At the same time, potential growth and resilience to economic shocks have improved in other OECD countries. This divergence in performance holds policy lessons for how best to spur sustained growth in living standards.

The first issue of Going for Growth, *which was released one year ago, brought out some of these lessons. It inaugurated a new form of benchmarking surveillance, complementing the OECD's long-standing country- and sector-specific surveys. This surveillance rests on structural policy indicators with a well-identified link to economic performance, which serve to gauge to what extent GDP divergence reflects differences in the effectiveness of public policies rather than in tastes and societal choices. Using these indicators, alongside the detailed expertise of the OECD's committees and staff, a set of policy recommendations is derived for each OECD member.*

Last year, we focused mainly on labour and product markets. In this second issue, we follow up on the progress made in those areas. We document the efforts deployed to raise labour productivity consistent with the priorities that had been identified last year, notably as regards easing barriers to entry and other regulations inhibiting competition, and strengthening human capital formation. Unfortunately, new initiatives to lift labour utilisation have been rarer. In particular, little has been done to reduce the implicit tax on work beyond certain age thresholds.

As indicated last year, our ambition is to gradually broaden the scope of the indicators underpinning the Going for Growth *venture to take into account other policies that potently influence economic performance. This year, we are extending it to include innovation, recognising its importance as one of the main engines of long-run growth.*

The policy indicators used to "explain" innovation performance encompass framework conditions, such as regulations affecting competition in product markets, as well as more specific policies like public R&D spending. Innovation performance is measured through patents or R&D intensity. They need to be interpreted with care, however: R&D spending is not an end in itself; and patents, while obviously a product of innovative activity, are only one way to protect innovators' rights, not to mention that many of them are never exploited commercially and that some are filed for litigation purposes.

We followed the same approach as for labour and product markets: identified weaknesses in the policy settings coupled with sub-par innovation performance or weaknesses in the proximate determinants of innovation (such as skills or financial conditions) are taken to suggest that reforms are called for to move closer to best practice. For example, when innovation performance is found to be below the OECD average while relatively high regulatory barriers stifle competition, we see a prima facie *case for product market reform and for a recommendation in this area.*

In the same spirit, albeit more tentatively, this issue of Going for Growth *also explores another field, namely financial markets. Building on recent OECD research, it suggests that well-developed financial markets matter for growth and that, in turn, financial development owes a lot to greater competition in the banking sector as well as adequate investor protection. Moving from these general conclusions to pointed policy recommendations for each member country would require, however, further efforts to build a more refined set of indicators OECD-wide.*

Lastly, this second issue of Going for Growth *takes a few steps back to reflect on the yardstick used in the course of surveillance to measure success. One of the key objectives enshrined in the OECD's 1960 founding Convention is "to promote the highest sustainable growth" of members' economies and to "improve the economic and social well-being of their peoples". In* Going for Growth, *real GDP per capita, estimated at purchasing power parity, serves as the gauge, but how well does it proxy more holistic notions of well-being?*

We surveyed a range of alternative indicators of well-being, taking into account such dimensions as income distribution, social outcomes, the environment or reported happiness. While most do add useful information, they all suffer from various drawbacks, including availability, measurement and cross-country comparability problems. Some of the more appealing ones are also strongly correlated with real GDP. In the end, GDP per capita may well be the least imperfect and most timely summary statistic of well-being. Supplementing it with other indicators might help nonetheless to nuance and qualify what could otherwise be an excessively reductionist approach to welfare.

As was the case last year, it should be underlined that this new issue of Going for Growth *is the fruit of a collaborative exercise involving various OECD Departments including Economics, Employment and Social Affairs, Financial Affairs, Science and Technology, as well as Statistics.*

Jean-Philippe Cotis
OECD Chief Economist

Table of Contents

Part I

Progress in Responding to the 2005 Policy Priorities

Chapter 1. **Progress in Responding to the 2005 Policy Priorities: Overview** 9

Introduction 10
Policies to improve labour productivity performance 11
Policies to increase labour utilisation 16

Chapter 2. **Progress in Responding to the 2005 Policy Priorities: Country Notes** 21

Part II

Encouraging Innovation

Chapter 3. **Encouraging Innovation: An Overview of Performance and Policies** 55

Introduction 56
Assessing innovation performance 57
The determinants of innovation and underlying policies 61
From background analysis to country-specific recommendations 76

Notes 77

References 79

Chapter 4. **Encouraging Innovation: Country Notes** 81

Part III

Thematic Studies

Chapter 5. **Regulation of Financial Systems and Economic Growth** 115

Introduction 116
Financial development and performance 116
Government regulation of the financial system 121
The impact of financial regulation on economic performance 125

Notes 127

References 127

Chapter 6. **Alternative Measures of Well-being** 129
Monetary measures of well-being 131
Non-monetary measures of well-being 137
Summary and conclusions 141
Notes 142
References 142

Annex A. **Structural Policy Indicators** 143

The codes for country names and currencies used in this volume are those attributed to them by the International Organization for Standardization (ISO). These are listed below in alphabetical order by country code.

ISO country code	Country name	ISO currency code
AUS	Australia	AUD
AUT	Austria	EUR
BEL	Belgium	EUR
CAN	Canada	CAD
CHE	Switzerland	CHF
CZE	Czech Republic	CZK
DEU	Germany	EUR
DNK	Denmark	DKK
ESP	Spain	EUR
EU	European Union (15 members prior to 2004 enlargement)	n.a.
FIN	Finland	EUR
FRA	France	EUR
GBR	United Kingdom	GBP
GRC	Greece	EUR
HUN	Hungary	HUF
IRL	Ireland	EUR
ISL	Iceland	ISK
ITA	Italy	EUR
JPN	Japan	JPY
KOR	Republic of Korea	KRW
LUX	Luxembourg	EUR
MEX	Mexico	MXN
NLD	Netherlands	EUR
NOR	Norway	NOK
NZL	New Zealand	NZD
POL	Poland	PLN
PRT	Portugal	EUR
SVK	Slovak Republic	SKK
SWE	Sweden	SEK
TUR	Turkey	TRL
USA	United States	USD

ECONOMIC POLICY REFORMS: GOING FOR GROWTH – ISBN 92-64-03591-5 – © OECD 2006

PART I

Progress in Responding to the 2005 Policy Priorities

As a general rule, the cut-off date for information used in Part I is end-2005.

ISBN 92-64-03591-5
Economic Policy Reforms
Going for Growth

PART I

Chapter 1

Progress in Responding to the 2005 Policy Priorities: Overview

This chapter provides an overview of the progress achieved by member countries over the past year in taking measures consistent with the policy priorities identified in the 2005 edition. Overall, several important steps have been taken to reform competition-restraining regulations in product markets and towards improving educational outcomes in most countries where this was seen as a priority. However, less progress has been made in responding to priorities in the area of labour market policies.

Introduction

The 2005 edition of *Going for Growth* identified five policy priorities for each OECD country and the European Union to raise GDP per capita.*

This chapter provides an overview of the progress that countries have made over the past year in taking measures that are in line with these identified policy priorities. It is based on notes for each OECD country and the European Union as a whole that give more details on progress for each of the five specific priorities (see Chapter 2). In addition to the passing of legislation or other decisions to implement reforms, the chapter records earlier stages of reforms, such as government announcements and draft legislation presented to parliaments. Given that the quantitative indicators have not been updated to reflect actual or planned changes in policies, the assessment of progress is qualitative in nature. The chapter focuses on whether reforms that have been undertaken or planned are in line with the general thrust of the country-specific priorities rather than if they correspond to the detailed formulation of the priorities in the 2005 edition of *Going for Growth*.

The chapter reviews progress in reforming policies to improve labour productivity performance and labour utilisation. The key results are as follows:

- With respect to policy priorities to raise labour productivity, moves consistent with the identified policy priorities are underway or have already been made towards easing controls on entry in product markets and other competition-restraining regulations, strengthening human capital formation and reforming various other policy areas that affect labour productivity. The striking exception to this pattern is the absence of agricultural reforms, where significant progress depends on the outcome of the Doha trade round.
- With respect to policy priorities to raise labour utilisation, reforms along the lines of the identified policy priorities, especially for continental European countries, have in most cases neither taken place nor been planned. For example, few moves are underway to reduce the still high implicit tax on working beyond certain ages, cuts in tax wedges have been modest if any and reforms of employment protection legislation, labour cost floors and wage bargaining system have been virtually absent. A greater tendency towards reform can be observed in the area of disability and sickness benefit systems for the countries where this was identified as a priority.

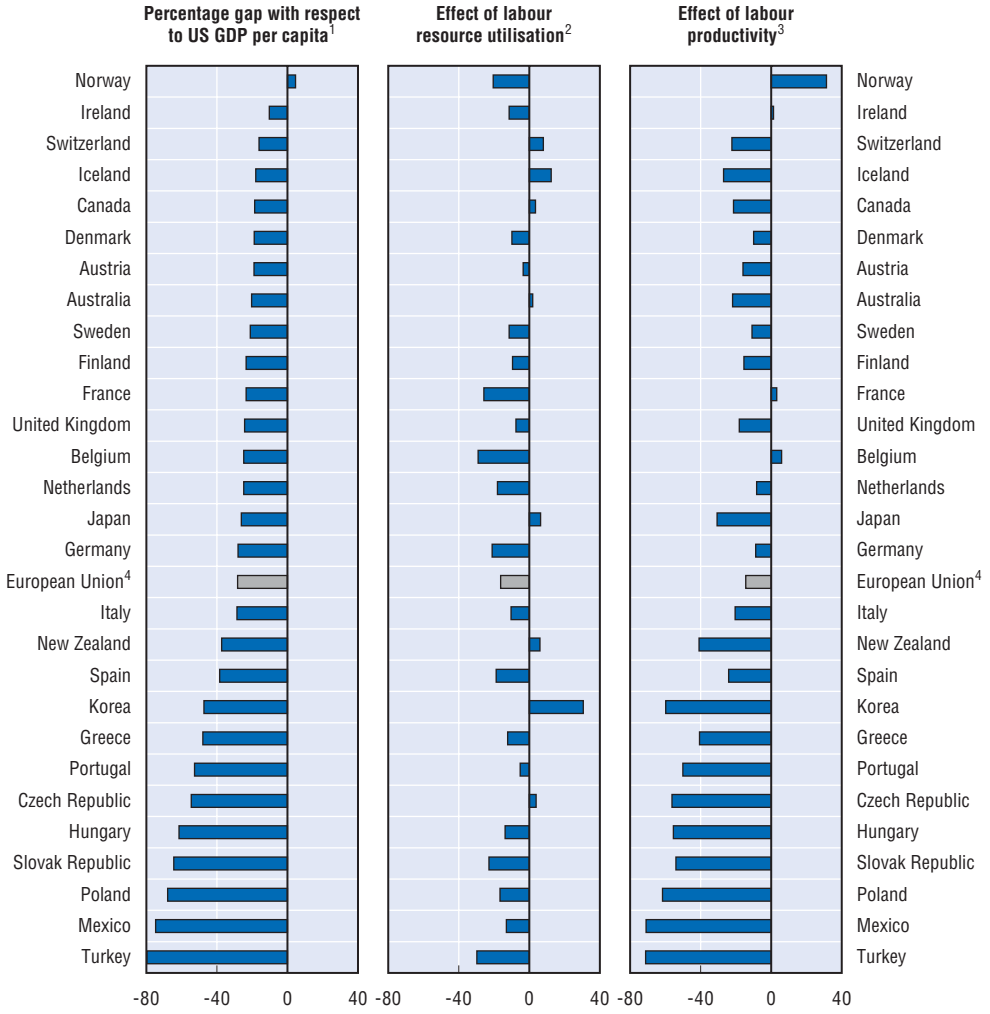
These policy changes notwithstanding, the priorities reported in the 2005 edition of *Going for Growth* still constitute by and large a relevant programme for necessary reforms.

* Three of the priorities were determined with the help of internationally-comparable indicators of performance and policy settings, which were used to uncover weaknesses in specific performance areas and to identify policy settings that could alleviate these weaknesses. The remaining two priorities were not necessarily derived on the basis of indicators – though some were – and rather drew on country-specific expertise. The indicator-based priorities were mostly confined to labour and product market policies, supplemented by policies in the areas of education and health, whereas the other policy priorities extended to various areas.

Policies to improve labour productivity performance

At least one policy priority to improve labour productivity performance was identified for all OECD countries and for the European Union. In many cases, this reflected large gaps in productivity levels *vis-à-vis* the leading country (Figure 1.1). In some countries with relatively high recorded productivity levels, it was motivated by lacklustre productivity growth rates over the past decade (Figure 1.2) and the possibility that high recorded productivity levels overstated the real strength in this area as they might be related to policy-induced under-employment of low-productivity workers. The identified policy actions to improve labour productivity performance included the easing of product market entry controls and other competition-restraining regulations, cuts in agricultural support, measures to improve educational outcomes and various other measures.

Figure 1.1. **The sources of real income differences, 2004**

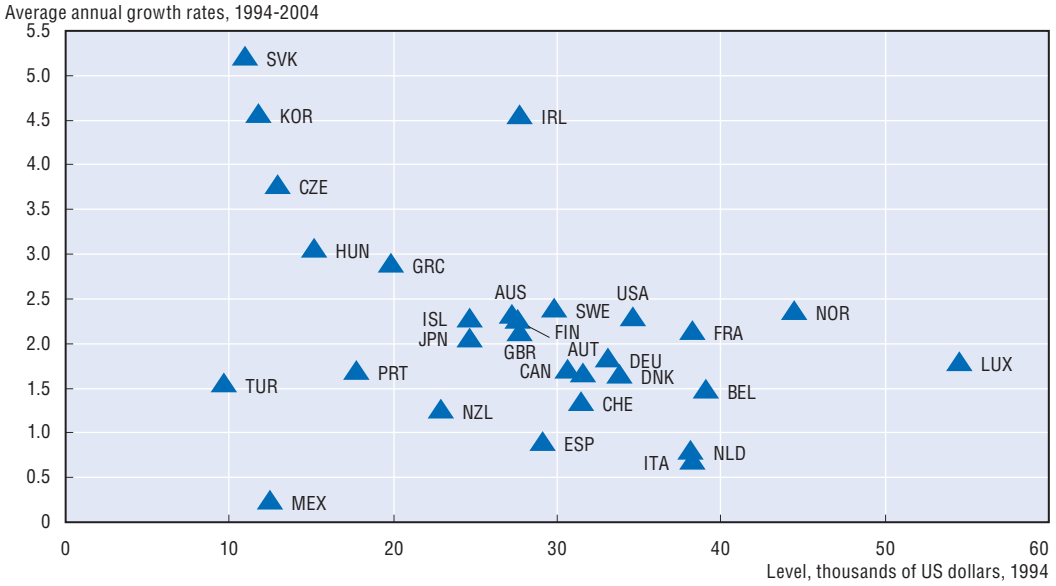


1. Based on year 2000 purchasing power parities (PPPs).
2. Labour resource utilisation is measured as total number of hours worked divided by population.
3. Labour productivity is measured as GDP per hour worked.
4. Excluding Luxembourg.

Source: OECD, *National Accounts of OECD Countries*, 2005; OECD, *Economic Outlook*, No. 78; and OECD, *Employment Outlook*, 2005.

StatLink: *http://dx.doi.org/10.1787/727533324237*

Figure 1.2. **Labour productivity:[1] level and growth**



1. Measured as US dollar GDP in year 2000 PPPs per hour worked.

Source: OECD, *National Accounts of OECD Countries*, 2005; and OECD, *Employment Outlook*, 2005.

StatLink: *http://dx.doi.org/10.1787/727533324237*

Easing of entry controls and other competition-restraining regulations

Given their comparatively restrictive policy stance in this area, recommendations to ease entry controls and other competition-restraining regulations were concentrated on the European Union and European member countries. The European Union has continued its effort to strengthen competition in the internal market. The draft services directive submitted to the European Parliament in April 2005 was in line with the recommendation to ease internal regulatory obstacles to cross-border trade and entry so as to strengthen competition. It remains to be seen to what extent the proposed competition-enhancing provisions will be enacted as they have raised concerns about "social dumping" from low-wage EU member countries and about the ability of national authorities to enforce national social protection legislation. The draft directive on ports introduced in late 2004 is also in line with the recommendation, although the phasing in of measures is planned over a very long period. As had been decided earlier, rail transportation for freight and passengers will be fully liberalised by 2007 and 2010, respectively, and competition in standard postal services will come into force in 2006.

At the national level, most European countries have taken some measures that are in line with the country-specific priorities to relax competition-restraining measures:

- Barriers to entry and regulations on business operations in services and industries in general, and network industries and professional services in particular, are in the process of being eased in many of the countries where such action was considered to be a priority (Table 1.1). In some cases the reform process is at an early stage. In other countries, draft legislation has been introduced for discussion in parliaments or new laws have been enacted in the area.

Table 1.1. **Progress achieved in countries with recommendations to strengthen competition law, reduce entry controls and other competition-restraining regulations**[1]

"x" denotes action

	Reviews/laws announced	Public consultation	Draft legislation introduced	Legislation concluded	Other measures
Strengthen competition law and enforcement					
Austria					X
Ireland		X			
Reduce entry controls in services and/or industries in general					
Canada					X
Denmark					X
Japan			X	X	
Korea					X
Netherlands					X
Reduce entry controls in network industries					
Australia	X				
France					
Greece				X	
Hungary					X
Ireland		X			
Korea					
Mexico				X	
Portugal					X
Slovak Republic					X
Switzerland			X		
Reduce entry controls in professional services					
Germany	X				
Switzerland			X		

1. The table covers only countries with policy recommendations in the area listed.

StatLink: *http://dx.doi.org/10.1787/727533324237*

- Administrative burdens in general, and on start-ups in particular, have been reduced through legislation or through other means in eight of the nine European countries for which action was called for in this domain (Table 1.2). In the remaining country, a review has been announced. The planned reform in the Netherlands, scheduled to be fully implemented in 2007, is particularly ambitious, aiming at cutting such costs by 25%.
- The extent and scope of public ownership has been reduced in most of the European countries where this was identified as a policy priority. Significant privatisation of government-owned commercial companies has continued in Finland and Poland. Less extensive opening up to private capital in government companies has taken place in Italy and Norway.

Outside Europe, there has also been progress in reducing barriers to entry and competition-restraining controls in the few countries where this was identified as policy priority. In Japan, the recommended regulatory reform measures are being introduced on a nation-wide basis, and a new competition law, with greater penalties and stronger detection mechanisms, was voted by parliament in April. Regulatory reforms are also continuing in Korea, with a review of existing regulations scheduled over the coming two years.

Table 1.2. **Progress achieved in countries with policy recommendations to reduce administrative costs and public ownership**[1]

"x" denotes action

	Reviews/laws announced	Public consultation	Draft legislation introduced	Legislation concluded	Other measures
Reduce administrative burdens					
Austria					X
Belgium					X
Czech Republic					X
Greece				X	
Hungary					X
Ireland		X			
Netherlands	X				X
Portugal				X	
Turkey					X
Reform bankruptcy law and corporate governance					
Italy			X	X	
United States					X
Reduce the scope of public ownership					
Finland				X	
Italy					X
Norway				X	
Poland				X	
Sweden					
Turkey	X			X	

1. The table covers only countries with policy recommendations in the area listed.

StatLink: *http://dx.doi.org/10.1787/727533324237*

Agriculture

Pending the outcome of the Doha trade round, no major initiatives to reduce high support to agriculture have been taken in the countries where such action was seen as a priority to raise GDP per capita. The failure to agree thus far on negotiating modalities at the WTO does not point to significant future movements in this area, and high support, albeit falling or remaining broadly constant in OECD countries in 2004 except in the United States and Korea (Table 1.3), looks set to persist on announced policies. However, some policy changes have been announced recently. For example, in the European Union, reductions in price support granted to sugar producers have been agreed, and further reductions in trade-distorting support, in particular, are being discussed. In the United States, some legislative changes have been announced to reduce assistance to farmers and further policy changes are being considered, in preparation for a new farm Bill, as the current Act will expire at the end of 2007. Moreover, in Japan, agricultural products have been included in a bilateral free trade agreement.

Human capital

Almost all countries for which strengthening some aspects of their education system was a policy priority have announced or taken relevant measures. In a few countries reforms are at an early stage. In other countries with a policy priority in the broad area of human capital improvement, the following policy changes have taken place:

- Curricula reforms at the secondary level (Iceland, Italy, Mexico and Portugal).

Table 1.3. **Agriculture: Producer support estimate,[1] 2002-04**

Percentage of gross farm receipts

	2002	2003	2004p
Australia	5	4	4
Canada	21	25	21
Czech Republic	25	29	n.c.
European Union	34	36	33
Hungary	33	28	n.c.
Iceland	70	72	69
Japan	58	59	56
Korea	65	61	63
Mexico	26	19	17
New Zealand	2	2	3
Norway	74	72	68
Poland	19	8	n.c.
Slovak Republic	21	25	n.c.
Switzerland	73	71	68
Turkey	20	29	27
United States	18	15	18
OECD	31	30	30

p: Provisional.
n.c.: Not calculated.
1. The monetary value of transfers from consumers and budgetary payments to producers.
Source: OECD, *Agricultural Policies in OECD Countries: Monitoring and Evaluation*, 2005.
StatLink: *http://dx.doi.org/10.1787/727533324237*

- Establishment of nation-wide educational standards in some fields (Germany).
- Organisational changes to increase efficiency in general (Iceland and Mexico) or at the tertiary level in particular (Austria).
- More efforts to strengthen educational achievements of particular groups: ethnic minorities (Belgium, Germany and New Zealand) and girls (Turkey).
- Easier access to vocational education (Australia and Luxembourg).

Other priorities and reforms

Significant progress in reforms has also been recorded in other policy areas that were identified for several countries as important to strengthen their productivity performance:

- *Public sector efficiency.* All countries with an identified policy priority in this broad area have taken actions that are in line with the recommendations. Contestability has been raised in public services in the United Kingdom, new financial management arrangements have been introduced in Iceland and Turkey, new technology is being harnessed to simplify procedures in Luxembourg, a new staff management system (including performance-related pay and a new career management system) has been announced in Portugal, and a new law on public procurement is being prepared in Germany.
- *FDI restrictions.* Of the five countries with a priority to ease restrictions on foreign direct investment, Japan, Korea and New Zealand took some action in this area.

There was also some progress in responding to policy recommendations that were concentrated on a smaller set of countries. Thus, measures have been taken, or are planned, to improve public infrastructure (New Zealand and the United Kingdom), reduce

capital income taxes (Canada), reform the financial sector (Japan and Korea), strengthen corporate governance and reform bankruptcy legislation (Italy and the United States) and ease planning and zoning restrictions (the Netherlands and the United Kingdom).

Policies to increase labour utilisation

Given their relatively low labour utilisation, corrective policy priorities in this area were concentrated on continental European countries. In many of these countries, labour force participation rates are relatively low, especially among older workers; levels of unemployment are relatively high; and annual working hours are shorter than in other OECD areas (Figure 1.3). Reforms to reduce disincentives to work were considered to be less pressing outside continental Europe. Nevertheless, policy priorities were identified for many countries outside continental Europe, most notably to slow the increase in the number of disability benefit recipients over the past decade and if possible reduce the numbers where these are already large. Recommendations in this area dealt with, in particular, the disincentives to work at older ages, the taxation of labour income in general and of low labour incomes in particular, employment protection legislation, and wage determination, especially for low-productivity workers.

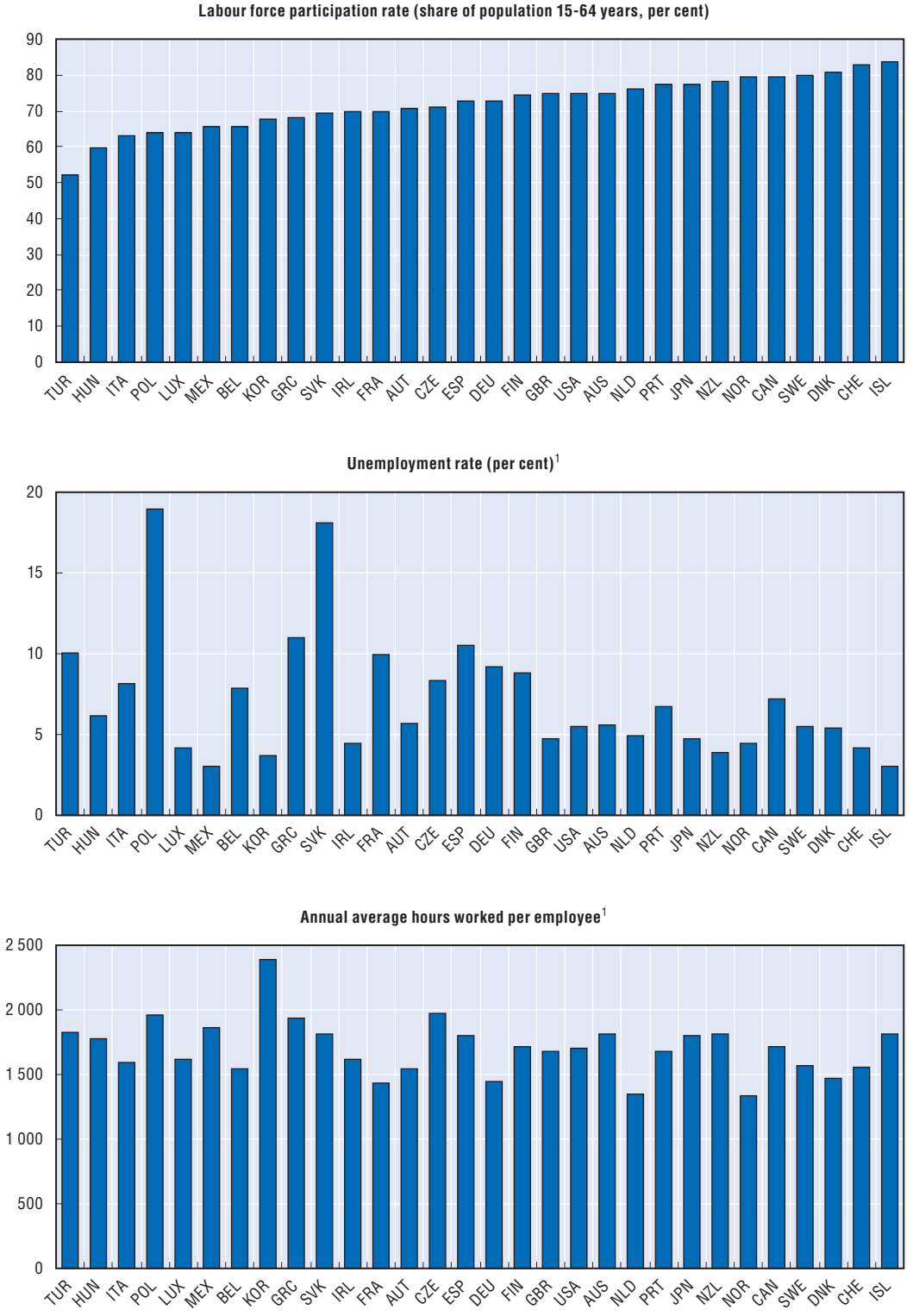
Financial disincentives to work at older ages

Limited progress has been achieved in reducing the financial disincentives to work at older ages over the past year in those European countries where this was seen as a policy priority to increase GDP per capita. Some of these countries (Finland and Italy) had earlier taken significant, though insufficient, measures to reduce disincentives in either pension systems or *de facto* early retirement systems, and recent efforts have been concentrated on implementing these reforms. Other countries have introduced new reforms to lower disincentives. Germany will reduce the length of time to which older workers are entitled to unemployment benefits as of 2008, and the government plans to phase-in an increase in the statutory retirement age from 65 to 67 over a long period. Belgium will raise the minimum age limit for entry into the early retirement pension scheme. France has announced measures in early 2006 to increase the incentives to work at ages over 57. Austria has further reduced financial disincentives to work at older ages, in addition to aligning pension arrangements for public sector workers on those in the private sector. Norway has introduced a major pension reform, setting out the principles for the future evolution of the retirement system, but crucial elements affecting work incentives are being reconsidered. No recent moves towards reform of pension or other benefit systems have been recorded in Greece, Luxembourg, the Slovak Republic or Spain.

Tax wedges

Moves to reduce tax wedges on labour income in general, and on low income in particular, have been modest in most of the countries where such action was called for to stimulate growth. A few countries (Belgium, Denmark and Slovak Republic) have programmed or stated their intent to introduce tax cuts when the state of public finances allows. To create room to lower social security contributions, the Netherlands has made some changes in the unemployment benefit system. The lack of fiscal room prompted Hungary to limit *de facto* cuts in employer social security contribution to specific groups of workers. In the most recent period, Australia, Finland and Sweden have taken the strongest measures to lower tax wedges in line with the recommendations for these

Figure 1.3. **Labour resource utilisation, 2004**



1. Countries are ranked on the basis of their labour force participation rate.

Source: OECD, *Economic Outlook*, No. 78; OECD, *Labour Force Statistics*, 2005; and OECD, *Employment Outlook*, 2005.

StatLink: *http://dx.doi.org/10.1787/727533324237*

countries. In Australia, it reflected the comfortable budget situation; in Finland it was decided as part of an incomes policy agreement; and in Sweden, it was achieved by shifting the tax base towards green taxes. Italy has also taken measures to cut taxes on labour use over the coming three years. Germany recently announced a reduction in employers' social security contributions together with an increase of indirect taxes.

Labour market policies

The modest progress in most European countries in reducing financial disincentives to work at older ages and cutting tax wedges also extends to other labour market policies:

- *Employment protection legislation* has remained unchanged in three of the five European countries where an easing was identified as a priority (Czech Republic, Portugal and Spain). However, France decided to repeal a tightening of statutory employment protection that had been decided but where implementation had been repeatedly postponed, and has recently extended to two years the length of the trial period for new recruits to firms with 20 employees or less and for workers of age under 26 who are recruited for the first time by a firm with more than 20 employees. Greece has recently abolished permanent contracts for new employers in all public entities and entreprises.
- *Minimum labour costs* are to be cut in France by eliminating remaining social security contributions at the level of the minimum wage by 2007, partly offsetting the impact of the significant increase in hourly minimum wages in mid-2005. In Poland, the increase in the statutory wage floor had been kept below overall wage increases, but the minimum wage is now set to rise relative to the average wage in the next few years.
- *Wage bargaining arrangements* have not changed in the three European countries where increased flexibility in wage determination was identified as a priority (Finland, Italy and Spain).
- *Unemployment benefit systems* reform has been initiated in Belgium with closer monitoring of entitlement conditions for recipients has been initiated in Belgium. On the other hand, no action has so far been taken in Finland or Luxembourg to reduce disincentives in their benefit systems.

Outside Europe, some movements towards reforms in labour market policy areas have been recorded in the few countries where this was seen as a priority. This is notably the case in Australia, where a reform of the industrial relation system has been announced which would include changes in the determination of minimum wages ("award" wages). Canada has started pilot projects in high-unemployment areas to examine the impact of changes in entitlement conditions. With respect to employment protection legislation, a roadmap for reforms has been proposed by the authorities in Korea and is being discussed by the social partners; no legislative changes in this area have been announced in Japan.

Reforming disability and sickness benefit systems

Some progress has been achieved in reforming disability and/or sickness benefit systems in the nine countries where this was seen to be a key policy priority. A major reform of the disability benefit system in the Netherlands was decided in June 2005, including the abolition of benefits for those with modest disabilities and stronger financial incentives to work for those with residual work capacity. Elsewhere, actual changes have been less comprehensive, focusing on stronger medical guidelines for assessing disability (Denmark, Hungary); time limits on benefits without reviews and organisational changes

to improve implementation of policies (Sweden); and greater employment assistance, and training and rehabilitation services (Australia). Major reforms have been announced in Norway, Switzerland and the United Kingdom, stressing the importance of early intervention to encourage closer attachment to the labour market of beneficiaries with remaining work capacity.

The abandonment or postponement of earlier plans to reform disability benefit systems in a few countries demonstrates the difficulties in moving forward in this area. In Poland, the country with the highest proportion of the working-age population not working and receiving disability benefits in the OECD, plans for greater monitoring of entitlement conditions and imposing limits on benefit periods without re-examination will not concern existing recipients of disability pensions. Also, in Norway the planned reduction in replacement rates in the sickness benefit system has been postponed, and in Denmark negotiations concerning co-financing of sickness benefits in large municipalities are on hold.

Other priorities and reforms

The record of OECD countries in reforming other areas considered to be a priority to increase labour utilisation and mobility has been mixed. With respect to housing policy, the authorities have stated their intention to reform mortgage lending. The Netherlands has presented its policy in the area of zoning restrictions that affects housing supply. However, little action has yet taken place in some countries where it was identified as a priority to liberalise the rented housing market (Czech Republic and Sweden) and improve the housing infrastructure (Poland), and in the case of Hungary and the Slovak Republic moves went in the opposite direction, with an increase in mortgage subsidies. No action was recorded in reducing the tax subsidy to housing loans in Ireland or Spain.

ISBN 92-64-03591-5
Economic Policy Reforms
Going for Growth

PART I

Chapter 2

Progress in Responding to the 2005 Policy Priorities: Country Notes

This chapter contains information about the progress in implementing reforms in line with the 2005 priorities for individual OECD member countries and for the European Union.

AUSTRALIA

Growth has been steady and brisk on average, but the income gap with leading countries remains significant. Employment rates for the low-skilled and for older workers are still relatively low.

Policy priorities

Reduce minimum cost of labour

Challenge and recommendations: To promote employment of the low-skilled, it was recommended that yearly adjustments to "award wages" (the *de facto* minimum wages) should reflect better the productivity of award wage earners, especially those with low skills.

Actions taken: A new independent body has been established to set and adjust the federal minimum wage. In addition to providing a safety net for the low paid, the criteria for deciding on the level of the minimum wage will include the capacity for the low paid to remain in employment.

Reform disability benefit schemes

Challenge and recommendations: To halt the sharp rise in recent years in the number of people receiving the Disability Support Pension and raise the relatively low labour force participation rate for persons aged 55 and over, it was recommended that eligibility criteria for the Disability Support Pension be tightened.

Actions taken: New places in employment assistance, vocational education and training and rehabilitation services were created recently to improve the work capacity of people with disabilities. Also, a new obligation to seek part-time work is being introduced for people with disabilities who are capable of such work. To promote labour force participation of older workers, they can now access their "superannuation" pensions from 55 while still working,

Strengthen vocational education at the upper-secondary level

Challenge and recommendations: Given the dim job prospects for low-skilled workers, especially for early school-leavers, it was recommended that educational pathways for young people be enhanced.

Actions taken: The 2005-06 budget contained a number of measures to address skills shortages and many of the disincentives which can turn young people away from choosing a career in the trades. These include increased financial support for apprentices and funding to establish Australian Technical Colleges. The Council of Australian Governments is developing further reforms to Australia's training system.

Reduce marginal effective tax rates for low-income earners further

Challenge and recommendations: To encourage greater labour force participation, it was recommended that benefit entitlement conditions be tightened, and that effective marginal tax rates (EMTRs) be reduced further.

Actions taken: The 2005-06 budget provided for a reduction in EMTRs for lower- and middle-income families, and improved incentives for a second earner in a family to take up part-time or casual work.

Accelerate reforms in the electricity, rail, gas and water industries

Challenge and recommendations: To strengthen competitive pressures in the economy, it was recommended that the National Competition Policy (NCP) Agenda be completed and a new co-ordinated agenda to further advance reform in essential infrastructure service sectors be adopted.

Actions taken: The Council of Australian Governments is currently reviewing NCP arrangements and is expected to consider the matter during the first half of 2006.

AUSTRIA

GDP per capita is relatively high although convergence vis-à-vis *leading countries has stalled. Labour productivity growth is relatively low in sectors not exposed to international competition.*

Policy priorities

Reduce the implicit tax on continued work at older ages

Challenge and recommendations: To strengthen labour market participation of older workers, it was recommended that early retirement pensions be made actuarially fair, that pension schemes across the public and private sectors be harmonised, that higher unemployment benefit entitlements for older unemployed workers be eliminated, and that subsidies for old-age part-time employment be phased out.

Actions taken: The pension scheme for federal government workers has been harmonised with the private sector scheme. While early retirement discounts have generally been set to achieve actuarial fairness, smaller discounts have been introduced for workers in onerous jobs and workers with very long work records.

Improve graduation rates from tertiary education

Challenge and recommendations: To raise participation in tertiary education, it was recommended that performance-based funding be strengthened, that academic requirements in occupational-oriented programmes be reduced and that a loan scheme for study fees with income-contingent repayments be introduced.

Actions taken: Performance targets for individual universities have been negotiated between the government and individual universities, with future funding linked to the meeting of targets. Part of university funding is being linked to quantitative performance indicators.

Strengthen competition law and enforcement

Challenge and recommendations: To promote greater competition in product markets, it was recommended that more powers and resources be assigned to the Federal Competition Authority (FCA), that the institutional setup of competition policy be streamlined, that rules on vertical agreements be simplified and that the labour and commerce chambers' right to nominate lay judges be discontinued.

Actions taken: Steps have been taken to increase staffing in the FCA. The FCA has conducted sector-specific investigations and made efforts to improve the transparency of its competition policies.

Reduce administrative burden on start-ups

Challenge and recommendations: To foster the creation of new enterprises, it was recommended that the costs of setting up limited liability companies be reduced, that the regulation of entry in trades and liberal professions be eased further and that compulsory chamber membership for the liberal professions be abolished.

Actions taken: Requirements on professional qualification and experience for self-employed engineers and architects have been eased. Bankruptcy procedures and restrictions on cross-holding of equity for businesses supplying related services have been relaxed.

Reduce inactivity traps in the benefit system

Challenge and recommendations: In order to foster labour market participation and employment, it was recommended that childcare benefits be restructured in favour of vouchers for child care, and that job-placement activities be better integrated with social assistance.

Actions taken: The amount spouses can earn before the partner loses the sole earners tax credit has been increased, but the sole earners tax credit has been extended and childcare cash benefit payments have risen.

BELGIUM

Despite increases in employment rates, labour utilisation remains low. Labour productivity growth has slowed, albeit from a relatively high rate.

Policy priorities

Reduce the implicit tax on continued work at older ages

Challenge and recommendations: To reduce incentives for early retirement, it was recommended that access conditions for early retirement schemes be progressively aligned with those for early retirement pensions, that the accumulation of pension rights for persons in early retirement schemes be terminated and that early retirement pensions be made actuarially fair.

Actions taken: The minimum age limit for receipt of early retirement pension ("pré-pension") will be raised to 60 as from 2010 compared with 58 at present.

Reduce the tax wedge on labour income

Challenge and recommendations: To raise labour utilisation, it was recommended that room for further reductions in taxes on labour income be created by cutting government expenditure, especially on social transfers, and by reducing tax expenditures.

Actions taken: Further reductions in social security charges and in personal income taxes have occured.

Ease the regulatory burden on business operations

Challenge and recommendations: To strengthen product market competition, it was recommended that regulators be required to consider alternative policy instruments before adopting a new regulation and be given guidance on alternatives. It was also recommended that the government continue to eliminate unnecessary sector-specific regulations, reduce the administrative burden and review laws and regulations governing the professions to eliminate unwarranted anti-competitive practices.

Actions taken: Licences and permits for at least 11 trades were abolished in 2005.

Improve education outcomes for minority ethnic groups and counter labour-market discrimination

Challenge and recommendations: To increase employment rates among ethnic minority groups, it was recommended that education outcomes be improved for this group and that enforcement of anti-discrimination laws be strengthened.

Actions taken: Recent additional measures are being taken to improve education achievement among poorer social groups, in which ethnic minorities are over-represented.

Strengthen enforcement of job-search requirements for the unemployed and upgrade their skills

Challenge and recommendations: To reduce structural unemployment, it was recommended that unemployment benefits be made conditional on properly enforced job-search requirements and that efforts to upgrade skills for unemployed people be reinforced.

Actions taken: Unemployment beneficiaries up to age 50 are being monitored until 2007 to verify that they fulfil job search obligations. Improvements in the education system in the French-speaking community should improve skills among low achievers, who are most at risk of being unemployed.

CANADA

Despite a pick-up in trend productivity growth since the mid-1990s and strong increases in GDP per capita by international standards, the income gap vis-à-vis *the United States remains large.*

Policy priorities

Reduce work disincentives in the income support system

Challenge and recommendations: Provincial social assistance systems create welfare traps, and the federal Employment Insurance (EI) system reduces labour mobility and cross-subsidises firms heavily reliant on seasonal workers. Reducing the "welfare wall" and shifting the focus of the EI system towards its insurance objective were recommended.

Actions taken: In Autumn 2005, the government announced, as part of an income-tax reduction package, the introduction in 2008 of an earned-income tax credit to reduce the welfare wall.

Reduce barriers to foreign ownership

Challenge and recommendations: Canada has the most widespread foreign ownership restrictions among the G7 countries, mainly in key sectors such as telecoms, broadcasting and airlines. Eliminating ownership restrictions and, for example, using content rules instead to safeguard Canadian culture were recommended.

Actions taken: The government has appointed an expert group with a mandate to review current foreign ownership limits in telecommunications, as part of a broader assessment of the policy and regulatory framework in that sector.

Further liberalise services

Challenge and recommendations: Removal of obstacles to inter-provincial trade in professional services and full implementation of the *Agreement on Internal Trade* have been slow, and it was recommended that remaining barriers to inter-provincial trade be dismantled. Also, it was recommended that electricity markets, where competition remains almost non-existent, be opened up.

Actions taken: Some progress has been achieved under the guidance of the Premiers' Council of the Federation, including increased coverage of Crown corporation procurement and new measures to facilitate decision-making under the *Agreement* and to strengthen dispute settlement provisions.

Restrain growth in public health costs

Challenge and recommendations: To cope with forthcoming ageing pressures, it was recommended that the efficiency of the healthcare system be enhanced by introducing a mixed remuneration system for primary-care providers and that output-based hospital funding and more contracting out be allowed.

Actions taken: A 10-year action plan on health, signed in September 2004, is being implemented. Federal funding to provinces and territories has been increased, and actions are being taken to improve access to care and reduce waiting times.

Reduce effective taxation on capital income

Challenge and recommendations: Although declining, effective taxes on capital remain relatively high. It was recommended that capital cost allowances be modified and provincial capital taxes and sales taxes on capital goods be removed so as to help boost capital deepening.

Actions taken: The 2005 federal budget changed capital cost allowances for certain assets to better align them with useful life. It also proposed to reduce the general corporate income tax rate by 2 percentage points to 19 per cent by 2010 and to elimate the corporate surtax in 2008. The government also announced a reduction in personal taxes on dividend income received from large corporations. Some provinces have announced plans to reduce their capital taxes but there remains additional scope for action in this area.

CZECH REPUBLIC

Growth in GDP per capita has not been sufficiently high in recent years to allow for a significant catch-up in income.

Policy priorities

Reduce administrative burden on start-ups

Challenge and recommendations: To increase the efficiency of capital and to speed up structural change in business activities, it was recommended that bankruptcy legislation be revised, and that business registration be streamlined and shortened.

Actions taken: New bankruptcy legislation has recently been approved by the government but has yet to pass through parliament. Regarding business registration, actions include setting up a network of business registration offices, reduced processing time for commercial registration and amendment of the Trade Licensing Act.

Ease employment protection legislation for regular workers

Challenge and recommendations: Reform to the relatively strict EPL was recommended to encourage labour demand, reduce unemployment and help with re-structuring of economic activities and productivity growth.

Actions taken: A new labour code has been introduced, bringing a welcome modernisation of legislation, but without significant changes to some key areas of concern, notably EPL.

Reduce the tax wedge for low-income workers

Challenge and recommendations: It was recommended that the relatively high tax wedge on labour be cut to increase employment opportunities for low-productivity workers, though it was recognised that the need for fiscal consolidation limited the room for manoeuvre.

Actions taken: Reform of the sickness insurance system that would decrease employers' contributions is near approval by Parliament.

Further liberalise the rental housing market

Challenge and recommendations: Labour mobility is weak and this partly accounts for structural unemployment. It was recommended that the rental housing market be further liberalised to encourage labour mobility.

Actions taken: Some steps to alter regulation of the rental housing market have been approved by the authorities.

Reduce poverty traps for non-employed households

Challenge and recommendations: It was recommended that the tax-benefit system be reformed to limit the combined effects of social welfare, housing and child allowances in creating poverty traps for non-employed households.

Actions taken: The child tax allowance has been replaced by a tax credit. A job search allowance scheme is to be introduced and in-work benefits increased.

DENMARK

Income per capita levels have remained high by international standards over the past decade, even though the gap vis-à-vis *the United States has widened further.*

Policy priorities

Reduce the tax wedge on labour income

Challenge and recommendations: To improve work incentives and encourage entrepreneurship, it was recommended that the tax freeze be modified so as to allow revenue-neutral reform packages, for example, cutting taxes on earned income while raising property taxes.

Actions taken: The tax freeze remains in place in unchanged form. Following the 2004 reduction in income tax rates for some groups, the government has stated that additional tax cuts will be made when the fiscal position permits.

Reform sickness and disability benefit schemes

Challenge and recommendations: To reduce sickness absences, it was recommended that a waiting period and a requirement for a medical certificate before getting public benefits be introduced. Also, that part-time employment participation be made easier for disability benefit recipients, and that all cases where a disability is not permanent be reviewed periodically.

Actions taken: Negotiations on larger municipal co-financing of long-term sickness benefits are expected in the Spring of 2006. Medical assessments are now to focus on work ability but are no longer required after eight weeks – it is up to the municipality when to require an assessment.

Reduce domestic barriers to competition

Challenge and recommendations: To strengthen competition, the following recommendations were made: cut the number of bodies applying competition law and remove interest-group representatives from their boards; eliminate unneeded restrictions in construction, land transportation and professional services; reduce limits on shop-opening hours and location of retail outlets; and raise public-sector outsourcing by enforcing current laws.

Actions taken: New legislation allowing for a gradual relaxation of restriction on retail opening hours came into force in July 2005. The dominant players in the energy sector decided to merge, although this has yet to be approved by the competition authorities. Efforts to create a level playing field between private and public providers are ongoing, but progress in public outsourcing is still slow.

Raise incentives for later retirement and continued work

Challenge and recommendations: It was recommended that work disincentives in the early retirement scheme be reduced, *e.g.* by lifting the contribution rate, linking the entry age in related transfer schemes to life expectancy and reducing the implicit tax on later retirement.

Actions taken: In December 2005, the government's Welfare Commission proposed to phase out the early-retirement scheme by raising the entry age by four months each year. The proposals are being discussed.

Improve the under-performing school system

Challenge and recommendations: Denmark has one of the most expensive school systems in the world. It was recommended that students be more challenged (*e.g.* through testing), and that teachers be required to spend more time in the classroom, be better trained and specialise more.

Actions taken: The government intends to implement a reform of teachers' training that involves greater specialisation and to introduce more student evaluation in compulsory education. A national action plan for literacy includes measures to detect early childhood linguistic difficulties and sets more ambitious performance objectives throughout the compulsory education path.

EUROPEAN UNION

A slowdown in labour productivity growth since the mid-1990s combined with weak growth in labour resource utilisation has resulted in a widening of the per capita income gap vis-à-vis *the United States.*

Policy priorities

Ease the regulatory burden on business operations

Challenge and recommendations: To strengthen labour productivity performance, it was recommended that internal regulatory obstacles to cross-border trade and entry be further eased. This should include an improvement of the EU-wide public procurement regime and the adoption of EU-wide standards if needed.

Actions taken: The Commission submitted a draft Directive on Services in the Internal Market for a first reading to the European Parliament in March 2005. It underpins the freedom to provide services in another member state and the freedom for consumers to purchase services from providers in another member state. After the draft met with heavy opposition from some member states, the Commission is reconsidering the most contentious provisions.

Raise competition in network industries

Challenge and recommendations: To promote greater competition in product markets, it was recommended that barriers to market contestability in network industries, where incumbents remain dominant despite liberalisation measures in recent years, be further reduced.

Actions taken: A new liberalisation package for port services, to be phased in by 2020, was tabled by the Commission in late 2004. In June 2005, the Commission began investigating possible distortions of competition in the electricity and gas sectors, and in July 2005, a regulation favouring competitive tendering processes in both public rail and road transport was introduced.

Reduce producer support to agriculture

Challenge and recommendations: To improve economy-wide and global efficiency, it was recommended to reduce high producer support to agriculture and to improve market access for non-EU countries. This would involve further moves away from production to income support and the elimination of export subsidies.

Actions taken: Decoupling of support from output is being implemented in the hops, cotton, olive oil and tobacco sectors, adding to the range of products which were decoupled in 2003. A reduction of support to sugar producers has been agreed. Other actions are pending the outcome of the Doha trade round.

Enhance intra-European labour mobility

Challenge and recommendations: To promote the efficient allocation of labour resources, it was recommended that obstacles to cross-border labour mobility, notably the lack of cross-border portability of pension and social security entitlements, be removed.

Actions taken: A pan-European Job Mobility Portal (EURES), disclosing information of national public employment services, is being implemented. A new "Social Agenda" launched by the Commission in February 2005 aims to promote the cross-border portability of pension and social security entitlements.

Further integrate European financial markets

Challenge and recommendations: In order to foster economic integration, the Financial Services Action Plan, the EU central tool to foster financial market integration, is being implemented. However, more progress needs to be made to enhance the cross-border integration in markets for retail financial services.

Actions taken: The Commission has opened an inquiry into the stance of competition in retail banking and has launched a consultation on the functioning of the EU mortgage market, looking for ways to strengthen competition and raise efficiency.

FINLAND

Growth performance has been impressive but largely driven by the ICT sector, while the performance in many others sectors has been lacklustre. Unemployment remains high and is largely structural.

Policy priorities

Reduce the tax wedge on labour costs

Challenge and recommendations: Average and marginal tax rates on labour are among the highest in the OECD. It was recommended that these be reduced throughout the earnings distribution and, if the fiscal room for action remained tight, that more weight be put on property taxes and less on labour.

Actions taken: Personal income tax cuts worth 1.1% of GDP were announced following the collective wage agreement in late 2004. During 2005-07, the state income tax rates will be reduced at all income levels and an earned income allowance will be introduced within state taxation.

Reduce the use of early retirement pathways

Challenge and recommendations: The retirement age, particularly for men, is low due to the use of early retirement options. It was recommended that the older unemployed be subjected to the same obligations as other unemployed and that the medical criteria for the main disability pension scheme be tightened.

Actions taken: A major pension reform package agreed in 2003 is being phased in. It includes some tightening of the unemployment early retirement pathway. However, the medical criteria for the main disability pension will be relaxed.

Reduce the scale of public ownership

Challenge and recommendations: The high level of state ownership weakens competitive pressures in sheltered sectors. It was recommended that the state's ownership and regulatory roles be separated more clearly, that an extensive privatisation programme be pursued, and that involvement of private-sector providers in publicly-funded services be increased.

Actions taken: Privatisation proceeds were more than 1¼ per cent of GDP in 2004, the highest since the stock market peaked in 2000, and were running at a similar rate in the first half of 2005. The share of private-sector providers within municipal services has continued to grow moderately.

Promote greater flexibility in centralised wage determination

Challenge and recommendations: Centralised wage agreements lead to a compressed wage structure that crowds out low-skilled service jobs and hampers structural adjustment. It was recommended that greater flexibility in wage determination be promoted by following the example of other Nordic countries.

Actions taken: The recent central wage agreement had a relatively modest central wage increases, averaging 1¾ per cent a year to September 2007, and allowed some room for local flexibility.

Reform unemployment benefits

Challenge and recommendations: Net replacement rates are among the highest in the OECD at long unemployment spells. It was recommended that unemployment benefits be tapered with duration to encourage job search and reduce the unemployment trap.

Actions taken: No recent action.

FRANCE

Despite increased employment rates, unemployment remains high. GDP per capita has not grown strongly enough to narrow the income gap with the best performing OECD countries.

Policy priorities

Reduce implicit tax on continued work at older ages

Challenge and recommendations: To increase participation among older workers, it was recommended that early retirement schemes be phased out, that access to extended unemployment benefits be tightened, and that the return to longer periods of pension contributions be increased to actuarially fair levels.

Actions taken: Since the 2003 pension reform, no further important steps have been taken on pension entitlements. In January 2006, measures to increase the incentives to work at ages over 57 were announced.

Ease employment protection legislation

Challenge and recommendations: To increase employers' willingness to hire new workers, it was recommended that regulatory costs be reduced, in particular those associated with dismissals and with the use of fixed-term contracts, and that restrictions on working time be eased.

Actions taken: Restrictions on working time have been substantially reduced, the main remaining element being the legal requirement for an overtime premium after 35 hours per week. In 2005, a special permanent contract was introduced for new recruits to enterprises with less than 20 employees. The new contract extends to two years the trial period during which the new recruit can be laid-off under less strict conditions. In January 2006, a similar contract for people aged under 26 in companies with over 20 employees was announced.

Reduce minimum cost of labour

Challenge and recommendations: Total labour costs at the minimum wage (SMIC), measured relative to average labour costs, are high in France, reducing demand for young and low-skilled workers in particular. To improve employment prospects for such groups, it was recommended that the SMIC be allowed to fall relative to the average wage and that on-the-job training programmes, where the trainee could be paid less than the SMIC, be expanded.

Actions taken: The government has announced that it plans to pressure reductions in employers' social contributions on low-wage employment and to improve incentives for the unemployed to take low-paid jobs. This follows an increase in the SMIC in mid-2005 relative to the average wage, as planned.

Increase competition in network industries

Challenge and recommendations: In order to improve consumer choices, lower prices and increase efficiency, it was recommended that barriers to entry be reduced, and that regulators ensure non-discriminatory access to network infrastructure, such as in telecommunication and air transport. Regulators may need more power and/or independence.

Actions taken: No recent action.

Improve the regulatory environment

Challenge and recommendations: To reduce transactions costs and to increase competition, it was recommended that the regulatory structure be simplified in areas such as the administration of social welfare and local zoning policy for retailing, and that detailed rules regulating pricing between producers and retailers be abolished.

Actions taken: Plans for progressive introduction of "one-stop shops" for implementation of labour market policy have been announced. Retail pricing regulation is to be modified to allow retailers more room to set low prices.

GERMANY

For more than ten years, economic growth in Germany has been weak, resulting in a widening of the gap in GDP per capita vis-à-vis *the United States and several EU countries.*

Policy priorities

Reduce average tax wedge on labour income

Challenge and recommendations: To foster employment creation, it was recommended that room be created for cuts in statutory income tax rates and social charges by reducing tax expenditures and by better targeting unemployment-related transfers. It was also recommended that the pension system be made more actuarially fair, and that the scope for selective contracting (between insurers and providers) and managed care in the health care system be widened.

Actions taken: Efforts have been concentrated on implementing earlier reforms in the areas of unemployment benefits and health insurance. New legislation came into force cutting a number of significant subsidies and tax concessions such as support for residential construction and investments in certain funds. The contribution rate for unemployment insurance is planned to be reduced by 2 percentage points, but the VAT rate is scheduled to increase by 3 percentage points.

Further liberalise professional services

Challenge and recommendations: In order to increase competition among professional services, it was recommended that binding fee schedules for architects and engineers be eliminated, that deregulation in other professions be considered and that compulsory contributions to professional associations be phased out.

Actions taken: Liberalisation of remuneration for architects and engineers is intended.

Improve secondary education achievements

Challenge and recommendations: To raise the performance of secondary education, it was recommended that nation-wide standards for educational attainment be set and that adherence to them be regularly monitored. This would involve giving schools more freedom in determining their own programmes for improving learning outcomes and linking public funding of schools to educational outcomes.

Actions taken: Nation-wide educational standards have been agreed by the states in some fields. Following earlier decisions, language training for students with immigrant background is being stepped up.

Reduce disincentives to work at older ages

Challenge and recommendations: To foster labour force participation of older persons, it was recommended that preferential benefit eligibility conditions for older workers be abolished and that subsidies for working time reductions of this group be cut.

Actions taken: Reductions in the duration of unemployment insurance benefits for older unemployed were implemented in February 2006. The government plans an increase in the statutory retirement age from 65 to 67 to be phased in over a long period.

Increase competition in government procurement.

Challenge and recommendations: In order to increase the efficiency of government procurement, it was recommended that calls for tender be issued more widely, rules across the states be simplified and the role of business associations in setting these rules be eliminated.

Actions taken: Legislation is under review.

GREECE

Despite brisk growth in recent years, a large gap in GDP per capita remains vis-à-vis the European Union. Labour market regulations are rigid and barriers to product market competition are high.

Policy priorities

Ease employment protection legislation

Challenge and recommendations: To improve labour turnover and reduce gender/age imbalances of unemployment, it was recommended that high severance costs for white-collar workers be brought more in line with those for blue-collar workers, while ensuring no discrimination against part-time employment.

Actions taken: Recent legislation has abolished permanent contracts for new employers in all public entities and enterprises.

Ease product market regulation

Challenge and recommendations: To strengthen productivity performance, it was recommended that the liberalisation of key sectors be accelerated, while also enhancing the powers and responsibilities of the Competition Committee and the sectoral regulators, providing the former with adequate staff and funding.

Actions taken: The Administration Code of the Electric Energy Transactions System was approved in May 2005, facilitating the deregulation of the sector. A law aiming at significantly upgrading the Competition Committee was passed in July 2005.

Reduce administrative burden on start-ups

Challenge and recommendations: To reduce substantial barriers to entrepreneurship, it was recommended that bureaucratic requirements for start-ups be significantly further reduced, accompanied by reforms to labour and bankruptcy legislations.

Actions taken: Registration and licensing procedures for new businesses have been simplified further under a new law in 2005. The adoption of International Accounting Standards has become mandatory as from 2005.

Further simplify the tax system

Challenge and recommendations: To encourage investment, it was recommended that the tax system be further simplified to reduce compliance costs and that enforcement efforts to curtail tax evasion by the self-employed be increased.

Actions taken: A tax reform package agreed in autumn 2004, containing further measures to reduce tax burdens, simplify the tax code and reduce compliance and collection costs, came into force in 2005. Additional measures have been implemented in 2005 to fight tax evasion and broaden the tax base. Bank secrecy for tax purposes has been abolished.

Reduce incentives for early retirement

Challenge and recommendations: To boost labour force participation rates, it was recommended that incentives for early retirement be reduced, pensions be linked to lifetime earnings, and stricter eligibility criteria be implemented.

Actions taken: No recent action.

HUNGARY

GDP growth has been brisk in recent years, but registered labour force participation and employment rates remain low despite increases in recent years.

Policy priorities

Reduce state control on the operations of the network industries

Challenge and recommendations: To facilitate entry and allow prices to better reflect market signals, it was recommended that the authorities time schedule for price liberalisation be followed, and preferably brought forward, and that the government's role in setting network access charges be reduced. This would be helped by greater independence accorded to the industry regulators.

Actions taken: In the electricity sector an obligation to re-negotiate long-term power purchasing agreements has been introduced. Full access to market-based electricity and gas provision for all users is scheduled for 2007.

Reduce the tax wedge for low-income workers

Challenge and recommendations: In order to reduce informal activity, it was recommended that the tax wedge for low-income workers be cut.

Actions taken: No recent measures have been taken as action in this area is limited by the lack of fiscal room.

Reduce administrative burden on start-ups

Challenge and recommendations: To bring down burdensome administrative procedures, it was recommended that the authorities implement plans for on-line business registration and standardisation of documentation, cut fees for business registration and simplify legal procedures for setting up a business.

Actions taken: Steps have been taken to streamline the registration system, which should make setting up a new business more attractive. In addition, opportunities for business to accomplish administrative duties on-line have increased.

Reform the disability benefit system

Challenge and recommendations: To help increase the employment rate, a further reform of the disability benefit system was recommended.

Actions taken: In 2005, a new set of medical guidelines for assessing disability were issued. These new guidelines are intended as a first step towards a system that takes better account of remaining capabilities and that encourages rehabilitation.

Further downsize housing-loan subsidies

Challenge and recommendations: A further downsizing of housing-loan subsidies was recommended, not only for budgetary reasons, but also to reduce distortions in housing markets and increase labour mobility.

Actions taken: After previous cutbacks to housing-loan subsidies prompting a reduction in the volume of new housing loans, the government introduced a new home-loan subsidy for those aged under 30 in February 2005.

ICELAND

Economic performance has improved significantly since the mid-1990s, allowing Iceland to narrow its income gap vis-à-vis *the United States. Still, despite solid gains, the labour productivity gap remains large.*

Policy priorities

Lower barriers to entry for domestic and foreign firms

Challenge and recommendations: In order to reduce anti-competitive behaviour by dominant firms and raise productivity, it was recommended that the energy and fisheries sectors be opened further.

Actions taken: While the sale of the public stake in Iceland Telecom has been completed, the authorities do not intend to privatise the national electricity company nor to reduce ownership restrictions in fisheries.

Reduce producer support to agriculture

Challenge and recommendations: To ease the burden on consumers and taxpayers, it was recommended that high and distorting agricultural support be reduced and that tariffs and protective quotas be eliminated.

Actions taken: The government has stated its willingness to accept a reduction in agricultural subsidies and protection in the context of the Doha trade round.

Improve access to, and graduation rates from, upper-secondary education

Challenge and recommendations: To improve educational attainment and get better value for money, it was recommended that policy should focus on quality and efficiency improvements while maintaining high levels of education spending.

Actions taken: The government is implementing or planning further measures to reduce drop-out rates, *e.g.* curriculum reform, incentives for schools to focus on attainment and a shortening of the duration of upper-secondary education.

Continue public sector reform

Challenge and recommendations: To enhance efficiency and curb expenditure creep, it was recommended that performance measurement and management reform in the public sector be accelerated.

Actions taken: The authorities have tightened regulations governing the implementation of the budget and are reviewing incentives for public-sector managers to keep expenditure within budgeted levels.

Reduce government support to housing

Challenge and recommendations: To diminish distortions of investment choices between housing and other assets, reducing government backing of bonds issued by the Housing Finance Fund was recommended.

Actions taken: The government does not intend to withdraw from housing finance, but it is re-considering the role of the public fund, which could become primarily a mortgage lender to low-income households or those in remote locations.

IRELAND

With the fastest growth rate of GDP per capita in the OECD over the past decade, Ireland has nearly caught up with the leading countries in terms of productivity and, to a lesser extent, income levels.

Policy priorities

Ease the regulatory burden on business operations

Challenge and recommendations: To strengthen competition in services, it was recommended that anti-competitive regulation in retailing be eliminated and that professional services be opened to foreign-trained professionals.

Actions taken: In May 2005, the government-appointed Consumer Strategy Group suggested *i)* to establish an independent National Consumer Agency to address consumer complaints; *ii)* to abolish the quota on pub licences and to introduce a new category of licences for continental-style cafés; *iii)* to raise the number of licences for fruit and vegetable traders; *iv)* to revoke the price floors for retail businesses (Groceries Order); and *v)* to change the price setting procedure for pharmaceuticals. The government has set up a National Consumer Agency and introduced a bill that aims at abolishing the Groceries Order.

Further liberalise network sectors

Challenge and recommendations: To strengthen competition in network industries, it was recommended that the regulatory framework be reviewed so as to prevent incumbents from exploiting monopoly power in a relatively small market.

Actions taken: The Consumer Strategy Group recommended that price controls in the energy and telecom sectors be repealed so as to raise the incentive for foreign suppliers to establish in Ireland.

Strengthen the enforcement of competition policy

Challenge and recommendations: Unlike in most other countries, the Competition Authority cannot impose fines for violation of the competition law, but must take its cases to criminal court. To strengthen the effectiveness of competition policy, it was recommended that the Authority be granted greater enforcement power and the possibility of imposing sanctions.

Actions taken: No action has been taken in this area, but the Consumer Strategy Group recommended that the Department of Enterprise, Trade and Employment be better equipped to bring consumer protection legislation into line with EU standards.

Strengthen work incentives for second earners

Challenge and recommendations: To encourage labour participation to respond to strong growth in the demand for labour, especially for those seeking part-time work and lower-skilled second earners, the introduction of a non-wastable tax credit for childcare was recommended.

Actions taken: The government-appointed Tax Strategy Group examined the option of a tax credit for childcare costs but has decided not to retain it because of the administrative costs of checking the validity of the claims. Instead, the Finance Act 2005 increased the child benefit.

Avoid excessive house price increases and volatility

Challenge and recommendations: To contain house price increases and remove sources of undue volatility in house prices, it was recommended that tax deductibility of mortgage interest payments be phased out and that frequent changes in stamp duties be avoided.

Actions taken: No change has been made to the tax treatment of mortgage interest payments. The Finance Act 2005 raised the price threshold below which first-time buyers of existing dwellings are exempted from stamp duty. This measure may improve long-run efficiency in the housing market but may in the short run lead some sellers, whose property value is near the threshold, to raise the selling price of their houses so as to allow potential first-time purchasers to take advantage of the exemption.

ITALY

Since the mid-1990s, labour productivity has slowed and contributed to a sharp loss of competitiveness. The employment rate has risen but remains one of the lowest in the OECD.

Policy priorities

Reduce public ownership

Challenge and recommendations: To increase competition and innovation, notably in network industries, it was recommended that privatisation of public companies be accelerated, that golden shares in companies be replaced with arm's length regulation and that competition in provision of public local services be promoted.

Actions taken: The government sold another tranche of shares in the main electricity provider (ENEL) and a 2% limit on voting rights of an individual foreign company in the electricity provider Edison was scrapped in June 2005. As of 2006, outsourcing of local public services is subject to competitive bidding. Regulated broadband access prices have been cut.

Improve access to, and graduation from, upper-secondary and tertiary education

Challenge and recommendations: To raise upper-secondary graduation rates and lower-tertiary drop-out rates, it was recommended that teachers' and professors' careers be linked to performance and be exposed to more competition; that co-payments and loans with income-contingent repayments be introduced; and that financing and decision-making of universities be decentralised.

Actions taken: Reforms of secondary education are being implemented, albeit slowly.

Reduce tax wedges on labour income

Challenge and recommendations: To stimulate low-skilled employment and reduce the share of the informal sector, it was recommended that high tax rates and pension contributions, notably on low and average earnings, be reduced, that tax enforcement be strengthened and tax amnesties discontinued.

Actions taken: The 2006 budget entails targeted reductions in employers' social security contributions, and provides incentives to local authorities to improve tax collections.

Strengthen corporate governance and financial supervision

Challenge and recommendations: To correct corporate governance failures it was recommended that reforms be accelerated to strengthen independent directors and minority shareholder rights. The bankruptcy law should also be reformed, strengthening creditor rights and reducing borrower penalties in case of insolvency.

Actions taken: A broad reform of bankruptcy law has been approved by Parliament. Also, a new law increases transparency and accountability of firms with an enhanced role for independent directors, imposes term limits on the governor and board members of the Bank of Italy, enhances regulation of new financial products and strengthens protection of small savers.

Promote decentralisation in wage bargaining

Challenge and recommendations: To prevent excessive wage claims leading to loss of competitiveness, it was recommended that the public sector take a lead in decentralising wage bargaining and that regional differences in both productivity and cost of living be taken into account in wage setting.

Actions taken: No action.

JAPAN

Labour productivity decelerated during Japan's decade of economic stagnation, thus widening the income gap with the leading OECD countries.

Policy priorities

Further liberalise services

Challenge and recommendations: To enhance competition and promote innovation in the service sector, it was recommended that: *i*) the enforcement of competition law be further strengthened and heavier sanctions imposed; *ii*) the regulatory regime applicable to special zones be extended nation-wide; and *iii*) competition in network industries be promoted.

Actions taken: The revised Anti-monopoly Act, which raises the surcharge rate (for large manufacturers) from 6 to 10% of sales of the goods concerned during the period of law infringement and which authorises a leniency programme, took effect in January 2006. It has been decided to extend nation-wide selected regulatory reform measures that apply in the special zones. The free choice of electricity provider has been expanded from around one-third of consumers in April 2004 to about two-thirds in April 2005.

Reduce producer support to agriculture

Challenge and recommendations: To improve economy-wide efficiency and reduce food prices for consumers, it was recommended that the level of support to agriculture be reduced – while shifting its composition from market price support to direct payments – and that the entry of joint-stock companies be allowed on a nation-wide basis.

Actions taken: The government decided to allow the entry of joint-stock companies into agriculture on a nation-wide basis on leased land. The 2005 Free Trade Agreement with Mexico included some agricultural products. Other actions are pending the outcome of the Doha trade round.

Ease employment protection

Challenge and recommendations: To reduce dualism in the labour market and facilitate restructuring of the corporate and financial sectors, it was recommended that a comprehensive approach, including a reduction of employment protection for regular workers, be adopted.

Actions taken: No measures have been taken to ease employment protection for regular workers.

Reform the financial sector

Challenge and recommendations: To further improve the functioning of the financial system, it was recommended that the role of public financial institutions be scaled back, while requiring banks to resolve the non-performing loan problem and strengthen their capital base to overcome the remaining weaknesses in the banking sector.

Actions taken: While the major banks exceeded the government's target of reducing by about half the non-performing loan ratio between March 2002 and March 2005, such a target has not been applied to regional banks yet. The Diet passed a bill in October 2005 to privatise Japan Post in October 2007.

Remove impediments to foreign direct investment

Challenge and recommendations: In order to strengthen competition and bring in new technology and methods of production, it was recommended that the government follow through on its action plan aimed at doubling the stock of FDI over five years.

Actions taken: Revisions to the Commercial Code to facilitate mergers and acquisitions by foreign companies using their Japanese subsidiaries passed the Diet in June 2005.

KOREA

With growth rates of labour productivity and GDP per capita remaining well above other OECD countries, Korea has continued to narrow its substantial income gap relative to the average OECD level.

Policy priorities

Ease employment protection for regular workers

Challenge and recommendations: To reverse the growing proportion of non-regular workers in the labour force, which creates equity and efficiency concerns, it was recommended that the conditions on collective dismissals be relaxed and that the social safety net, particularly employment insurance, be further developed.

Actions taken: A "Roadmap" for reform, including some easing of conditions on collective dismissals, has been prepared for discussion by the social partners.

Reduce producer support to agriculture

Challenge and recommendations: To improve economy-wide and global efficiency, it was recommended that the level of support to agriculture be further reduced, while shifting its composition from market price supports to direct payments, and that limits on land ownership be removed to raise productivity.

Actions taken: Special treatment of rice will be extended to 2014, while doubling the minimum market access of imports from 4 to nearly 8% of domestic consumption.

Further liberalise services

Challenge and recommendations: To promote greater competition in product markets, especially in services, it was recommended that network industries be restructured, that procedures for opening large retail stores be simplified, and that anti-competitive practices in professional services be prevented.

Actions taken: The Korea Fair Trade Commission abolished or reformed 56 anti-competitive regulations and is now reviewing 94 additional regulations with the Regulatory Reform Committee. The Committee has also launched a two-year review of the existing 8 000 regulations. Measures to relax the limit on the size of new large-scale stores and to simplify administrative procedures are underway. The government is preparing a policy package to improve competition in ten services, including law and accounting.

Remove barriers to foreign direct investment

Challenge and recommendations: To promote foreign direct investment, it was recommended that ownership, procedural and regulatory barriers to FDI inflows be removed and that the incentives offered in the three Free Economic Zones be extended to the rest of the country.

Actions taken: In 2004, the government identified 151 issues that have a negative impact on the FDI environment, including 16 labour market issues. Thus far, 55 items have been deregulated or reformed.

Improve the functioning of the financial sector

Challenge and recommendations: To improve efficiency in the financial sector, it was recommended that the privatisation of banks be completed, that remaining problems in the non-bank sector be resolved and that financial supervision be shifted to a more pre-emptive approach.

Actions taken: The government has sold all of its holdings in two banks, leaving five of 14 banks with significant public ownership. The three largest investment trust companies were also privatised during the past year and a private equity fund law was introduced to develop the asset management sector. Two large insurance companies have been placed under prompt corrective action.

LUXEMBOURG

GDP and income per capita are among the highest in the OECD area, but labour utilisation is relatively low.

Policy priorities

Reduce the implicit tax on continued work at older ages

Challenge and recommendations: To reduce incentives for early retirement, it was recommended that: early retirement pension be reduced to make it actuarially fair in relation to a pension taken at the official retirement age; imputed years of service be more difficult to obtain; subsidies for pre-retirement pensions be terminated; and the official retirement age be indexed to increases in life expectancy.

Actions taken: No recent actions have been taken.

Tighten income support system for the unemployed

Challenge and recommendations: To reduce structural unemployment, it was recommended that replacement rates in unemployment insurance be lowered and that the withdrawal rate for social assistance be reduced as recipients' incomes rise in order to avoid unemployment and poverty traps.

Actions taken: No recent actions have been taken.

Raise achievement in primary and secondary education

Challenge and recommendations: To improve educational achievements, and to close the gap between nationals and immigrants, it was recommended that programmes for learning to read and write in either German or French be made available; that core subjects be given more attention, and more help to weaker students in primary education be provided; that performance standards be defined nationally and that school autonomy and accountability be increased.

Actions taken: As part of a multi-year reform programme, children in vocational education are now allowed to do their studies in one language (French or German) without having to achieve a high level of competence in the other language.

Raise public-sector efficiency

Challenge and recommendations: To raise public-sector efficiency, it was recommended that the role of e-government be expanded further, that managerial independence and accountability be increased, and that administrative simplification be fostered.

Actions taken: The e-Luxembourg programme is currently being implemented to streamline administrative procedures and accelerate payment procedures by government entities.

Reduce barriers to competition in broadband services

Challenge and recommendations: To raise broadband access and lower access prices, it was recommended that the government reduce barriers to competition in broadband services by imposing lower access charges to the local loop and by forcing the incumbent telecom company to withdraw from the market for cable internet services.

Actions taken: No recent actions have been taken.

MEXICO

Economic growth has been too slow to reduce the large gap in standards of living with other OECD countries. Employment rates are high and rising, but productivity has stagnated in the past decade.

Policy priorities

Improve access to upper-secondary education

Challenge and recommendations: In order to improve educational attainment and students' performance, which are very low compared with other OECD countries, and strengthen productivity of the workforce, it was recommended that curricula modernisation be continued and that the accountability of schools and teachers be enhanced. It was also recommended that adult training be further developed.

Actions taken: A reform of lower-secondary education (*reforma integral de la secundaria*), seeking a modernisation of the curriculum and a better organisation of teaching, has been launched. Few concrete actions have yet been taken in upper-secondary education.

Reduce barriers to entry in industries

Challenge and recommendations: To improve effective competition in the telecommunications sector it was recommended that the Telecommunications Act (proposed in 2002) be approved. In energy supply, it was recommended that the share of public enterprises be reduced, in particular by easing restrictions on private investment in the electricity sector.

Actions taken: The Telecommunications Act proposal was abandoned but secondary legislations were amended to improve entry and competition conditions. In electricity generation, no action has been taken to remove legal obstacles to private investment, although the constitutionality of the existing (small-scale) independent power producers was recognised.

Reduce barriers to foreign ownership

Challenge and recommendations: To foster competition and improve efficiency, it was recommended that restrictions on foreign direct investment be eased, especially in the electricity sector and fixed-line telephony, but also in some professions, construction and transport.

Actions taken: No recent action.

Reform the tax system

Challenge and recommendations: To increase financing of core spending on development priorities (basic education, health, infrastructure, poverty alleviation), a revenue-enhancing tax reform was recommended. A broadening of the VAT base was recommended in particular, to reduce distortions and facilitate tax administration.

Actions taken: Measures were taken to simplify the income tax and broaden its base. No action was taken on the VAT front.

Improve the "rule of law"

Challenge and recommendations: In order to reduce transaction costs and thereby improve conditions for business and investment, it was recommended that the effectiveness of the judiciary and enforceability of law and contracts be strengthened.

Actions taken: On-going efforts to facilitate administrative procedures (including in some states) and to use internet systems more broadly will contribute to improve transparency and fight corruption.

NETHERLANDS

Despite a decline in the unemployment rate to one of the lowest levels in the OECD area, under-utilisation of labour resources in the Netherlands still accounts for most of the wide income gap vis-à-vis *the United States.*

Policy priorities

Reduce tax wedges on labour income

Challenge and recommendations: To strengthen incentives to work, it was recommended that room be made for reductions in taxes on labour income by lowering government expenditure on social transfers and by limiting the exemptions from the standard VAT rate.

Actions taken: The government has decided to reduce the duration of unemployment benefits as of 2006 and to increase support for pre-school children, as well as for attending school-age children outside school hours.

Further reform disability benefit schemes

Challenge and recommendations: To reduce the number of days lost on sickness leave and the proportion of the working-age population on partial or full disability benefits, it was recommended that the new schemes planned for 2006 be implemented and that social partners be prevented from topping up benefits.

Actions taken: In October 2004, a tighter claim-assessment (*het Schattingsbesluit*) was introduced and a re-evaluation of existing cases started. In June 2005, the Parliament decided on the new disability scheme (WIA), providing stronger financial incentives to work for those with residual work capacity and eliminating benefits for those with modest disabilities.

Simplify administrative procedures

Challenge and recommendations: To lower the high administrative burden, it was recommended that the cost of compliance be reduced by linking government agencies with each other, that the one-stop shop services be extended and regulations simplified.

Actions taken: The cabinet has presented measures to make a major reduction in the administrative burden for private enterprise, accumulating to 25% (€ 4 billion) in 2007. As a first step to simplify the licence and permit procedures, the government installed a taskforce which has reported in June 2005.

Remove barriers to product market competition

Challenge and recommendations: To foster product market competition, it was recommended that the retail end of electricity and gas distribution networks be privatised, that unwarranted anti-competitive practices in the professions be eliminated and that restrictions on large-format retail store operators be eased.

Actions taken: The government decided to oblige the sector to split off the electricity grids from the distribution and sale businesses. National restrictions on large retail outlets have been abolished and decision-making power concerning the location of outlets has been decentralised.

Ease residential zoning restrictions

Challenge and recommendations: To stimulate the supply of housing and reduce the excess burden of taxation, it was recommended that residential zoning restrictions be eased and that tax subsidies to owner-occupiers be phased out.

Actions taken: The government has presented its policy on zoning in the National Spatial Strategy (Nota Ruimte), allowing for less restrictive practices and decentralising decision authority.

NEW ZEALAND

Growth in GDP per capita has risen markedly in the past decade, albeit not sufficiently for a catch-up with the top half of OECD countries. The large gap in labour productivity has widened.

Policy priorities

Strengthen incentives to move from welfare to work

Challenge and recommendations: Incentives to move from welfare to work are weak. It was recommended that activation policies be strengthened and the *Working for Families* package monitored and adjusted if the labour supply response is not significant.

Actions taken: The government has agreed in principle to develop a single core benefit that would apply one set of criteria to all working-age beneficiaries and deliver employment assistance to clients based on their individual circumstances in terms of their work readiness, rather than their benefit category.

Reduce barriers to foreign ownership

Challenge and recommendations: Consent is required for foreign acquisitions of 25% or more of firms worth more than NZD 50 million. It was recommended that restrictions on foreign investment in business activities be removed and that other instruments for protecting sensitive land be examined.

Actions taken: The Overseas Investment Act 2005 increased the threshold to NZD 100 million but also tightened conditions for acquiring sensitive land.

Reduce the extent of educational under-achievement observed among specific groups

Challenge and recommendations: The under-achievement of some groups, particularly ethnic minorities, persists. It was recommended that early childhood education be expanded, that well-coordinated and effective early intervention programmes be developed, and that teaching quality be raised.

Actions taken: Funding for early childhood education places has been increased: from 2007, the first 20 hours per week will be provided free of charge for three and four year-olds (if sufficient capacity is available); and the childcare subsidy rates have been raised. The government is developing an approach to improving teaching quality in schools using evidence-based best practices.

Ensure that employment relations legislation supports efficient labour market outcomes

Challenge and recommendations: In view of their cost-raising effects, it was recommended that recent changes in employment relations legislation be re-considered to avoid undermining labour market flexibility.

Actions taken: Legislative changes in late 2004 have further raised labour costs and reduced labour market flexibility, although it is too early to assess the extent of roll-back. Some aspects of the new legislation, in particular for multi-employer collective agreements, have been clarified through evolving case law – albeit not necessarily in ways that enhance flexibility.

Address infrastructure bottlenecks, especially in transport and energy

Challenge and recommendations: The regulatory framework has made it difficult to address infrastructure bottlenecks. It was recommended that regulatory reforms be implemented to unblock investment.

Actions taken: The Resource Management Amendment Act 2005 has streamlined the procedures for obtaining resource consents and provided greater weight to national interests. The government has commissioned a study into road pricing options for Auckland. In energy, the plan for introducing a carbon tax has been withdrawn, leaving climate change policies and other regulatory uncertainties unresolved.

NORWAY

GDP per capita is one of the highest in the OECD, reflecting a strong labour productivity performance in addition to large natural resource rents. The impact of rising employment rates on labour utilisation have been more than offset by a large decline in average hours worked.

Policy priorities

Reform disability and sickness benefit schemes

Challenge and recommendations: To raise labour input, it was recommended that stricter regulation on the entitlement to sickness benefits be enforced and that independent medical disability assessment be made mandatory. The cost-effectiveness of vocational rehabilitation should be routinely reviewed.

Actions taken: Announced measures reducing replacement rates have been postponed. A committee to study disability reform options with the aim of strengthening work incentives is to be formed and should issue a report in autumn 2006.

Reduce producer support to agriculture

Challenge and recommendations: To reduce inefficient allocation of resources in the economy, it was recommended that high producer support to agriculture be reduced, targeted income transfers be introduced to decouple aid from output or input use and high external tariffs on agricultural products be cut.

Actions taken: The Norwegian Competition Authority investigated and fined the major producer for abuses of market power in the dairy market in 2005.

Reduce the scope of public ownership

Challenge and recommendations: To increase competition and encourage FDI, it was recommended that high public ownership be reduced, especially in network industries, retail trade, financial services and oil.

Actions taken: Further sales of state shares in telecommunications and in the oil industry have taken place since the spring of 2004. A full liberalisation of the postal market as from January 2007 was decided by Parliament but later postponed. Competition has been enhanced in provision of non-commercial service obligations by use of tender, including highway ferry lines (since 2004) and one contract for rail passenger transport services (operational as of June 2006).

Implement a comprehensive pension reform

Challenge and recommendations: To strengthen fiscal sustainability, it was recommended that a pension reform be implemented. It should aim at raising effective retirement age by promoting a shift to a more actuarially fair pension system, and using the Petroleum Fund to pre-fund part of pension liabilities.

Actions taken: The May 2005 pension reform adjusts benefits in line with life expectancy and indexes pension benefits on an average of prices and wages. The reform is being reconsidered by the new government, and a new white paper on pension policy is expected next May. A pension fund, built on the Petroleum Fund and the National Insurance Scheme Fund, was established 1 January 2006. Private occupational pension schemes have been made mandatory as of January 2006.

Improve transparency and cost-effectiveness of regional policy

Challenge and recommendations: To improve transparency and cost-efficiency, it was recommended that regional goals be pursued by more transparent cash transfers and that any freed up resources be used to cut taxes.

Actions taken: No recent action.

POLAND

Despite substantial growth since the start of the transition, the participation rate is very low, unemployment is very high and income per capita is well below OECD average. Raising employment and raising productivity are key priorities.

Policy priorities

Reform entitlement conditions in disability benefit schemes

Challenge and recommendations: To avoid creating a serious dependency trap and to improve work incentives, it was recommended that stricter and regular re-evaluation of existing disability pensioners, including permanent ones, be implemented. A time-limited transitional benefit could be established.

Actions taken: New rules for new disability pensions have been adopted, and they are now limited in time. No action has been taken on the large stock of existing permanent disability pensions.

Reduce public ownership

Challenge and recommendations: To curb the accumulation of public debt and to increase productivity growth, it was recommended that the pace of privatisation be raised by seeking strategic investors for the remaining state-held companies, putting less emphasis on obtaining a high price and reconsidering strategies of merging state-owned firms before sale.

Actions taken: Privatisation has increased somewhat since 2004 with the divestment of government shares in viable firms and some other state firms have been closed down. There has been no change in privatisation methods or strategy.

Reduce barriers to foreign ownership

Challenge and recommendations: To spur foreign direct investment inflows, it was recommended that restrictions, such as the statutory limit on the proportion of shares that can be acquired by foreign investors, be eased, the use of government special voting rights be limited, and the capacity of the Polish foreign investment agency be improved.

Actions taken: An Economic Freedom Act has been introduced that simplifies procedures for non-residents to set up a business, provides investors with a binding legal interpretation of provisions and eases ownership restrictions.

Improve transport and housing infrastructure

Challenge and recommendations: To ease labour transfer towards areas with higher levels of employment and better-paid jobs, it was recommended that transport and housing infrastructure be improved.

Actions taken: No recent action taken. The government expects EU funds to contribute to improving transport infrastructures.

Reduce minimum cost of labour

Challenge and recommendations: To increase employment of youth and low-skilled workers, it was recommended that the minimum wage should not rise significantly relative to average wages, the use of in-work benefits be developed, and access to the reduced-minimum-wage programme be enlarged.

Actions taken: A new indexation rule is likely to result in an increase in the minimum wage relative to the average wage over the next few years.

PORTUGAL

Convergence in living standards with the more advanced OECD average has halted in recent years. With employment rates above EU average, the income gap essentially reflects low productivity.

Policy priorities

Improve upper-secondary education attainments

Challenge and recommendations: To improve the quality of labour input and facilitate the adoption of new technologies, Portugal's human capital gap needs to be reduced. It was recommended that implementation of ongoing reforms of the curricula, technical education and teachers' evaluation be stepped up and that adult training be further developed.

Actions taken: The implementation and first impact of the 2004 reform of the upper-secondary education system are being assessed. Vocational and technological streams are being strengthened under the programme *Novas Opportunidades*. The authorities are promoting individualised support for low achievers to allow a larger number to reach upper-secondary education.

Reduce state control of business operations in network industries

Challenge and recommendations: To promote greater competition in network industries, it was recommended that the state abandon its influence in certain sectors via the replacement of special voting rights with arm's length regulation where appropriate, and that measures to foster effective competition be taken.

Actions taken: In the telecommunication sector, the regulator has continued to take action to reduce the power of the incumbent and put all operators on a level playing field.

Ease employment protection legislation

Challenge and recommendations: The 2003 reform of the Labour Law, which introduced flexibility at the firm level and allows a better control of absenteeism, was a step forward. It was recommended that EPL be eased further to promote mobility and encourage technological and managerial innovation.

Actions taken: No further action.

Step up implementation of the public administration reform

Challenge and recommendations: To enhance global effectiveness and facilitate implementation of reforms in many other areas, it was recommended that the pace of public administration reform be accelerated.

Actions taken: As part of a deficit-reduction package, a broadly-based reform of public administration has been launched, including in particular streamlining of central administration services (2006), the alignment of public sector employment conditions with those prevailing in the private sector and the introduction of performance-based pay (by 2007).

Simplify the tax system and broaden the income tax base

Challenge and recommendations: In order to reduce compliance costs for businesses and thereby the scale of informal activities, it was recommended that the tax system be simplified and that the income tax base be broadened.

Actions taken: The government's deficit-reduction package includes the abolition of several tax benefits and exemptions, but at the same time it introduces an additional tax bracket on personal income tax and a higher marginal tax rate for higher-income categories.

SLOVAK REPUBLIC

GDP growth has accelerated and contributed to a narrowing of the large income gap vis-à-vis *OECD countries, but further reforms are essential to maintain progress and reduce unemployment.*

Policy priorities

Reduce the tax wedge for low-income workers

Challenge and recommendations: To improve incentives for job creation for unskilled workers, it was recommended that employers' social security contribution rates for low-skilled workers be cut significantly. The fiscal cost of this should be funded by expenditure cuts in less urgent areas.

Actions taken: The government has stated that it will consider small across-the-board cuts in social security contribution rates when the fiscal position permits.

Reform the education system to improve human capital

Challenge and recommendations: To improve educational outcomes in primary and secondary schools, it was recommended that measures to promote increased accountability be introduced. To improve tertiary sector outcomes, it was recommended that tuition fees be permitted, and competition between institutes promoted.

Actions taken: A proposed government bill to introduce fees in tertiary education was rejected by the parliament.

Reduce state control of business operations in network industries

Challenge and recommendations: To improve competition in network industries, it was recommended that the involvement of the government be limited and that the new regulatory framework be fully enforced, including through close monitoring of price developments.

Actions taken: Competition authorities are more closely monitoring price developments and competition conditions. Some anti-competitive actions by dominant incumbents have been punished with large fines.

Strengthen the governance of the judicial and law enforcement systems

Challenge and recommendations: To ensure a more efficient, transparent, and rules-based business environment, it was recommended that the governance of the judicial and law enforcement systems be strengthened.

Actions taken: The Ministry of Justice continues to promote legislative improvements, including new bankruptcy legislation which came into force in January 2006. However, the lines of accountability for judicial outcomes remain weak and perceived corruption remains quite high.

Progressively increase the statutory retirement age for public pension eligibility

Challenge and recommendations: In order to make the pay-as-you-go pension system sustainable, it was recommended that the statutory retirement age be progressively increased to 65 years. It was also recommended that some rules in the new pension system be refined.

Actions taken: No actions since the 2003 Social Insurance and Old-Age Pension Saving Acts.

SPAIN

The Spanish economy has been resilient to the protracted European slowdown. However, the persistence of high inflation and stagnant labour productivity are undermining competitiveness.

Policy priorities

Limit the extent of administrative extension of collective agreements

Challenge and recommendations: To raise real wage flexibility, it was recommended that the compulsory application of agreed wages to all firms in the sector be suppressed and that wage indexation clauses be eliminated. If the latter is not feasible, negotiations should focus on core rather than headline inflation.

Actions taken: Discussions are currently taking place between the social partners on labour market questions, including this issue.

Ease employment protection legislation for permanent workers

Challenge and recommendations: To reduce the segmentation of the labour market, it was recommended that the gap in protection between permanent and temporary workers be reduced by further lowering severance payments for permanent contracts and that controls on the illegal use of temporary contracts be improved.

Actions taken: The government has proposed that the lower dismissal costs for certain labour market groups be generalised to all permanent contracts, and this is currently being discussed by the social partners.

Reform the education system to improve human capital

Challenge and recommendations: To improve the quality of the education system, it was recommended that more autonomy be provided to schools and university departments and that university fees be increased to fund tertiary education, thus leaving more public resources for secondary education.

Actions taken: The government has started discussions with the social partners on this issue which may result in the implementation of some of the above recommendations.

Remove distortions in the housing market

Challenge and recommendations: To contain the booming housing market, it was recommended that tax advantages for home ownership be phased out and that land regulations be eased, including the removal of a compulsory transfer of 10% of building land to the municipalities.

Actions taken: The ceilings on the tax advantages for home ownership will be lowered, but only marginally.

Reform the pension system

Challenge and recommendations: To ease the strong pressures on public finances expected as from 2015-20, it was recommended that the public pension system be made actuarially fair.

Actions taken: No recent action has been taken.

SWEDEN

Productivity growth over the past decade has picked up, helping Sweden to slightly narrow its income gap vis-à-vis *the United States.*

Policy priorities

Reform sickness and disability benefit schemes

Challenge and recommendations: To reduce sickness absences, it was recommended that a time limit be put on access to disability benefits (with regular re-assessment) and the powers of the national agency over local boards be strengthened to ensure that existing policies are implemented as intended.

Actions taken: Local social insurance offices have been turned into government agencies, which should improve implementation. Since 2005, part of sickness benefits is financed by employers. However, the disability benefit level has been increased.

Reduce the scope of public ownership

Challenge and recommendations: To strengthen competition, it was recommended that competition law be applied to the public sector; the opportunities for private firms to seek redress through the courts be increased; the sorts of activities that local governments can legitimately be involved in be clarified, and a level playing field be ensured; and the public procurement supervisory agencies be streamlined and strengthened and given power to enforce sanctions.

Actions taken: No recent action.

Reduce tax wedges on labour income

Challenge and recommendations: To boost labour supply and human capital development, cutting overall marginal income tax rates by raising the threshold for the state tax, broadening tax bases by restoring and then increasing the property tax, and removing exemptions from the VAT were all recommended.

Actions taken: Half of the fourth step of the earlier-decided multi-year programme to provide deductibility for employee pension contributions has been implemented. Further "green" tax shifts have been introduced, involving higher basic allowances for low and middle income earners along with lower social insurance contributions for employers to compensate for higher environmental taxes. As the last step in a multi-year programme, marginal and average income tax rates have been reduced in 2006, in particular for low- and middle-income earners.

Boost working hours

Challenge and recommendations: Greater labour supply is needed in order to ensure that the welfare system will be sustainable in the long term. It was recommended that plans to introduce a legal right to a year of sabbatical leave and the pilot scheme for lower hours (25% fewer hours with no loss of pay) be reconsidered.

Actions taken: The sabbatical leave scheme and the pilot scheme for lower hours were introduced on 1 January 2005. However, the adverse impact of this scheme on labour utilisation will be offset in part by a new employment package promoting both labour supply and demand (via training and bonuses for jobs in municipalities).

Liberalise the housing market

Challenge and recommendations: To reduce distortions that have broken the link between supply and demand, it was recommended that rent controls be phased out and planning restrictions eased.

Actions taken: Measures are under way to increase transparency in allocation of rented apartments, and government guarantees to help young people rent apartments are being considered. A government-commissioned review of the role of social housing is to report in 2007. But no action has been taken to ease rent controls.

SWITZERLAND

GDP growth has been among the weakest in the OECD over the past two decades, reflecting mainly meagre productivity growth. Nonetheless, income per capita remains high.

Policy priorities

Further liberalise professional services

Challenge and recommendations: To enhance competition in professional services and stimulate productivity in the sheltered sector, it was recommended that a revision of the Domestic Market Act be carried out, in order to recognise explicitly the freedom of establishment of professionals in all cantons and to allow the Competition Commission to appeal to the court in the case of restrictive cantonal practices.

Actions taken: A draft reform along these lines submitted to Parliament in December 2004 is currently being discussed. It also ensures the recognition of certificates for exercising a profession across cantons.

Reduce barriers to entry in network industries

Challenge and recommendations: To promote greater competition in product markets, it was recommended that barriers to market contestability be removed in network industries where liberalisation has been limited.

Actions taken: Concerning the telecommunications sector, Parliament is currently discussing the unbundling of the local loop. A draft reform liberalising the electricity market in line with the EU reform and creating a strong and independent regulator was submitted to Parliament in December 2004.

Reduce producer support to agriculture

Challenge and recommendations: To improve economy-wide efficiency and reduce food prices for consumers, which are much higher than abroad, it was recommended that the expensive producer support to agriculture be reduced and the de-linking of subsidies from production be accelerated.

Actions taken: The milk quota system will be abolished by May 2009. The next agricultural policy programme (AP 2011) will continue shifting support to more market-friendly instruments.

Curb the rising number of disability pensions

Challenge and recommendations: To restrain the growth of social spending, which has led to a sharp rise in the tax burden in the 1990s, it was recommended that reforms be implemented, in particular to the invalidity pension scheme to check the rising number of disability pensions.

Actions taken: A draft reform of the invalidity pension scheme that aims at reducing the number of new pensioners by 20% was submitted to Parliament in June 2005 and is being discussed. The early detection of individuals concerned will be enhanced to maintain their labour market attachment, while measures easing their re-entry into the labour market will be developed. Conditions under which disability pensions are granted will also be tightened.

Better contain the growth of medical costs

Challenge and recommendations: To restrain the rise in medical costs which has been strong in international comparison, it was recommended that competition be enhanced in the ambulatory sector, where the obligation of insurers to contract with all providers weakens the control of supply, and in the drug market where obstacles to effective foreign competition persist.

Actions taken: A draft reform that proposes to abolish the obligation of insurers to contract in the ambulatory sector has been submitted to Parliament.

TURKEY

Growth remains on a strong path and is driven by productivity gains. Job creation is picking up but remains too weak to increase the employment rate.

Policy priorities

Reduce administrative burden on start-ups

Challenge and recommendations: There is a need to address the "informality trap" which is an important obstacle to enterprise growth in the small-scale sector.

Actions taken: Regulatory requirements have been further streamlined to facilitate market entry and the registration of small-scale enterprises, but no actions have been announced to address the informality trap.

Reduce the tax wedge on labour income

Challenge and recommendations: To put in place a "company registration strategy", it was recommended that the marginal tax and social security contribution rates faced by firms joining the formal sector be reduced during a transition period.

Actions taken: The earlier-decided investment incentive in low-income provinces, with a 50% reduction of social security contributions being granted, has been generating positive employment responses, although these were at least partly due to employment shifts from other provinces.

Reduce the scope of public ownership

Challenge and recommendations: To help privatise large state firms which dominate the energy, telecommunications, transportation and banking sectors, it was recommended that the barriers to foreign ownership be removed.

Actions taken: The authorities have raised and/or waived the foreign ownership caps and opened new privatisation tenders to foreign investors. The government has sold 55% of the incumbent telecommunications company to foreign investors, and 51% of the national oil refining company was sold to an international consortium.

Implement results-oriented budgeting in core public services

Challenge and recommendations: To enhance the quality of public expenditures in justice, education and health services, it was recommended that budget allocations be based on performance and result benchmarks.

Actions taken: The new law on Public Financial Management and Control requires the use of results-oriented budgeting starting with the 2006 budget, but actual progress has been slow.

Improve educational opportunities

Challenge and recommendations: To improve the educational prospects of girls, and more generally the labour market relevance of education, it was recommended that the minimum schooling rules be fully enforced, and that the education curricula be revised.

Actions taken: A national campaign has been launched to increase the school participation of girls. The Ministry of Education has also undertaken a thorough revision of curricula in primary and secondary education.

UNITED KINGDOM

Macroeconomic performance has been resilient. But the productivity gap with the leading OECD economies is large, and there is scope for raising labour force participation.

Policy priorities

Tighten disability benefit schemes

Challenge and recommendations: Many claim disability-related benefits. It was recommended that mandatory work-focused interviews and credits for those returning to work included in the "Pathways to Work" programme be rolled out nationally, if the pilot programme was successful, and to consider including all claimants, not just new ones.

Actions taken: The coverage of the Pathways to Work programme is set to be extended to one-third of incapacity benefit recipients. Reforms have been announced for incapacity benefits to put the emphasis on encouraging action to regain employability in so far as incapacity is partial or temporary.

Improve access of young people to vocational training

Challenge and recommendations: While the literacy of British 15 year-olds is above the OECD average, many leave school early. It was recommended that vocational programmes for the young as well as adult training be expanded, but to have cost-sharing for adult training and focus content on what is relevant in the workplace.

Actions taken: A reform of vocational diplomas has been announced, aiming towards fewer and more up-to-date diplomas. For low-skilled adults, workplace training has been expanded in the National Employer Training programme and wage compensation is likely to play a smaller role than during the pilot phase.

Improve public infrastructure, especially for transport

Challenge and recommendations: For decades there has been under-investment in public infrastructure, resulting in congestion on the roads and an unreliable rail system. It was recommended that general government investment be increased and greater use of road charging be made to deal with congestion.

Actions taken: The government aims to boost public investment by one-third over 2004-06, but as a per cent of GDP it will still be modest compared with most OECD countries. Additional funding will be provided from 2007-08 to encourage local authorities to take measures to relieve road congestion. The government is considering a national road-charging scheme to be introduced in 10 years time.

Enhance incentives to support performance targets in publicly-funded services

Challenge and recommendations: It was recommended that waiting times be reduced by expanding activity-based funding for hospitals and by introducing incentive pay for hospital doctors (*i.e.* paying them through a combination of salaries and fees).

Actions taken: Contestability has been raised in publicly-funded services by increasing private sector involvement. Activity-based funding for hospitals is gradually being rolled out with a policy focus on personalised and patient-led care. Doctors' pay has not been changed.

Give greater weight to economic considerations in planning decisions

Challenge and recommendations: Planning restrictions inhibit competition in key services, and limit the supply of new housing. It was recommended that greater weight be given to economic considerations in the planning process and to speed it up with fewer layers of decision-making involved.

Actions taken: Legislation to speed up and simplify the planning system has recently been passed. The government is also making use of "Urban Development Corporations" that are empowered to effectively bypass the normal planning processes in specific areas. New house building in the South East, where shortages are most acute, has risen by about one-third relative to the average of the previous 5 years.

UNITED STATES

Labour productivity has accelerated significantly since the mid-1990s from an already high level, while employment rates have remained well above the OECD average.

Policy priorities

Restrain health care costs

Challenge and recommendations: To curb pressures on health spending and non-wage labour costs, it was recommended that Medicare reform should focus on reducing cost per enrolee and over-consumption of health services by rolling back the unlimited tax exclusion of employer-furnished benefits and through individual savings accounts.

Actions taken: No recent legislative action.

Improve educational achievements at the primary and secondary levels

Challenge and recommendations: To improve the outcomes of compulsory education, it was recommended that further funding be envisaged and other measures be examined, if the financial means or incentives provided by the 2002 No Child Left Behind Act prove to be insufficient.

Actions taken: The 2002 Act, which provides for nationwide annual testing, greater accountability and increased parental choice if public schools were found to be failing, is being implemented by the states.

Reduce support to agriculture

Challenge and recommendations: To strengthen market forces and reduce trade distortions, it was recommended that the move away from market-based outcomes implied by the 2002 Farm Act be reversed and that the extra support given to farmers in recent years be rolled back.

Actions taken: The Administration has proposed legislative changes to reduce assistance to farmers under the 2002 Farm Act. Other actions are pending the outcome of the Doha trade round.

Reform the tax system

Challenge and recommendations: To reduce inefficiencies and foster saving, broadening tax bases by curbing exemptions and moving from an income-based toward a consumption-based system were recommended.

Actions taken: The President appointed an Advisory Panel on Federal Tax Reform that made recommendations on how to improve the tax system in a revenue-neutral manner in November 2005.

Continue corporate governance and accounting reforms

Challenge and recommendations: To bolster financial market confidence, it was recommended that the authorities stand firm on promoting transparency and accountability in corporate governance and accounting and that the special status of government-sponsored housing enterprises be eliminated.

Actions taken: The implementation of the 2002 Sarbanes-Oxley Act has continued. The government has proposed reforms to avoid under-funding of private defined-benefit pensions.

PART II

Encouraging Innovation

ISBN 92-64-03591-5
Economic Policy Reforms
Going for Growth

PART II

Chapter 3

Encouraging Innovation: An Overview of Performance and Policies

Innovation has long been a key source of progress in material living standards but the outcomes of innovation efforts are generally highly uncertain and the benefits for society as a whole may exceed those for private firms. To encourage innovation, governments have therefore put in place various measures such as financial support for private R&D projects and funding for research in universities. This chapter provides a cross-country comparison of innovation efforts and outcomes as well as of the main policy areas having an influence on those outcomes.

Introduction

Most of the rise in material standards of living since the industrial revolution has been the consequence of innovation. New or improved products and services – and new and improved ways of producing them – have for a long time been the main motor of economic growth. It is thus important that society allows innovation to flourish.

As has been long recognised, several factors reduce incentives for private firms to invest in innovation, precluding private investments from reaching socially optimal levels. The outcomes of innovation efforts are highly uncertain, especially in their early stages, making firms reluctant to invest sufficiently in research and development. In addition, firms face great difficulty in appropriating the economic benefits of their investments in innovation, while preventing their competitors from doing so. More generally, because of positive knowledge or technological spill-over effects, the benefits to society from investments in innovation often exceed the private returns accruing to individual firms.

To address these market failures, all OECD governments have put in place specific measures to encourage innovation. These include direct financial support for R&D projects and/or tax incentives that make it easier or more attractive for private companies to engage in R&D, or to adopt inventions developed elsewhere. Patent laws and other legally enforceable measures provide innovators with time-limited, exclusive rights over the exploitation of their innovations. Also, governments own and operate some research institutes and underwrite research in universities.

In recent years most policy attention has been dedicated to raising the effectiveness of these and other measures so as to improve the overall efficiency of innovation systems. This has entailed not only refinements to instruments for financing R&D, but as well the implementation of policies to strengthen interactions between public research organisations and industry. In particular, steps have been taken to improve institutional structures for funding and steering public research, as well as to facilitate the transfer of knowledge and technology between the public and private sectors.

As with all forms of government intervention, innovation policies entail costs that must be weighed against their benefits. Stricter protection of intellectual property, for example, can channel more of the benefits of innovation to innovators, while limiting socially beneficial spill-overs. Efforts to promote technology transfer may detract from the research mission of public research organisations. Hence, when encouraging innovation, it is important for policy makers to know how successful their policies are in isolation and in combination with each other, and how to maximise successful innovation and spread its benefits at the lowest cost to the taxpayer.

This chapter reviews cross-country differences in innovation efforts and outcomes as well as relevant policy settings, using a variety of indicators that measure different aspects of innovation activities and of the stance of policies known to influence them. It explores the relative effectiveness of various policies in fostering innovation, drawing largely on recent OECD work.[1] This analysis and the related set of policy and performance indicators

have been used in combination with country-specific expertise to formulate policy recommendations to strengthen innovation performance in each OECD country (Chapter 4).

The next section of this chapter reviews various measures of innovation performance at the national level, highlighting their strengths and weaknesses. Then, cross-country differences in policy settings in areas that have been found to affect innovation performance are discussed, distinguishing between general framework policies and more innovation-specific policies.

Assessing innovation performance

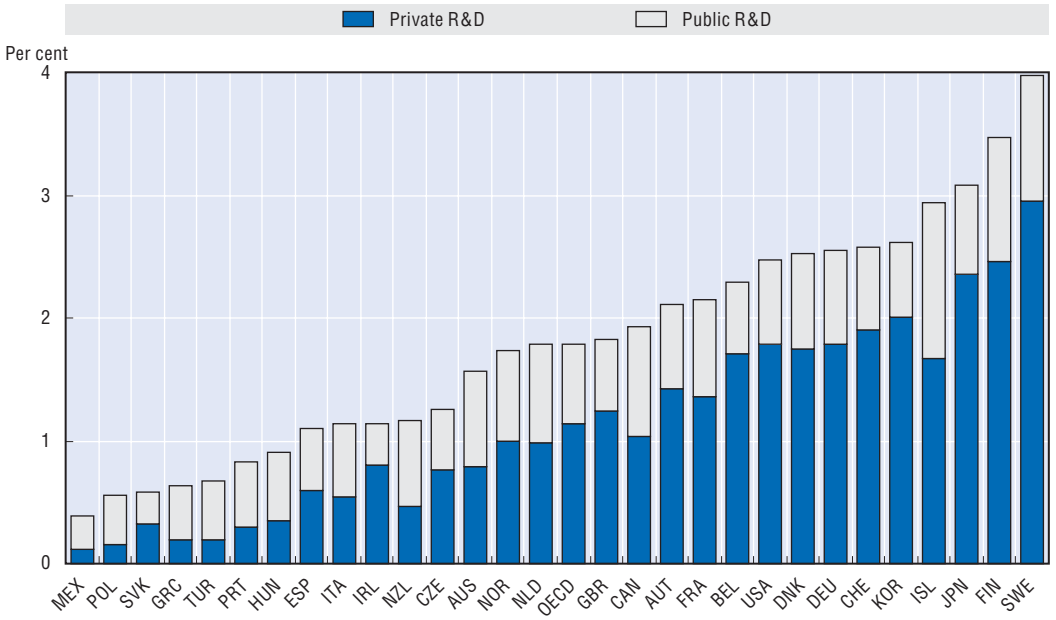
Assessing innovation performance is a challenge. Despite co-ordinated efforts in better defining different types of innovation activities and in improving data collection, direct and internationally comparable measures of innovation outcomes remain limited.[2] Two measures of innovation activities have been widely used – spending on R&D and patenting activity – but each has its own limitations. In addition, a number of OECD countries – including the majority of EU member states – have conducted innovation surveys, providing insight into levels of innovative performance and the structure of innovation processes, in particular in the business sector.[3]

R&D intensity at the national and industry levels

Spending on R&D by the public and private sectors is commonly measured as a per cent of GDP so as to provide an indication of the intensity of innovation effort that is comparable across countries. The dispersion across countries is very wide. Countries that have a relatively high R&D intensity on this measure include Sweden, Finland, Japan, Iceland, Korea and Switzerland, while low intensity is found in southern European countries, Central and Eastern European economies and Mexico (Figure 3.1). The business sector generally accounts for most of measured R&D expenditures, the main exceptions being in countries with low overall R&D intensity. Business-sector R&D also accounts for most of the cross-country dispersion of total recorded R&D. On average across OECD countries, around 1.2% of GDP was spent on business R&D and 0.7% on public R&D in 2003. Over the past decade, business-sector R&D intensity has risen most in Nordic countries (except Norway) and, to a lesser extent, Austria and Belgium (Figure 3.2). But aggregate measures of R&D spending are a misleading indicator of innovative activity for two reasons: they are influenced by industrial structures; and much innovative activity is not captured by R&D spending.

Differences in business R&D spending between countries at a given point in time reflect both industry structure and industry-specific R&D levels. The industries with the highest recorded R&D intensities in OECD countries are generally pharmaceuticals and information technology (IT) manufacturing with intensities (*i.e.* R&D spending as a per cent of sectoral value-added) of over 20% followed by motor vehicles with an intensity of around 10%. One alternative indicator of underlying cross-country differences in innovation activities that controls for variations in industry composition is obtained by re-calculating the overall business sector R&D intensity assuming that each country has the same average industry structure as the G7 countries. Based on this measure, the overall R&D picture does not change substantially in the majority of cases, although a large difference is observed in those countries where overall R&D intensity is particularly high, *i.e.* Finland, Korea, Sweden, and, to a lesser extent, Japan (Figure 3.3). While the relative ranking of Sweden and Japan does not change as a result, Finland and Korea rank lower in terms of overall business-sector R&D

Figure 3.1. **Expenditures on R&D performed in the public and business sectors as a percentage of GDP, 2003**[1]



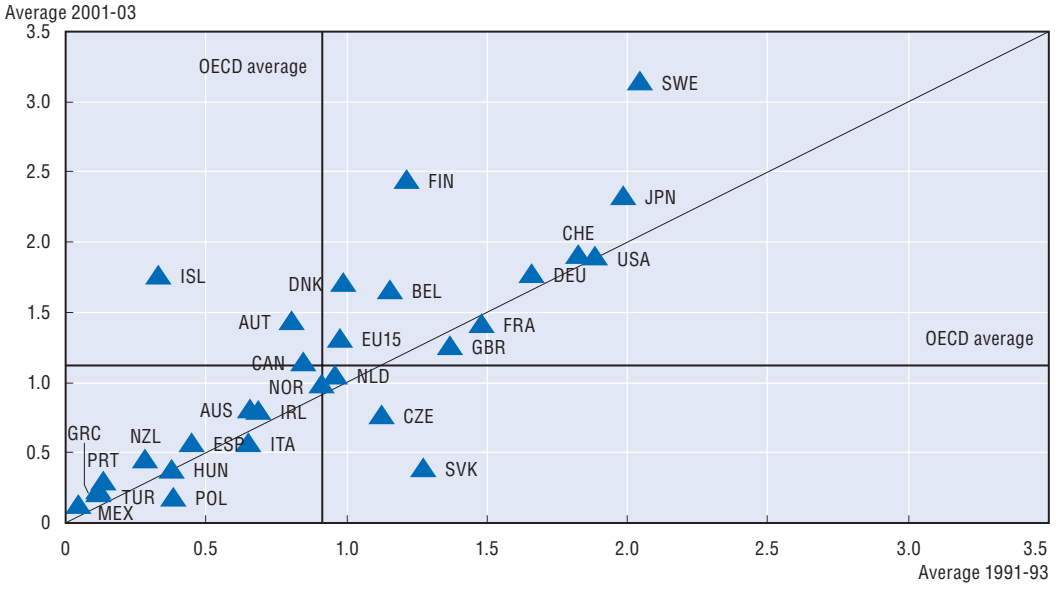
1. 2002 for Australia, Austria, Portugal, Switzerland and Turkey; 2001 for Greece and Mexico.

Source: OECD, Main Science and Technology Indicators database.

StatLink: *http://dx.doi.org/10.1787/462688616478*

Figure 3.2. **Business-sector R&D intensity as a percentage of GDP**

Early 1990s and early 2000s

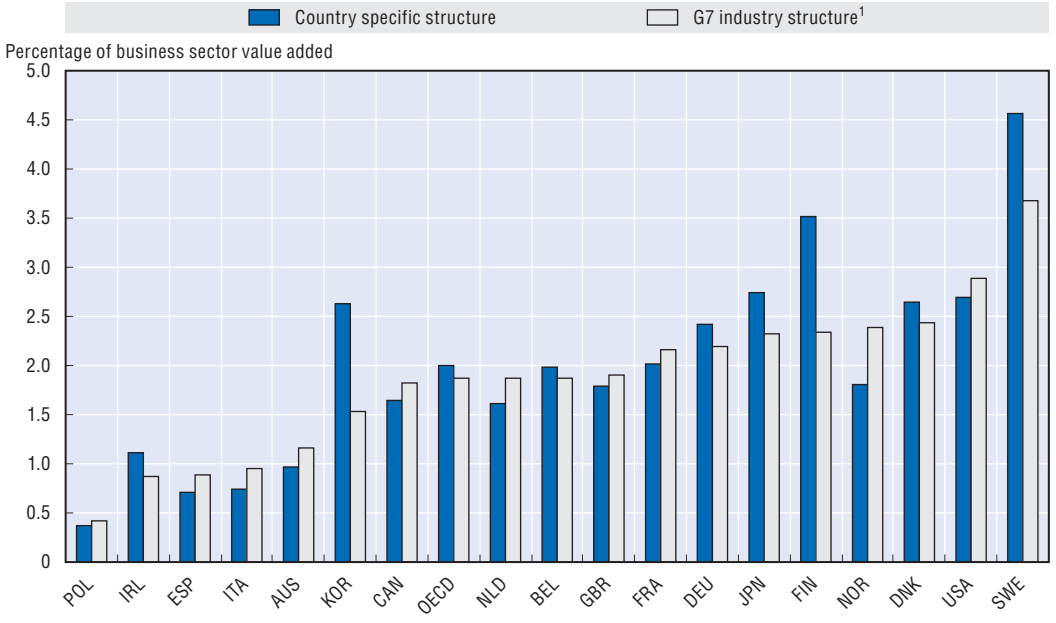


Source: OECD, Main Science and Technology Indicators database.

StatLink: *http://dx.doi.org/10.1787/462688616478*

Figure 3.3. **R&D intensity in the business sector adjusted for variations in industry structure**

Average over 1999-2002



1. All countries are assumed to have the same industry structure. Calculated on the basis of R&D intensity per industry with the weights of each industry corresponding to their share of total business-sector value added on average across G7 countries.

Source: OECD, Analytical Business Enterprise Research and Development (ANBERD) database and OECD, Structural Analysis (STAN) database.

StatLink: *http://dx.doi.org/10.1787/462688616478*

intensity, reflecting the disproportionate contribution of IT manufacturing. In contrast, Norway's relative ranking moves up substantially.

The relatively low level of R&D performed in services as compared with manufacturing underscores one limitation in focusing on R&D spending as an indicator of performance. Investment in innovation may in fact include activities that are not necessarily recorded as formal R&D spending, such as acquisition of high-tech equipment, training and product testing.[4] According to some estimates the share of such activities in overall innovation effort is more than half in the case of services, where changes in process, organisation and marketing account for a larger proportion of innovation.

Furthermore, even though the contribution of R&D to overall economic growth is well established (OECD, 2003a), looking at the amount of resources devoted to R&D is not sufficient to assess a country's innovation outcome. The main reason is that, as for all types of investment, it is not only how much that is spent that matters but also how efficiently resources are used. Hence, measures of innovation performance should focus more on the extent of commercially successful applications than on the amount of effort going into developing them. In principle, patenting activity gets closer to this.

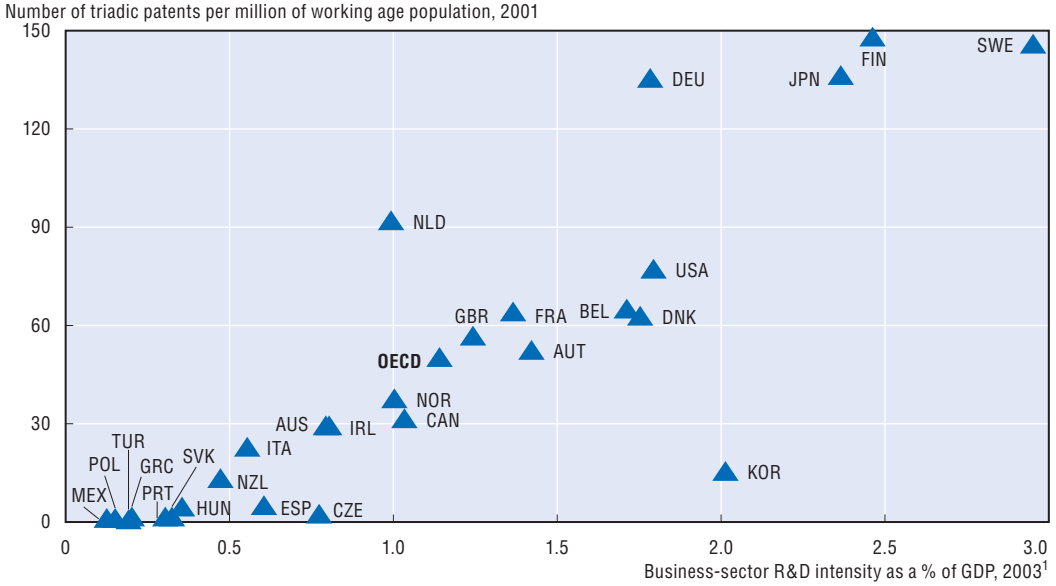
Patents

A patent is an intellectual property right (IPR) issued by authorised bodies to inventors granting them exclusive rights on the exploitation of their inventions for a limited period of time (generally 20 years). As an indicator of innovation, it has the merit of being based

on hard data readily available from patent offices, while being in principle closely linked to inventions. Nevertheless, international comparability is limited by substantial variations in the criteria used to grant patents, in the filing system as well as in the cost of patenting. Furthermore, the propensity to patent differs greatly across industries, affecting comparisons based on economy-wide data.[5]

In order to lessen the impact of some of these differences, a measure based on so-called triadic patents can be used. Triadic patents are those that have been applied for at the European Patent Office and the Japan Patent Office, and granted by the United States Patent and Trademark Office to protect the same invention.[6] Not surprisingly, the countries that invest the most in R&D are generally the ones generating the largest number of triadic patents relative to the size of the working-age population, *i.e.* Switzerland, Sweden and Japan (Figure 3.4).

Figure 3.4. **Number of triadic patents per million of working age population and business-sector R&D intensity**



1. 2002 for Australia, Austria, Portugal, Switzerland and Turkey; 2001 for Greece and Mexico.

Source: OECD, Main Science and Technology Indicators database.

StatLink: *http://dx.doi.org/10.1787/462688616478*

However, despite improvements in comparability of patents data, they may give a biased picture of the underlying innovation performance. This is both because many patents are never exploited commercially and because many innovations are not patented. Companies may instead choose to keep commercially sensitive information secret, or claim property rights via other means, such as trademarks and copyrights, on which data collection is less comprehensive.[7] Registered trademarks and copyrights give legal protection to the innovator at lower cost than patenting and for prolonged periods, but they are not suitable for all innovations, and especially not for innovative processes. In addition, many firms rely on the lead times that they have before potential competitors can catch up with a new, complex process, or an innovation that requires specially trained personnel working with proprietary equipment. By the time the competitors have caught up, the innovators hope to have developed other applications.

Innovation density

Alternative indicators of innovation outcomes can be obtained from survey-based information. The EU Community Innovation Survey (CIS) covers 16 European countries and collects information from representative samples of firms across the economies on a wide basis. Firms are asked about different aspects of innovation including outcomes, methods of protection, innovation efforts and perceived barriers to innovation.

One indicator of innovation outcome is the proportion of all firms in each country claiming to have been successful innovators. This indicator of innovation density is available for the whole economy as well as for manufacturing and services firms separately (Figure 3.5, Panel A). As in the case of R&D spending or patents, there is substantial variation across countries, although the ranking of countries is quite different, with Portugal appearing in the first tier, whereas Sweden and Finland rank near the middle.

Taken at face value, the different rankings according to R&D intensity and innovation density suggest that R&D activities are much more concentrated in fewer establishments in certain countries. However, the differences in relative rankings may also reflect some of the limitations associated with survey-type information. A typical drawback is that responses may not be representative if responding is not obligatory. Another is that responses to some questions are necessarily subjective. For instance, what constitutes a "successful innovation" may be appreciated somewhat differently across countries, or may represent an innovation that is new to the responding firm, rather than to the industry. In fact, while there is a positive correlation between innovation density and R&D intensity across countries in the case of manufacturing (Figure 3.5, Panel B), there is no clear association between the two performance measures in the service sectors (Figure 3.5, Panel C).

The determinants of innovation and underlying policies

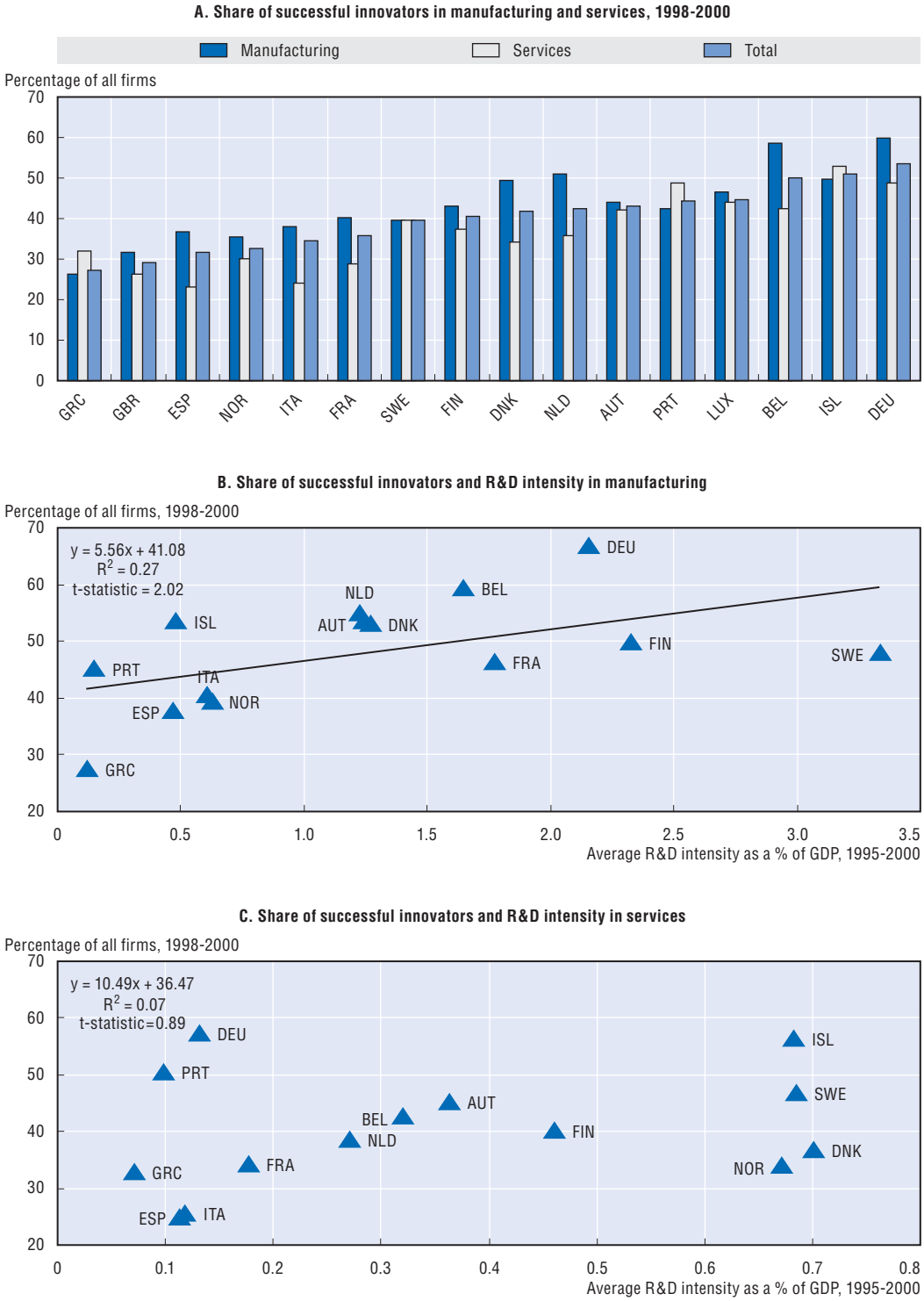
Innovation effort and performance are influenced by a wide spectrum of policies. In some cases, policies have been specifically designed to strengthen innovation outcomes. In other cases, they have been put in place for other reasons but may still have an impact on innovation capacities. In this section, the different policy areas are reviewed under two broad headings: framework policies and R&D-specific policies. The first heading encompasses several aspects of financial conditions, education policy, and product- and labour-market regulation. Innovation policies include direct public financial support for private R&D, either through grants or the tax system, the funding of public research institutions, and measures to improve linkages with the private sector.

Framework policies

Education policies

Education is fundamental both for the conception and the implementation of innovation. The ability to adapt to new technology begins with a well-performing compulsory school system, namely one that provides students with strong skills in core fields, including mathematics and science. Some information about the performance in these fields of study at the compulsory school level is provided by cross-country indicators on mathematical and scientific literacy rates. They suggest that OECD countries provide young people with uneven average skill levels in these subjects. According to the latest results, the Asian OECD countries attain particularly high scores in mathematical and science literacy tests, while southern European countries and Mexico record low scores (Figure 3.6).

Figure 3.5. **Innovation density in selected OECD countries**[1]



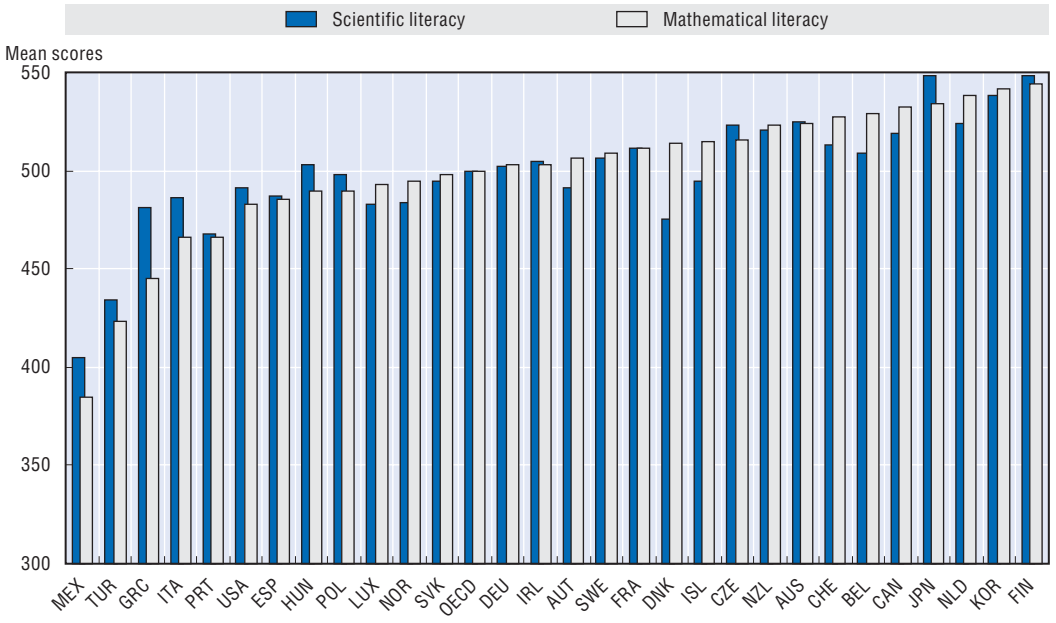
1. Innovation density is defined as the number of firms claiming to have introduced a successful innovation as a percentage of total firms over the period considered.

Source: Eurostat Survey and OECD, Main Science and Technology Indicators database.

StatLink: *http://dx.doi.org/10.1787/462688616478*

ECONOMIC POLICY REFORMS: GOING FOR GROWTH – ISBN 92-64-03591-5 – © OECD 2006

Figure 3.6. **Mathematical and scientific literacy of 15-year-olds: mean scores, 2003**[1]



1. Countries are ranked in ascending order of performance in mathematical literacy.

Source: OECD, *Learning for Tomorrow's World*, PISA 2003.

StatLink: *http://dx.doi.org/10.1787/462688616478*

A well-performing and broadly accessible education system at the tertiary level is also important to facilitate the adoption and widespread diffusion of innovation. While there is no equivalent to the literacy scores that would allow for a broad, direct comparison of quality at the tertiary level, some indication of cross-country differences in average skills level may be obtained from data on high education attainment for different age groups. These show that in the age group of 25 to 35 (*i.e.* the age group that has been most strongly influenced by recent education policies), the share of the population with tertiary-education qualifications varies significantly across OECD countries (see Figure A.14 in the Statistical Annex).

Creating and implementing innovation requires above all a highly-trained workforce with skills in science and technology. Indeed, variations in the share of trained scientists and engineers in the working-age population across countries closely mirror differences in R&D intensities. This implies that unless the share of scientists can be raised sufficiently rapidly, allocating more public money to innovation will likely end up in the short run as higher wages for researchers rather than more R&D activities or patents.[8] In the longer term, of course, higher wages could well be what is needed to attract more people into science and engineering.

Despite generally rising trends in the share of such workers in the overall workforce, concerns about the availability of suitably trained engineers and researchers have been expressed, in particular in countries with low or declining enrolments in scientific and engineering fields or whose youth rank low in international mathematics and science tests. The extent to which this is a pressing issue is difficult to judge, however, given the lack of suitable data for identifying shortages. Nevertheless, where countries have perceived a problem, the authorities have taken various measures.[9]

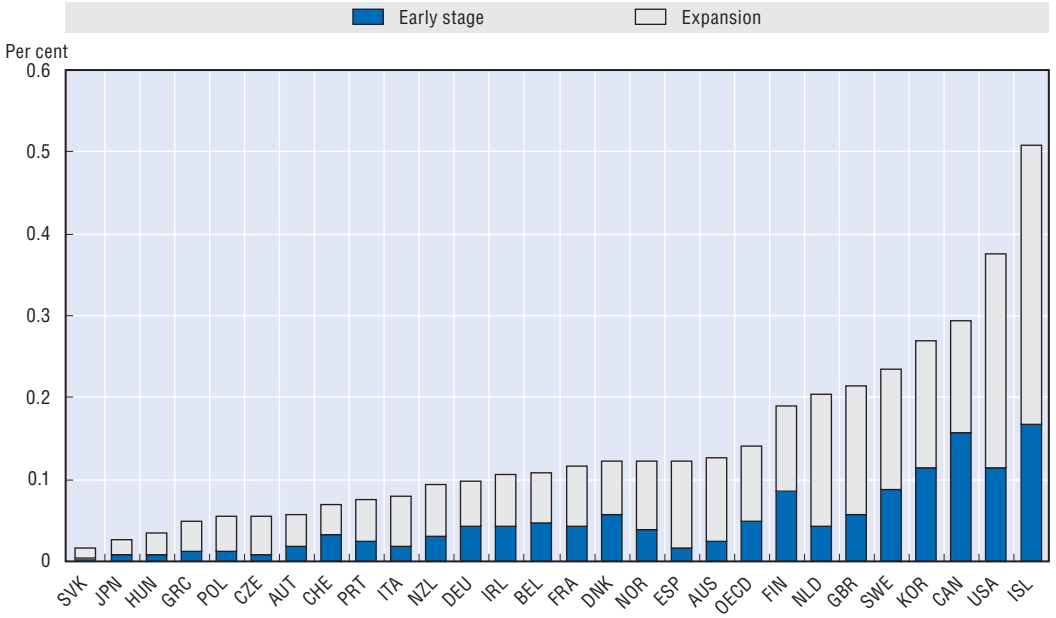
Financial market policies

A well-developed financial system helps foster investment by reducing the cost of finance from sources that are external to the firm. This view is well established in the empirical literature, and evidence reported in de Serres *et al.* (2006) shows that industrial sectors that are most dependent on external finance tend to grow faster in countries that have better developed financial systems. Furthermore, the sectors that tend to be the most dependent on external financial sources are generally the ones that invest the most in R&D (*e.g.* pharmaceuticals, electronic equipment and refined petroleum products). This is corroborated by the recent OECD analysis (Jaumotte and Pain, 2005b), which identified overall financial development – and deep stock markets in particular – as key determinants of cross-country differences in R&D and patenting activities over time. Policy determinants of financial market development are discussed further in Chapter 5.

A specific aspect of the general financial environment relates to the ability for entrepreneurial individuals to turn new ideas into new products, often through the setting up of a new company. Given the high-risk nature of their undertaking, however, entrepreneurs often do not have access to traditional sources of finance. This is particularly the case for those with no established track record, few tangible assets to offer as collateral and whose project may require several years of investment before generating net profits. In such a context, the market for high-risk capital, in particular venture capital and less formal sources of finance such as business angels' funds play a key role in the financing of innovation.

Venture capital investment is relatively small in most European countries and Japan as compared with North America, the United Kingdom and the Netherlands (Figure 3.7).[10] Recent empirical analysis found the number of firms citing limited access to finance as an

Figure 3.7. **Venture capital investment flows as a percentage of GDP, 2000-03**[1]



1. 2000-02 for Iceland; 1998-2001 for Australia, Japan, Korea and New Zealand.

Source: OECD, Venture capital database.

StatLink: *http://dx.doi.org/10.1787/462688616478*

impediment to innovation in surveys to be higher in countries with underdeveloped venture capital markets (Jaumotte and Pain, 2005c). Differences in the availability and/or use of venture capital across countries may to some extent be rooted in different cultural attitudes towards entrepreneurship and risk taking, but they also reflect policies that discourage risk-taking and the supply of risk capital.

The policy determinants that influence the supply of and demand for venture capital include:

- Excessive taxation of capital income and capital gains that reduces both the willingness of individuals to commit savings to venture funds (supply) and the incentive for entrepreneurial firms to invest in high-risk activity (demand).[11] Capital gains taxes for individuals and companies are relatively high in Japan and the Nordic countries (Table 3.1). In some of these countries, special tax incentives for venture capital are used to offset the adverse impact of the general stance.
- Portfolio restrictions that bar or limit institutional investors from holding non-listed companies or high-risk companies, even at levels consistent with prudential standards. The wide dispersion across the OECD countries in the extent to which pension funds and insurance companies invest in venture capital assets (Figure 3.8) reflects both different regulatory stances and the importance of pension funds in financial markets more generally. And the latter is also likely to be strongly affected by public policies.
- Barriers to cross-border mergers and acquisition and/or consolidation of secondary stock exchanges that affect the prospects for successful exiting, a key determinant of the return on venture capital investments.[12]
- Costly and long drawn-out bankruptcy procedures or ones that stigmatise failure may also discourage entrepreneurship and hence the demand for venture capital funds (OECD, 2001). The efficiency of bankruptcy procedures (see Chapter 5), remains relatively low in Central and Eastern European countries as well as in Italy, Mexico, Switzerland and Turkey.

Policies affecting product market competition and intellectual property rights

Policies that affect the intensity of competition in product markets have an impact on innovation efforts. On the one hand, strong competition encourages companies to innovate to stay ahead of competitors, which militates in favour of pro-competitive regulatory and competition policies. On the other hand, the granting of a degree of market power over commercially interesting inventions may stimulate innovation activity by facilitating cost recovery of related expenses, but a balance has to be struck so as not to hamper productivity by stifling diffusion and related innovative activity. The risk is that too much of the rewards to innovation go to the patent holders and too little to society. Thus, the right policy environment for innovative activity is one that gives adequate rewards to innovation, while ensuring competitive pressures that encourage firms to create, implement and diffuse innovations.

In practice, establishing the right degree of protection is difficult as innovation processes and the role of intellectual property rights (IPR) in protecting competitive advantage vary considerably across industry sectors and types of invention.[13] Considerable controversy has arisen around the patenting of software, business methods, genetic inventions and research tools due largely to concerns about the effects of patenting in these areas on the diffusion of knowledge and follow-on innovation and the quality of issued patents (OECD, 2004; Jensen and Murray, 2005). And, although licensing is an

Table 3.1. **Taxation of capital gains on shares**[1]

Per cent, 2004

	Marginal tax rate
Australia	24.3
Austria	0
Belgium	0
Canada[2]	19
Czech Republic	0
Denmark	43
Finland[3]	29
France[4]	26
Germany	0
Greece	0
Hungary	20
Iceland	10
Ireland	20
Italy[5]	12.5
Japan	27
Korea[6]	20
Luxembourg	0
Mexico[7]	0
Netherlands[8]	25
New Zealand	0
Norway	28
Poland	19
Portugal	0
Slovak Republic	19
Spain	15
Sweden	30
Switzerland	0
Turkey	0
United Kingdom	24
United States	15

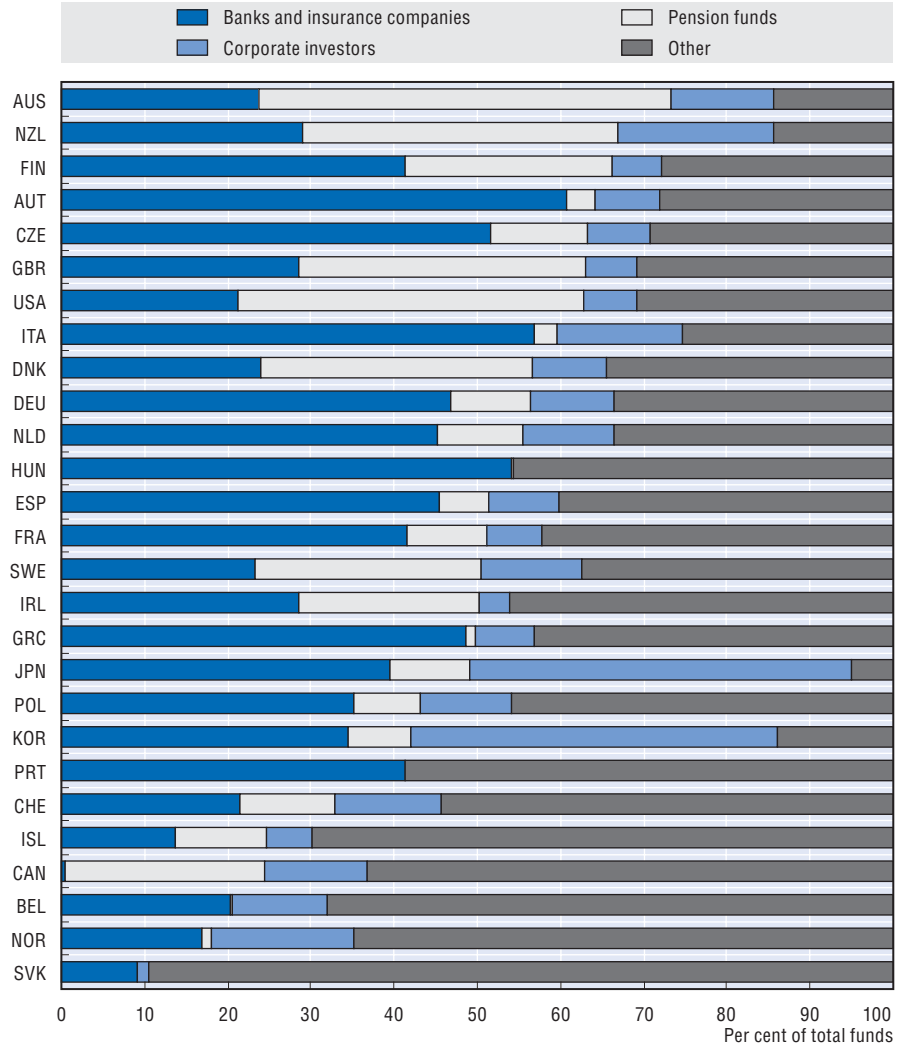
1. Based on the assumption of a long holding period and, where relevant, on top marginal income tax rates.
2. Cumulative life-time capital gains allowance (C$ 500 000) under specific conditions.
3. The tax payer may use a maximum presumed acquisition cost of 20% (50% for assets held for 10 years or longer) of the sale price.
4. There are special exemptions for gains on interest in qualifying "innovative new company".
5. Qualified/substantial shareholding in listed companies; 40% inclusion in "other income" taxed at marginal personal income tax rates.
6. For substantial shareholding of quoted shares and non-substantial holding of unquoted shares.
7. For quoted shares.
8. For substantial shareholding (direct or indirect ownership of more than 5%); otherwise exempt.

Source: OECD, *Tax Policy Studies* (forthcoming).

StatLink: *http://dx.doi.org/10.1787/462688616478*

effective mechanism to spread the benefits of patented innovation more widely, the monopoly power of the patent holder, if ruthlessly exercised, may be detrimental to subsequent innovation. This is the case, for example, when enterprises take out patents on items relevant to innovation activities by other firms in order to frustrate their efforts. Furthermore, the effectiveness of patenting as a tool to stimulate innovation also depends on the capacity of patent offices to cope with the proliferation of applications so that protection is only granted to genuinely new and non-trivial innovations.[14]

Figure 3.8. **Sources of venture capital funds, 1999-2002**[1]



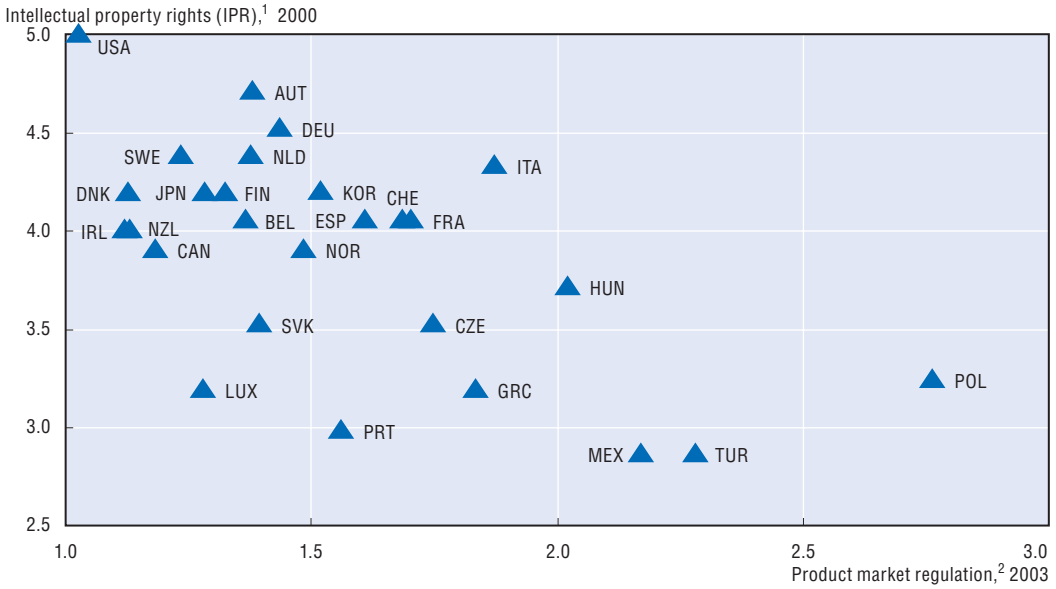
1. Countries are ranked according to the sum of bank, insurance and pension funds.

Source: OECD, Venture capital database.

StatLink: *http://dx.doi.org/10.1787/462688616478*

Measures of the stance of competition-restraining regulations and the degree of IPR protection show that OECD countries have adopted different constellations of policy stances (Figure 3.9).[15] Some countries combine pro-competitive product market regulation with comparatively strong protection of intellectual property. The reverse policy combination, *i.e.* tough regulations constraining overall competition and weak protection of intellectual property is recorded for a number of countries, with the likelihood of reducing incentives to engage in innovative activity. While there are good reasons *a priori* for believing that the strictness of protection of intellectual property rights should have an impact on business R&D spending, the recent OECD analysis found that when all other factors are taken into account, the evidence regarding the impact of IPR strictness on R&D spending is mixed, with significant positive effects found in Bassanini and Ernst (2002) but not in Jaumotte and Pain (2005b). On the other hand, stricter competition-restraining regulation (other than IPR) is found to significantly reduce business R&D intensity in both studies.[16]

Figure 3.9. **Competition-restraining product market regulations and intellectual property rights**



1. Index scale of 0-5 from least to most restrictive.
2. Index scale of 0-6 from least to most restrictive.

Source: Park and Wagh, 2002 and OECD, *Economic Policy Reforms: Going for Growth*, 2005.

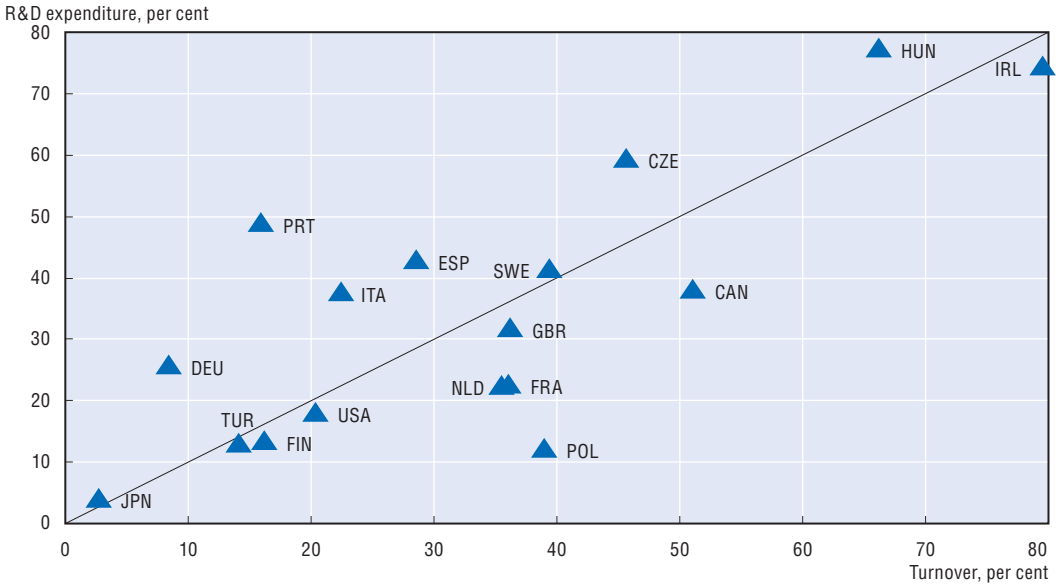
StatLink: *http://dx.doi.org/10.1787/462688616478*

Openness and regulations on foreign direct investment

Innovation performance is also related to the degree of openness of the economy to knowledge and ideas generated abroad. Quite apart from the effects arising from stronger competitive pressures, greater openness can lead to increased knowledge absorption through many channels: the importation of goods and services, inward or outward direct investment, international mobility of workers (including researchers), and collaborative research and innovation, all of which can be affected by policies. Recent analyses have found that domestic levels of R&D expenditure are strongly influenced by the amount of knowledge held abroad via cumulative R&D investment and that the effect is stronger the greater the number of scientists and engineers in the domestic population. This implies that openness to flows of knowledge is important, but having people with the skills needed to absorb and benefit from the knowledge flows is equally important (Jaumotte and Pain, 2005a). This is corroborated by evidence showing that foreign-performed R&D has a significant effect on domestic multifactor productivity growth (Guellec and Van Pottelsberghe, 2001). Available statistics indicate that the share of R&D performed in foreign affiliates increased in many OECD countries between 1995 and 2001, but that considerable variation remains, even after controlling for the overall degree of openness of the economy to inward foreign investment (Figure 3.10).

Openness to FDI is influenced by the regulatory environment facing foreign investors. This includes restrictions on foreign ownership of domestic companies, screening and notification requirements, and rules governing the nationality of board membership and management. Indicators suggest that such restrictions are comparatively high in Poland, Turkey, Canada, Italy and Mexico while they are relatively low in the United Kingdom, Germany and Belgium (see Figure A.12 in Statistical Annex). However, FDI restrictions are often limited to specific

Figure 3.10. **Share of R&D expenditure and turnover of affiliates under foreign control in total manufacturing R&D and turnover, 2001**[1]



1. 2002 for Canada, Czech Republic, Poland and the United States; 2000 for Turkey; 1999 for the United Kingdom; 1998 for Hungary.

Source: OECD, *Science, Technology and Industry Scoreboard*, 2005.

StatLink: *http://dx.doi.org/10.1787/462688616478*

sectors viewed as "strategic" by governments so the impact on R&D performed in foreign affiliates depends to some extent on the R&D intensity of these sectors. Indeed, the OECD analysis showed that FDI restrictions were having a significant adverse impact on patents but not on domestic R&D activities *per se*. Another recent study found the availability of highly-skilled personnel and the quality of knowledge institutions to be important factors for attracting foreign R&D activities (Erken, Kleijn and Lantzendörfer, 2005).

Labour market regulation and institutions

The influence of labour market regulation on the incentives to innovate varies according to the type of industry and wage bargaining systems in place. Under a set of conditions likely to be met in only a few industries, firms that cannot easily hire and fire have incentives to train staff and develop innovative processes requiring experienced personnel to operate them. For instance, job protection may help innovation in some high-tech industries characterised by an incremental innovation process that require labour skills highly specific to the individual firms (*e.g.* electronic components and aircraft), provided the wage bargaining system is sufficiently centralised and/or co-ordinated to prevent workers from appropriating the entire innovation rent (Bassanini and Ernst, 2002). However, for the bulk of industries, not least in services, the full exploitation of cost-reducing innovations will often require staff reduction or changes in the skill-mix of the workplace. Stringent job protection raises the cost of such changes, reducing the profitability of new innovations.

All in all, the particularly stringent stance of employment protection legislation observed in several continental European countries (see Figure A.6 in Statistical Annex) could weaken the incentives to innovate in these countries. The recent OECD analysis

found that after controlling for other factors (including product market regulation), the strictness of employment protection legislation has no significant impact on R&D spending, but is associated with lower patenting for a given level of R&D (Jaumotte and Pain, 2005a).

Innovation-specific policies

Insofar as the social returns to investment in innovation exceed the private returns, there is in principle a role for public policies specifically aimed at encouraging innovation. All OECD countries devote significant public funds to support R&D, through the funding of public research or via tax incentives and subsidies to the private sector. The former typically includes R&D undertaken in public research organisations, university-based research facilities, government agencies (*e.g.* defence or health departments), or other non-profit organisations. Finally, governments can also use public procurement policies to sponsor R&D activities in the business sector or to create initial markets for emerging technologies that serve government needs.

Public research

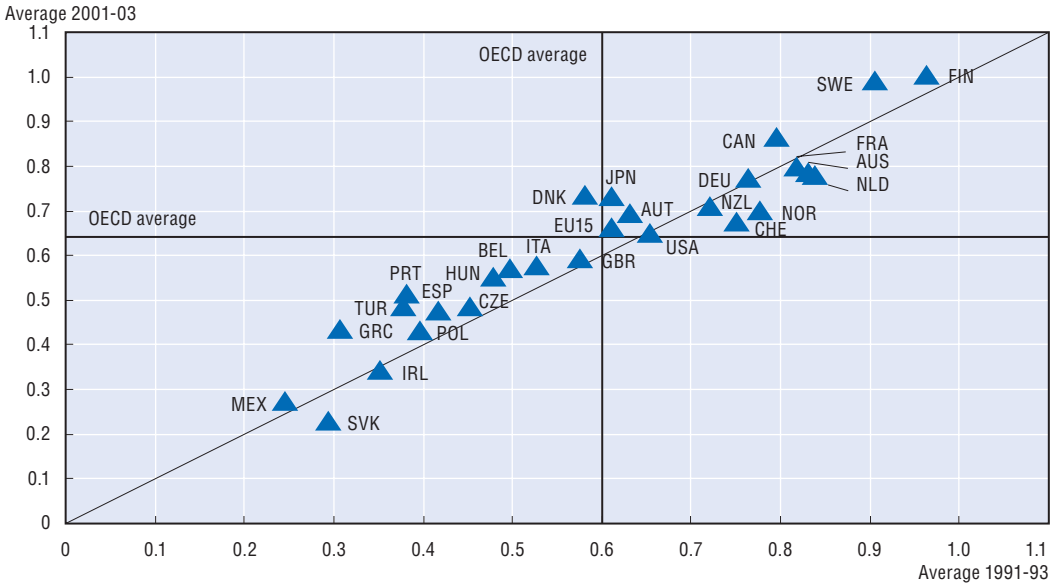
Basic scientific and engineering research is a major source of technical progress. By definition, however, fundamental research is undertaken without clear commercial benefits and hence the incentive for private firms is to spend resources on development rather than research. In this context, research undertaken by government and non-profit organisations may play an important role both in preserving the "public good" nature of major scientific advances as well as in stimulating private-sector R&D.[17] In addition, basic research in universities provides a training ground for scientists and engineers who can take their skills to the business sector, or provide information to it at low cost.

R&D spending performed in public institutions as a share of GDP is highest in some of the Nordic countries, Japan and Australia and lowest in the Slovak Republic, Mexico and Ireland (Figure 3.11). It has been fairly stable over time; the share at the beginning of the 1990s was similar to that in 2001. However, the share of universities has increased at the expense of government laboratories. The effectiveness of public R&D in fostering private R&D and overall innovation performance depends on a number of factors including the strength of industry-science linkages and the governance of public research organisations. Measurement in these two areas is difficult to come by, even though available statistics offer insights on industry-science linkages in a few countries. As a result, the stance of policy cannot be compared across a large number of countries on the basis of quantitative indicators.

Industry-science linkages. Strong linkages between industry and public research organisations are essential to improving the match between research conducted in the public sector and the needs of industry, as well as to facilitate the transfer of knowledge and technology between them. This can take many forms. Less formal channels include the dissemination of information via journal articles and government specialised Web sites, as well as the mobility of researchers between the public and private sectors. In recent years, greater policy attention has been devoted to stimulating more formal modes of industry-science relationships through:

- Reforms of public research organisations (PROs) to give them ownership over the intellectual property resulting from publicly-funded research, to require them to actively promote the patenting and licensing of inventions and to establish cost-sharing

Figure 3.11. **Expenditures on R&D performed in the public sector as a percentage of GDP**



Source: Main Science and Technology Indicators database.

StatLink: *http://dx.doi.org/10.1787/462688616478*

mechanisms for royalties resulting from patent sales or licenses.[18] Many OECD countries have taken steps in this direction.[19]

- The provision of funds for the commercialisation of public-sector technologies. Recognising that the further development and exploitation of public research results may require financial investments beyond those contained in traditional research funding, several governments, including those of Canada and the United Kingdom, have established specialised funds to support commercialisation.
- The establishment of public/private partnerships (P/PPs) for innovation. Such partnerships take several forms, from dedicated joint research centres to looser virtual affiliations among existing research organisations. They are all characterised by sharing of costs, risks and benefits among participants from the private and public sectors, although the share of private-sector funding committed to these partnerships varies across countries and programmes reflecting differences in the balance between public and private objectives and incentives in each partnership (OECD, 2005b).[20]

These channels offer different and often complementary means of strengthening industry-science linkages. Participation in P/PPs may, for example, require licensing of patented inventions among participants. Hence, while some research indicates that active collaboration, based on cost-sharing, between firms and universities is more effective in strengthening industry-science linkages than licensing or interchange of personnel (Adams *et al.*, 2003), policies should aim at opening and exploiting each of them (OECD, 2001).

Governance of public research. Improving the governance of science systems is critical to strengthening industry-science linkages and to improving the economic and social returns from investments in public research. OECD countries vary considerably in the governance of their public research systems (universities and government research

laboratories). While a number of countries rely on more centralised systems with funding provided primarily on an institutional basis, the tendency is to shift toward more decentralised systems with funding from various sources, often linked to specific projects. Among the general policy instruments used to introduce such changes are:

- Shifting the balance toward project-based and away from institutional funding for research. This permits a better targeting of research to areas of social and economic importance, and introduces competition into the funding process while sustaining long-term research capabilities and the breadth of the science base.[21]
- Broadening participation in government-wide and institutional priority-setting to include representatives of business as well as researchers and government officials.
- Implementing methods for evaluating researchers, research institutions and research outcomes that recognise and reward efforts to commercialise research results and to transfer technology. While virtually all OECD countries use *ex ante* procedures for evaluating research proposals, Australia, Austria, Denmark, Germany, Netherlands and United Kingdom have put in place or are developing more sophisticated procedures for evaluating broader research programmes or institutions.
- Creating critical mass and encouraging multidisciplinary research motivated by social and economic challenges (*e.g.*, health, environment and security) through the concentration of funds in a more limited number of research centres. Examples of successful regional clusters that have emerged from a concentration of resources are found in Austria, Finland, France and the United States.
- Granting institutions greater autonomy in establishing procedures for hiring and promotion, entering into collaborative agreements, etc., to enhance their ability to respond to emerging opportunities and needs.
- Encouraging international collaboration between PROs by facilitating cross-border mobility of human resources.

Financial support to private R&D

In addition to funding public research, all OECD countries provide financial support to stimulate private-sector innovative activity either via tax breaks for R&D spending or direct subsidies. The two types of measures are used for somewhat different purposes. Tax relief can potentially benefit all firms engaged in R&D, although special provisions may be required to ensure that it benefits young firms with little or no taxable income. Tax incentives typically leave more flexibility as regards the range of research activities to be undertaken, reducing the risk of capture and the temptation to "pick winners". By contrast, direct funding allows for more targeted support, providing governments with the opportunity to direct resources to areas believed to yield the greatest social returns. Both forms of financial support involve potential deadweight losses, *i.e.* supporting activity that would have taken place even without public support, requiring that policies be carefully designed.

While data on amounts spent on direct public R&D grants to the business sector are routinely collected, measuring the cost of tax incentives is a different matter. Nevertheless, in previous work the OECD has constructed an index of the generosity of tax incentives for R&D spending, known as the "B-index" (OECD, 2003d). This synthetic index summarises the amount of pre-tax corporate income required to cover the cost of one dollar of R&D spending and to pay corporate taxes on one dollar of profit. The more generous is the tax incentive the lower is the B-index. It takes into account the different aspects of corporate tax systems in

different countries and is calculated for representative large and small firms. The equivalent tax subsidy per dollar of spending is thus given by 1 minus the B-index value. It is an indicator of the generosity of the tax system with respect to R&D investments, although firms may not take advantage of these incentives to the same extent in all countries.[22]

Considerable cross-country differences exist in the use of tax incentives and direct subsidies for private R&D. Countries with the most generous tax incentive systems tend to be those with the lowest levels of business R&D intensity and with little direct government funding of R&D, such as Spain, Mexico, Portugal and Canada (Figure 3.12). However, tax incentives are also used in a number of countries with high levels of business R&D intensity, including Korea, Japan, France and the United States. Direct government funding of business R&D ranges from 0.12% of GDP or more in Sweden, the United States and Korea to less than 0.02% in Greece, Japan and Portugal. Countries at the higher end of the scale direct much of their funding to defence and health.[23]

Among countries that use both direct and indirect mechanisms for financing business R&D, the balance between these two instruments differs considerably. In Australia, Canada and the Netherlands, for example, support provided via tax incentives is greater than that provided via direct funding – by as much as a factor of five in Canada. In France, Japan and the United States, on the other hand, direct funding exceeds the cost of tax incentives – by a factor of more than 2.5 in the United States and more than 4.5 in France – even though total direct funding declined substantially during the 1990s. Differences in the mix of instruments used in these countries reflect different perceptions of the types of failures to be addressed (finance, risk, etc.), as well as different industry and institutional structures.

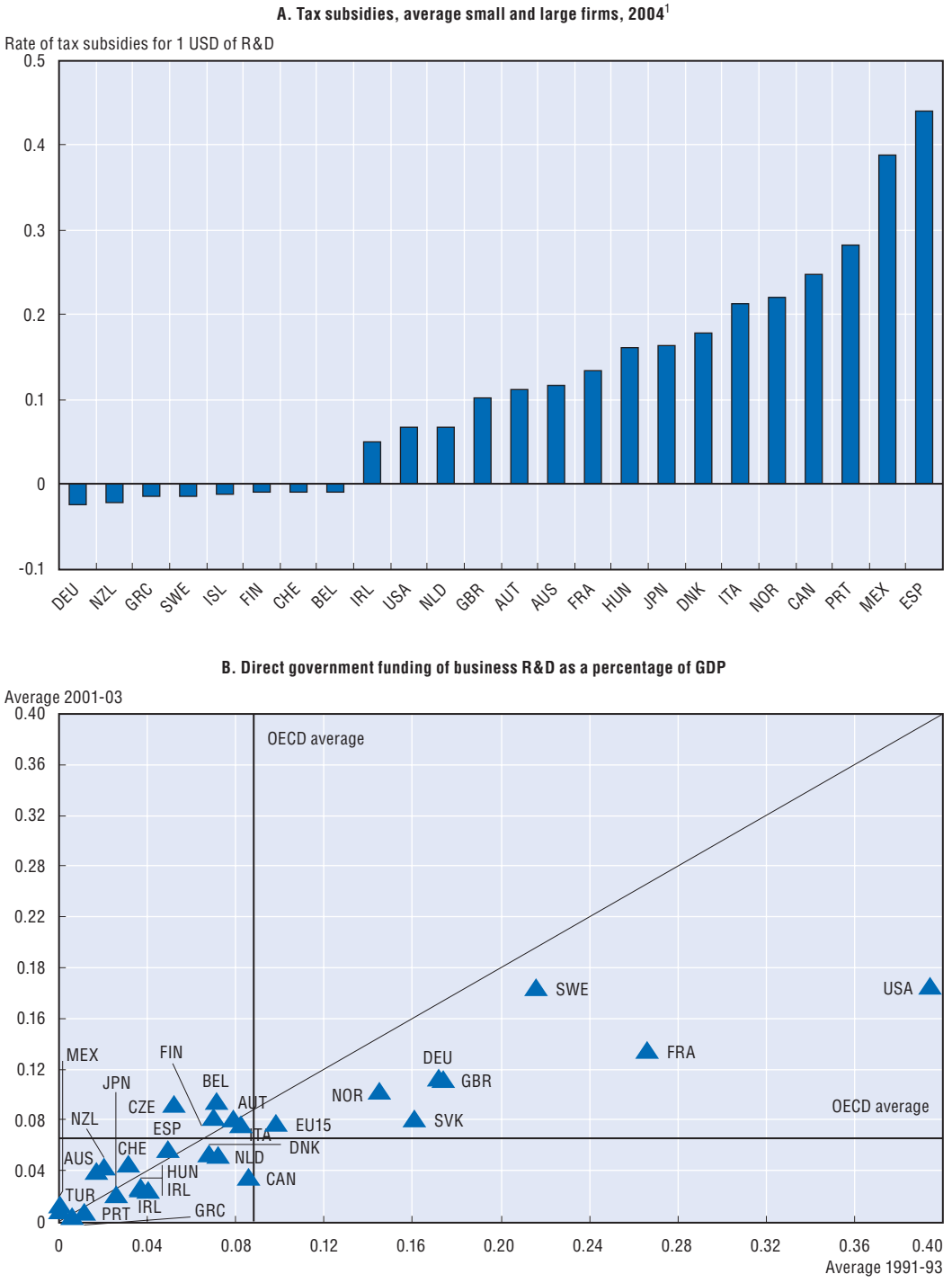
The effectiveness of individual instruments for financing business R&D is highly contingent on their design and implementation, which vary significantly across OECD countries and even within individual countries (OECD, 2004). As a result, empirical research (David *et al.*, 2002; Hall and van Reenen, 2000; Klette *et al.*, 2000) has shown mixed results for direct funding programmes – with more frequent success among programmes aimed at small firms (*e.g.*, Hytinen and Toivanen, 2003; Lach, 2002). Recent analyses of tax incentives generally find small positive effects on the level of R&D effort and patenting activity, especially over the long run (Guellec and van Pottelsberghe, 2000; Bloom *et al.*, 2002; Parisi and Sembenelli, 2003).[24] Also, one sophisticated whole-economy analysis (Russo, 2004) found that the gains from R&D-linked tax incentives are considerably higher than those from an equivalent reduction in corporate and personal income taxes.

The relative contributions of policies and other factors to past changes in innovation efforts

The importance of the influence on innovation activities of the policies reviewed in this chapter has generally been corroborated in one or more empirical studies. However, their relative impact can be better illustrated by looking at the extent to which they have contributed to differences in the change in innovation efforts over time. This also allows for assessing their influence relative to that of other factors which are not under the direct control of public authorities.

Based on the recent OECD empirical analysis, Figure 3.13 shows separately the contribution of public R&D funding, aspects of regulation and other framework and innovation conditions to the increase in R&D intensity between 1991 and 2000 in 19 OECD countries. For the purpose of this experiment, public R&D funding include public financial support for private R&D (both grants and tax incentives), R&D performed in public institutions as well as the share

Figure 3.12. **Financial support for private R&D investment**



1. Measures the generosity of tax incentives to invest in R&D, on the basis of the pre-tax income necessary to cover the initial cost of one dollar R&D spending and pay corporate taxes on one dollar of profit (B-index). A value of zero on the chart would mean that the tax concession for R&D spending is just sufficient to offset the impact of the corporate tax rate.

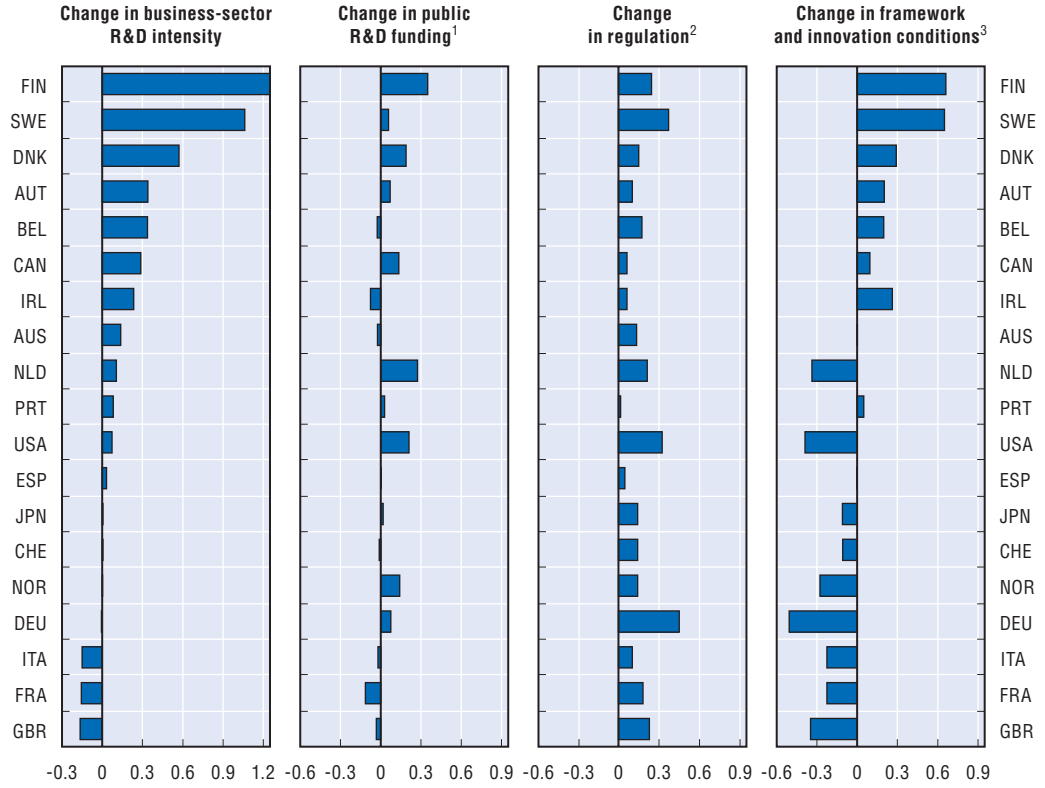
Source: OECD, Main Science and Technology Indicators database.

StatLink: *http://dx.doi.org/10.1787/462688616478*

ECONOMIC POLICY REFORMS: GOING FOR GROWTH – ISBN 92-64-03591-5 – © OECD 2006

Figure 3.13. **Contribution of policies and other factors to past changes in R&D intensity**

Percentage points of GDP, from 1991 to 2000



1. Includes public financial support for private R&D (both grants and tax incentives), R&D performed in public institutions and the share of the latter that is funded by the private sector.
2. Includes product market regulation and the strength of intellectual property rights.
3. Includes indicators of a country's exposure and capacity to absorb foreign knowledge as well as of broad financial and economic conditions. Residual factors that cannot be accounted for by the statistical relation are also included in this category.

Source: Jaumotte and Pain (2005d).

StatLink: *http://dx.doi.org/10.1787/462688616478*

of the latter that is funded by the private sector. Regulation covers both product market regulation and the strength of intellectual property rights. As for framework and innovation conditions, they include indicators of the capacity of a country to absorb and exploit foreign knowledge and broad financial and economic conditions.[25]

Overall, while differences in policy settings account for variations in innovation performance across countries, framework and innovation conditions have had the largest net contribution to the change in R&D intensity during the 1990s. This reflects in particular the relatively strong influences of the capacity to absorb foreign knowledge, which to a large extent depend on domestic innovation capabilities. Changes in product market regulations and/or the strength of intellectual property rights have had a positive influence on R&D in all countries, with the effect being substantial in several of them (*e.g.* Finland, Germany, Sweden and the United States). The contribution from public R&D funding has generally been smaller, reflecting in part the fact that in many countries levels of public funding have not changed substantially over the period concerned. Instead, policy action has focused on raising their effectiveness.

From background analysis to country-specific recommendations

The analysis of the main drivers of innovation reviewed in this chapter has been used to identify the country-specific policy recommendations to strengthen innovation performance presented in the next chapter (Box 3.1). As a general principle, the policy recommendations are based on:[26]

- An identified weakness in one of the direct indicators of innovation performance (*e.g.* patents or R&D intensity) and/or in one of the proximate determinants (*e.g.* skill level or financial conditions), on the basis of cross-country comparisons.

Box 3.1. **Country-specific policy recommendations: The empirical basis**

This box summarises the indicators that are used to uncover weaknesses in innovation performance and the associated policy settings.

Performance indicators

The direct performance indicators of innovation that are used to identify weaknesses for individual countries are:

- Economy-wide R&D intensities, both actual and adjusted for compositional differences.
- Economy-wide patent intensities.
- Innovation density by broad sectors.

The indicators of R&D and patent intensities are available for almost all OECD countries. By contrast, information about companies engaged in innovative activity comes from innovation surveys and these are only available for a smaller group of countries. As a result, the survey data has been used only as a supporting material to identify weaknesses.

The intermediate performance indicators that are used aim at measuring important, but inherently endogenous, determinants of the direct performance indicators. These intermediate indicators are as follows:

- Share of population aged 25-34 with at least tertiary education.
- Mathematical and scientific literacy of 15-year-olds.
- Venture capital investment: total and sources by type of investor (pension funds, and banks and insurance companies).
- Share of R&D performed by foreign affiliates.

These indicators are available for a large number of OECD countries.

Policy indicators

The policy indicators refer to levers that are under the direct control of government. The set of policy indicators consists of measures of the stances of:

- Competition-restraining product market regulations.
- Intellectual property rights.
- FDI restrictions.
- Employment protection regulations.
- Capital gains taxes.
- Bankruptcy legislation and procedures.
- R&D performed in public institutions.
- Public subsidies for private R&D spending.
- Tax advantages for private R&D spending.

- An associated identified weakness in related policy settings, also using policy indicators presented in this chapter as a basis for international comparison.

For example, product market reform is selected as an area of policy recommendation in cases where innovation performance is below OECD average and where at the same time relatively high regulatory barriers to competition are found. Following this approach, a number of recommendations are identified for each OECD country.[27] In order to allow for important policy requirements to be covered in areas that can not be easily quantified, additional policy recommendations, not necessarily based on indicators, but drawing on country expertise have been selected so as to have a total of four recommendations for each country.

Overall, looking at innovation outcomes and the identified policy recommendations, the following country groupings emerge:

- Leading countries include the Nordic countries, the United States, Japan, Korea and Switzerland. Most of these countries (Japan and Switzerland being the exceptions) have also had a strong record in terms of productivity growth over the past decade. They generally benefit from a well-trained labour force, with high graduation rates from tertiary education. One challenge shared by several of them, in particular the Nordic countries and Japan, is to raise innovation efforts in services industries.
- At the other end, countries with weak innovation outcomes are mostly found in southern and eastern Europe (Mexico being the exception). In the case of Southern European countries, the main policy challenges are to improve educational outcomes – either at the tertiary level (Italy and Spain) or at the compulsory level (Greece and Portugal) – and to raise the effectiveness of financial support for private R&D investment, in particular tax incentives. Central European countries generally have in common the need to stimulate product market competition by reducing administrative burden on firm creation or by monitoring the behaviour of incumbent firms in network industries (*e.g.* telecommunications, transport, energy) so as to ensure that the benefits of market liberalisation are fully reaped.
- The innovation outcome of English-speaking countries other than the United States lies near or below OECD average. Most of them have had nevertheless generally good productivity performance over the past decade, in particular Ireland and Australia. Strengthening the links between industry and research conducted in public institutions is a challenge shared by all, and reducing the high rate of early school leavers is a policy concern in both Australia and the United Kingdom.
- The remaining countries (Austria, Belgium, France, Germany and the Netherlands) are generally above OECD average in terms of R&D or patent intensities. As is the case for the group of leading countries, they benefit from a well-trained labour force, but have nevertheless in common the need to strengthen tertiary education so as to raise the contribution of universities to innovation. Most of them can achieve improvements in the cost-effectiveness of the financial measures taken to support R&D investment in the private sector, with more systematic evaluations and streamlining of such programmes.

Notes

1. The chapter draws upon recent OECD work, including analysis reported in Jaumotte and Pain (2005a, b, c and d), OECD (2005a) and OECD (2004).

2. See the guidelines for collecting and interpreting innovation data in the *Oslo Manual*, prepared jointly by the OECD and the European Commission.

3. The most recent results are found in the third wave of the Community Innovation Surveys, CIS3.

4. In this regard, the reliability of R&D spending as an indicator of innovation effort may not be as high for small firms or for the services sector as it is for large firms or manufacturing.

5. Unfortunately, the coverage of data at the sectoral level is insufficient to construct an aggregate measure correcting for these differences.

6. This measure improves international comparability since only patents applied in the same set of countries are included in the "family", thus eliminating home advantage and the influence of geographical location. Patents applied to all three offices also tend to be those that firms expect to exploit in all three geographic regions.

7. Surveys show that relatively few innovative firms patent their innovations.

8. Many governments, including all EU member states, have announced fairly ambitious targets for raising overall R&D intensity. For those to be achieved and to translate into the hoped-for rise in innovation, substantial increases in the number of scientists would be needed (Sheehan and Wyckoff, 2003).

9. These include, *inter alia*, providing better information to students about scientific careers, revising curricula at the tertiary level to make them more responsive to student and industry needs, raising the funding for graduate and post-doctorate training and introducing programmes to facilitate domestic access to high-skilled foreign workers.

10. Venture capital can be used for different purposes, including funding new firms, financing expansion, or simply providing funding to private enterprises who want to buy publicly-listed enterprises. The first two stages (referred to as early stage and expansion) are viewed as most important for encouraging innovative activities.

11. Earlier empirical studies based on US industry and firm-level data suggest that the effect of capital gains taxation on venture capital development comes mostly from the demand side (*i.e.* entrepreneurship) (Gompers and Lerner, 2004).

12. Most of the returns on venture funds consists of capital gains realised on the sale of mature venture-capital-backed firms. Secondary stock markets specialised in high-tech firms have traditionally constituted a popular exit route, owing to their lower costs and less stringent admission requirements relative to first-tier markets. Another route is the acquisition by another established firm.

13. In the pharmaceuticals sector, for instance, firms rely heavily on patents to protect their competitive advantage, but file a limited number of patents to protect each invention. In the ICT sector, competitiveness relies more on lead time than patent protection, but firms patent heavily to protect the myriad inventions that are incorporated into an individual product or service.

14. See Jaffee and Lerner (2004) for a review of these issues in the context of US patent applications.

15. The indicator of the strictness of IPR was originally devised by Ginarte and Park (1997) and later updated in Park and Wagh (2002). The indicator of product market regulation has been developed at the OECD and covers state control over business operation, barriers to entrepreneurship and to external trade and FDI. Details of the construction are found in OECD (2005c) and values of sub-indices are shown in Figures A.8 to A.12 in the Statistical Annex of this publication.

16. Jaumotte and Pain (2005b) find a negative impact also on patents.

17. While it has been found that the positive impact of innovation efforts on growth comes mostly from private-sector expenditure on R&D, public-sector R&D investment plays a vital role in stimulating private spending, albeit only up to a certain level beyond which it may crowd out private R&D investment.

18. The average number of patent licenses negotiated per public research organisation varies considerably between countries, with a recent survey finding a range from 24 licenses per university in the United States to 7 in Australia and just over 1 in Spain. The share of patents that have been successfully licensed by PROs also varied considerably, from just 8% of patents in Spanish universities to more than half of the patents held by Dutch PROs (OECD, 2003b).

19. The US Bayh-Dole Act is perhaps the most well-known of these regulatory reforms, but similar changes have been implemented in a number of OECD countries and further reforms are underway.

20. Recent studies indicate that funding for P/PPs as a share of total science and technology funding ranges from 2.8% in Austria to 6.3% in the Netherlands and 9.1% in Australia. In France, the share of P/PPs in competitively awarded funding grew from 37% in 1998 to 78% in 2002.

21. Among the small set of countries for which data are available, the share of institutional funding for university research ranged from 35% in the UK to 75% in the Czech Republic at the turn of the century, with Finland and Canada at around 45%. In all four countries the share has been declining (OECD, 2003c).

22. Information on effective use of tax incentives would require more detailed data on tax expenditures from public budgetary accounts. These are available only for a few countries.

23. In 2004, for example, defence expenditures accounted for between 20% and 56% of all government spending on R&D in France, Sweden, the United Kingdom and the United States, much of which took the form of R&D grants to firms, as well as to government laboratories.

24. This is partly corroborated by the recent OECD empirical analysis, which considered both direct grants and tax incentives simultaneously and found that after controlling for other factors, both have a statistically significant, albeit economically small, positive impact on private-sector R&D spending (Jaumotte and Pain, 2005b).

25. Note, however, that for some of these factors, the direction of causality cannot be clearly established. For example, the capacity to absorb foreign knowledge depends in part on the number of researchers at home, which may itself be a function of R&D spending within the country.

26. See the previous *Going for Growth* publication (2005) for more details on the approach followed to select policy recommendations.

27. For countries that perform better than the OECD average on most or all indicators of innovation outcomes and their proximate determinants, a "relative" weakness is identified in the areas where performance is closest to OECD average.

References

Adams, J.D., E.P. Chiang and J.L. Jensen (2003), "The Influence of Federal Laboratory R&D on Industrial Research", *Review of Economics and Statistics*, Vol. 85, No. 4.

Bassanini, A. and E. Ernst (2002), "Labour Market Institutions, Product Market Regulation and Innovation: Cross-Country Evidence", *OECD Economics Department Working Paper*, No. 316.

Bloom, N., R. Griffith and J. Van Reenen (2002), "Do R&D Tax Credits Work? Evidence from a Panel of Countries 1979-1997", *Journal of Public Economics*, Vol. 85.

David, P.A., B.H. Hall and A.A. Toole (2000), "Is Public R&D a Complement or a Substitute for Private R&D? A Review of the Econometric Evidence", *Research Policy*, Vol. 29, No. 4-5.

Erken, H.P.G., M. Kleijn and F. Lantzendorfer (2005), "Foreign Direct Investment in Research and Development", Ministry of Economic Affairs, The Hague.

Ginarte, J.C. and W.G. Park (1997), "Determinants of Patent Rights: a Cross-National Study", *Research Policy*, Vol. 26, No. 3.

Gompers, P. and J. Lerner (2004), *The Venture Capital Cycle*, The MIT Press, Cambridge.

Guellec, D. and B. Van Pottelsberghe (2000), "The Impact of Public R&D Expenditure on Business R&D", STI Working Paper 2000/4, OECD, Paris.

Guellec, D. and B. van Pottelsberghe (2001), "R&D and Productivity Growth: Panel Data Analysis of 16 OECD Countries", *OECD Economic Studies*, No. 33.

Hall, B.H. and J. Van Reenen (2000), "How Effective are Fiscal Incentives for R&D? A Review of the Evidence", *Research Policy*, Vol. 29, No. 4-5.

Hytinen, A. and O. Toivanen (2003), "Do Financial Constraints Hold Back Innovation and Growth? Evidence on the Role of Public Policy", *ETLA Discussion Paper*, No. 820.

Jaffee, A.B. and J. Lerner (2004), *Innovation and its Discontents*, Princeton University Press, New Jersey.

Jaumotte, F. and N. Pain (2005a), "An Overview of Public Policies to Support Innovation", *OECD Economics Department Working Paper*, No. 456.

Jaumotte, F. and N. Pain (2005b), "From Ideas to Development: The Determinants of R&D and Patenting", *OECD Economics Department Working Paper*, No. 457.

Jaumotte, F. and N. Pain (2005c), "From Development to Implementation: Evidence on Innovation Determinants from the Community Innovation Survey", *OECD Economics Department Working Paper*, No. 458.

Jaumotte, F. and N. Pain (2005d), "Innovation Policies and Innovation in the Business Sector", *OECD Economics Department Working Paper*, No. 459.

Jensen, K and F. Murray (2005), "Intellectual Property Landscape of the Human Genome", *Science*, Vol. 310, No. 5746.

Klette, T.J., J. Møen and Z. Griliches (2000), "Do Subsidies to Commercial R&D Reduce Market Failures? Micro-Econometric Evaluation Studies", *Research Policy*, Vol. 29, No. 4-5.

Lach, S. (2002), "Do R&D Subsidies Stimulate or Displace Private R&D? Evidence from Israel", *Journal of Industrial Economic*, Vol. L, No. 4.

OECD (2001), *Science, Technology and Industry Outlook*, Paris.

OECD (2003a), *The Sources of Economic Growth in OECD Countries*, Paris.

OECD (2003b), *Turning Science Into Business: Patenting and Licensing at Public Research Organisations*, Paris.

OECD (2003c), *Governance of Public Research: Toward Better Practices*, Paris.

OECD (2003d), *Tax Incentives for Research and Development: Trends and Issues*, Paris.

OECD (2004), *Science and Innovation Policies: Key Challenges and Opportunities*, Paris.

OECD (2005a), *Innovation Policy and Performance: A cross-country comparison*, Paris.

OECD (2005b), *Public-Private Partnerships for Innovation*, Paris.

OECD (2005c), *Going for Growth*, Paris.

Parisi, M.L. and A. Sembenelli (2003), "Is Private R&D Spending Sensitive to its Price? Empirical Evidence on Panel Data for Italy", *Empirica*, Vol. 30, No. 4.

Park, G. and S. Wagh (2002), "Index of Patent Rights, 2000 Update", Chapter 2 in James Gwartney and Robert Lawson (eds.), *Economic Freedom of the World Annual Report 2002*, Fraser Institute, Vancouver, B.C.

Russo, B. (2004), "A Cost-Benefit Analysis of R&D Tax Incentives", *Canadian Journal of Economics*, Vol. 37, No. 2.

Sheehan, J. and A. Wyckoff (2003), "Targeting R&D: Economic and Policy Implications of Increasing R&D Spending", *OECD STI Working Paper*, 2003/8.

ISBN 92-64-03591-5
Economic Policy Reforms
Going for Growth

PART II

Chapter 4

Encouraging Innovation: Country Notes

This chapter presents key policy recommendations to strengthen innovation performance for individual OECD countries and for the European Union.

AUSTRALIA

Innovation activity as measured by business R&D spending as a share of GDP has increased in Australia in the past decade. Nonetheless, it remains below OECD average.

Indicator-based recommendations

Improve opportunities for venture capital investments

In order to stimulate entrepreneurial ventures in knowledge-intensive activities, enhance the rate of commercialisation of university research.

Improve overall workforce skills

In order to improve the absorptive capacity of the workforce, reduce the proportion of early school leavers by pursing efforts to strengthen the vocational education and training system.

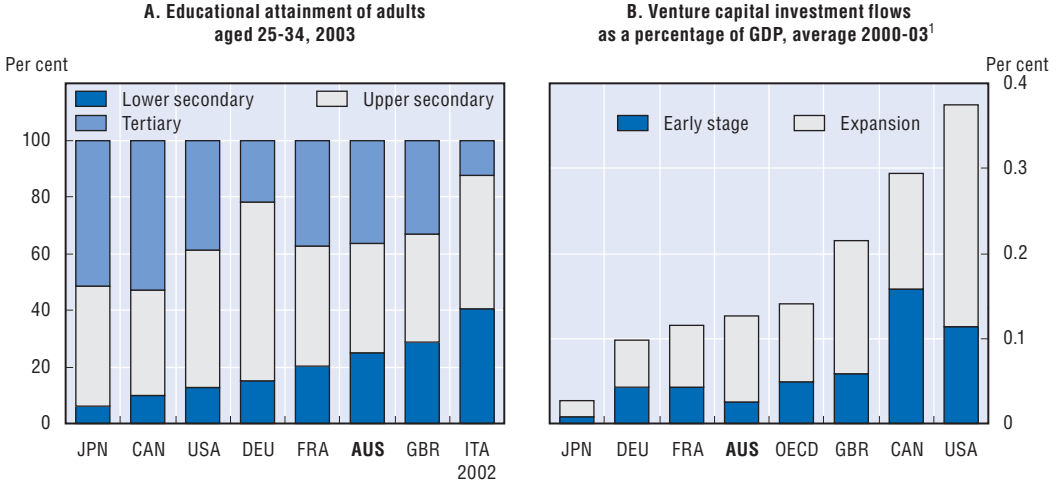
Other recommendations

Promote innovation in services

To enhance innovation in the growing services industries, broaden the opportunities for those sectors to participate in programmes facilitating the transfer of knowledge from public research institutes.

Strengthen industry-science linkages

Strengthen industry-science linkages and increase the leverage effect of public R&D expenditure on private R&D investment through sustained emphasis on public/private partnerships for research and innovation. Ensure greater foreign participation in such partnerships.



1. 1998-2001 for Japan.

Source: Chart A: OECD, *Education at a Glance*, 2005; Chart B: OECD, Venture capital database.

StatLink: *http://dx.doi.org/10.1787/232474884467*

AUSTRIA

Austria has been catching up with other high-income OECD countries with respect to R&D spending relative to GDP but still has a significant innovation gap.

Indicator-based recommendations

Improve educational achievements

Introduce country-wide performance targets for secondary schools, and raise their operational independence. Consider further measures to widen access to tertiary education and introduce a loan programme with income-contingent repayments to help students fund study fees.

Improve access to venture capital

Remove restrictive investment rules linked to tax subsidies for venture capital funds. Ease quantitative restrictions on investment of pension funds in venture capital, using financial market regulation to focus instead on the overall risk of pension fund portfolios.

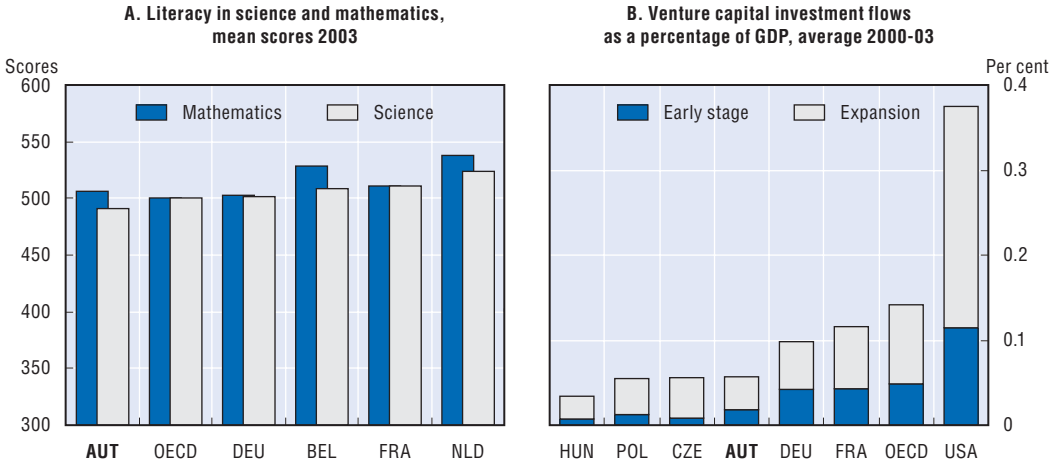
Other recommendations

Streamline public support for business R&D

Enhance the efficiency of public support to business R&D, notably by simplifying fiscal incentives for R&D spending and by evaluating their effectiveness, and the relative benefits of direct subsidies and tax concessions, via an independent agency.

Foster product market competition and entrepreneurship

Further reduce the cost of setting up public limited enterprises. Make regulation more conducive to competition in service industries, such as in professional services and retailing. Strengthen competition law enforcement.



Source: Chart A: OECD, *Learning for Tomorrow's World*, PISA 2003; Chart B: OECD, Venture capital database.

StatLink: *http://dx.doi.org/10.1787/232474884467*

BELGIUM

Belgium is close to OECD and EU averages with respect to both overall R&D and patent intensities, with substantial variations in the performance across manufacturing sectors.

Indicator-based recommendations

Improve efficiency of fiscal support for innovation efforts

Closely monitor the impact of the incentive embedded in payroll tax cuts for researchers of private firms co-operating with public research organisations (PROs), and broaden the scope for successful private-public partnerships by ensuring that such tax cuts are available to private firms co-operating with foreign PROs.

Reduce barriers to product market competition

Strengthen product market competition and foster entrepreneurship by simplifying the system for licensing and permits as well as by requiring assessment of more cost-effective alternative policy instruments before making use of command-and-control regulation.

Other recommendations

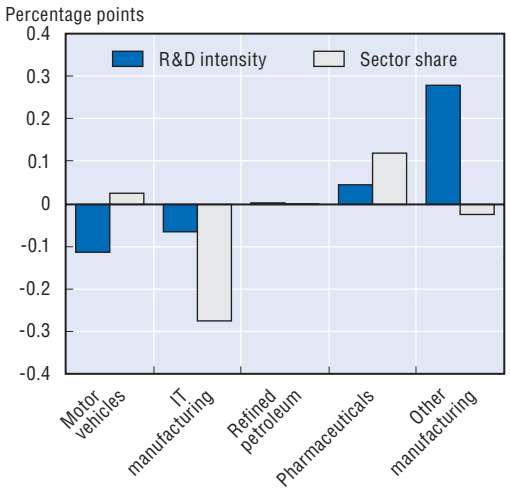
Improve quality of tertiary education

Raise quality of education and research at the tertiary level by linking grants and teachers' promotions more closely to performance and by broadening the scope of competition for research funding.

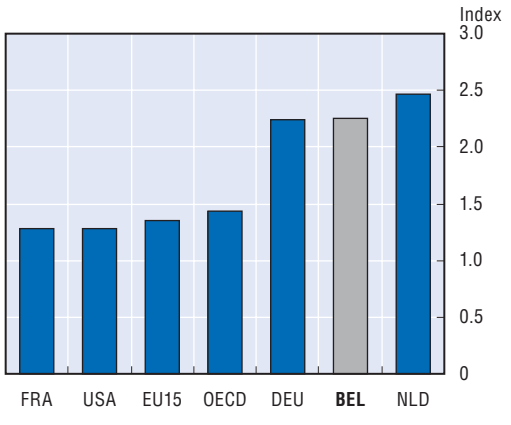
Improve governance of innovation policy

Improve the governance of innovation policy by strengthening cooperation between various levels of government.

A. Sectoral contribution to business sector R&D intensity – deviation from OECD average in percentage points of value-added, average 1999-2002[1]



B. Complexity of administrative procedures, 2003[2]



1. Contribution of sector-specific R&D intensities and sector size to the deviation of total business-sector R&D intensity from the OECD average.
2. Index scale of 0-6 from least to most restrictive. Concerns complexity of government communication of rules and procedures as well as of licences and permit systems.

Source: Chart A: OECD, Analytical Business Enterprise Research and Development (ANBERD) database and OECD, Structural Analysis (STAN) database; Chart B: OECD, *Economic Policy Reforms: Going for Growth*, 2005.

StatLink: *http://dx.doi.org/10.1787/232474884467*

CANADA

As a proportion of GDP, public R&D spending is among the highest in OECD countries but business R&D is lower than the OECD average, reflecting to some extent the specialisation of the country in lower R&D-intensive industries.

Indicator-based recommendations

Assess the efficiency of financial support to private R&D spending

Assess the relative effectiveness of current tax incentives against alternative measures to promote business R&D.

Reduce barriers to foreign ownership

Further relax the restrictions on FDI, in particular in telecoms, broadcasting, airlines and banking in order to increase the available capital for new technology-based firms and to bring new technical and managerial know-how.

Other recommendations

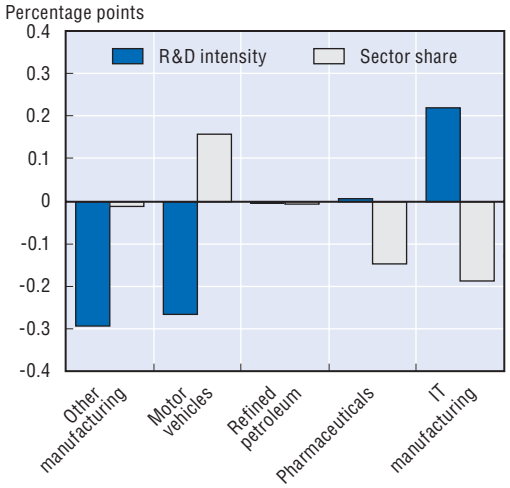
Strengthen industry-science linkages and foster commercialisation of public research

Continue efforts to strengthen industry-science linkages by better aligning public sector research with industrial/societal needs and by developing more efficient technology-transfer processes.

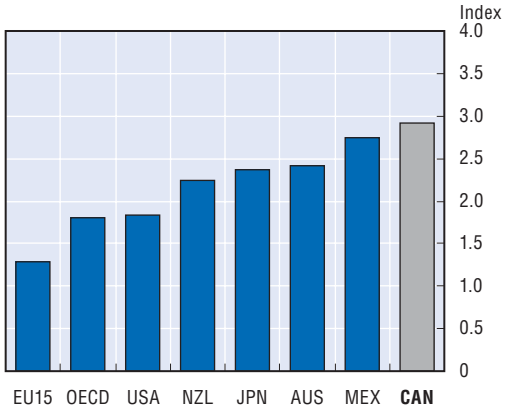
Improve attractiveness of science and engineering studies

Foster upper-tertiary education in the science and engineering fields through concerted actions with provincial governments and catalytic federal programmes, such as the newly established Canada Graduate Scholarship Programme.

A. Sectoral contribution to business sector R&D intensity – deviation from OECD average in percentage points of value-added, average 1999-2002[1]



B. FDI restrictions, 2003[2]



1. Contribution of sector-specific R&D intensities and sector size to the deviation of total business-sector R&D intensity from the OECD average.
2. Index scale of 0-6 from least to most restrictive.

Source: Chart A: OECD, Analytical Business Enterprise Research and Development (ANBERD) database and OECD, Structural Analysis (STAN) database; Chart B: OECD, *Economic Policy Reforms: Going for Growth*, 2005.

StatLink: *http://dx.doi.org/10.1787/232474884467*

CZECH REPUBLIC

The Czech Republic invests more than other Central and Eastern European countries in R&D relative to GDP but does not perform notably better in terms of innovation outcomes.

Indicator-based recommendations

Further ease the burden on firm creation

In order to stimulate the development of innovative firms and foster product market competition, further simplify administrative rules, in particular with respect to business registration, and proceed with plans to improve bankruptcy legislation and procedures.

Improve graduation rates from tertiary education

Raise incentives to complete tertiary education studies, and secure adequate funding by introducing student fees accompanied by income-contingent loan programmes to ensure that universities can improve quality in the face of rising enrolment rates.

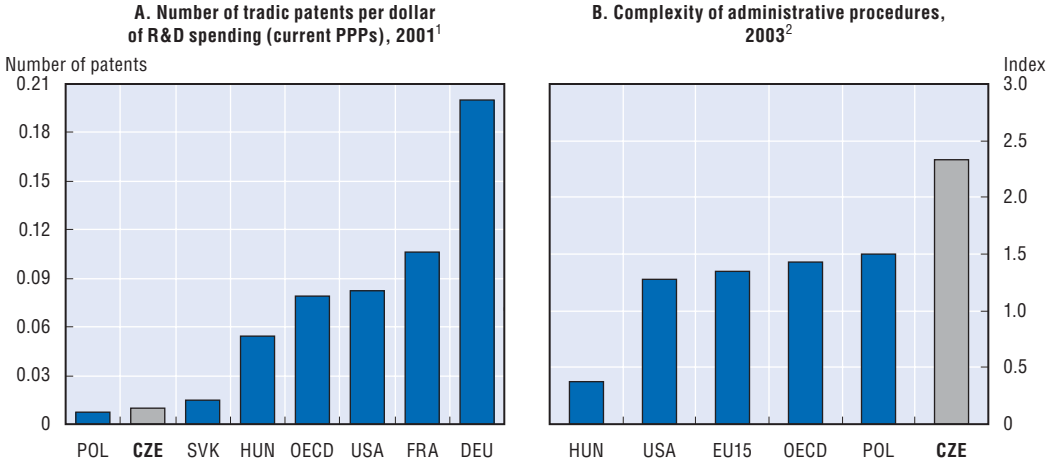
Other recommendations

Raise effectiveness of public R&D expenditure

Pursue recent efforts to gradually shift the mix of public R&D expenditure from spending on institutions towards competitively-awarded project funding.

Improve the governance of innovation policy

Enhance the governance of innovation policy by improving co-ordination and implementation of public policy.



1. Triadic patents are those that have been applied for at the European Patent Office and the Japan Patent Office, and granted by the United States Patent and Trademark Office to protect the same invention.
2. Index scale of 0-6 from least to most restrictive. Concerns complexity of government communication of rules and procedures as well as of licences and permit systems.

Source: Chart A: OECD, Main Science and Technology Indicators database; Chart B: OECD, *Economic Policy Reforms: Going for Growth*, 2005.

StatLink: *http://dx.doi.org/10.1787/232474884467*

DENMARK

After picking up in the 1990s, business R&D spending as a share of GDP is now above OECD average. It is particularly high in pharmaceuticals and in the services sectors.

Indicator-based recommendations

Improve educational achievements

Introduce more frequent systematic evaluation of student achievement, and allow teachers to specialise more, not least in order to improve science literacy among young people.

Improve access to high-risk capital

Raise the efficiency of the high-risk capital market by improving exit possibilities for investors, by simplifying tax rules that discourage pension funds from greater involvement in the venture capital market and by reducing personal capital gains tax rates on shareholding to stimulate funds supplied by business angels.

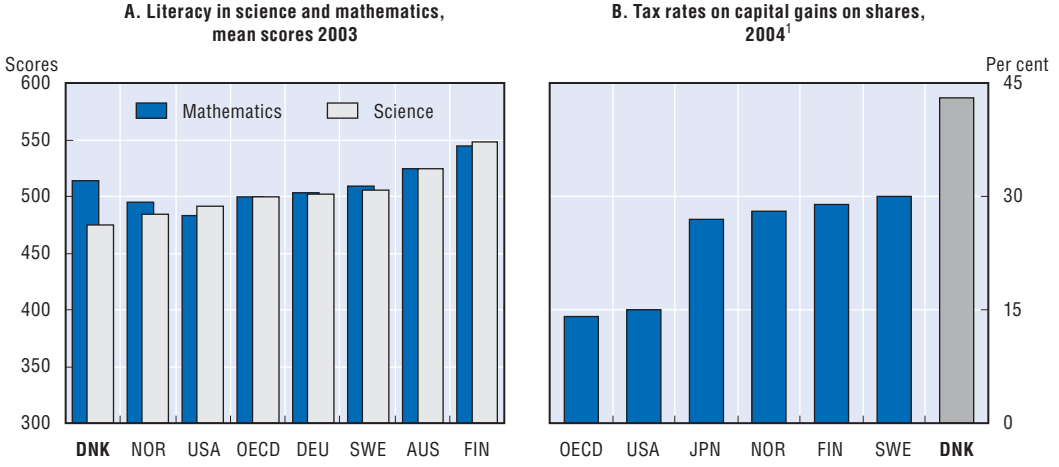
Other recommendations

Strengthen international collaboration

Strengthen the capacity for cross-border research, thereby complementing recent policy efforts to improve technology transfers.

Improve the efficiency of public research support

Increase the share of public research grants allocated on a competitive basis, and allow also private and semi-private entities to bid. Make sure that a proper evaluation system is in place.



1. See Table 3.1 in this publication.

Source: Chart A: OECD, *Learning for Tomorrow's World*, PISA 2003; Chart B: OECD, *Tax Policy Studies* (forthcoming).

StatLink: *http://dx.doi.org/10.1787/232474884467*

EUROPEAN UNION

Despite progress in recent years, innovation performance in the European Union, as measured by R&D and patent intensities, remains lower than in Japan and the United States.

Indicator-based recommendations

Review R&D spending

Monitor R&D spending at the Community level to give priority to projects that have the greatest spill-over effects.

Remove barriers to trade

Remove remaining cross-border barriers in goods and especially services markets as they undermine the diffusion of innovations and hamper the growth of firms

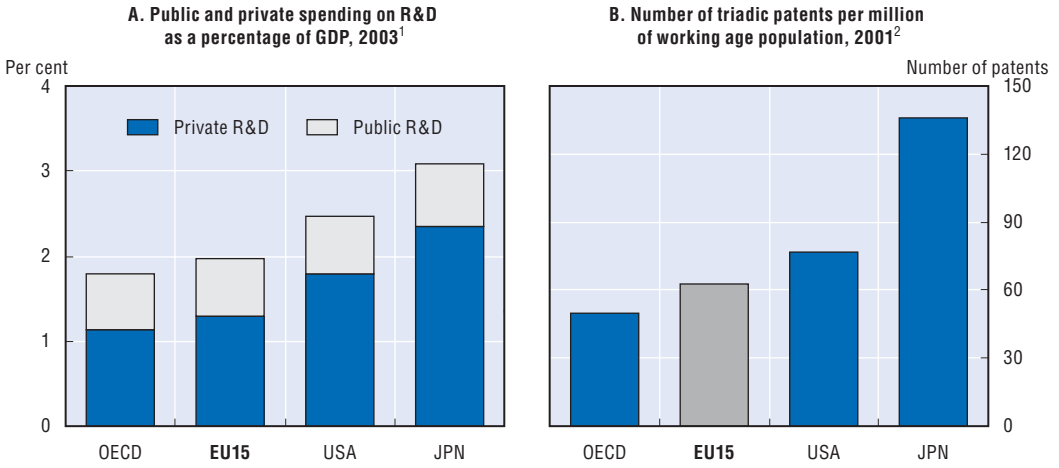
Other recommendations

Implement a patent system

Introduce a Community Patent and take steps to make the patent system more accessible to SMEs.

Increase competition in public procurement

National research grant competitions should be made subject to the Community provisions for cross-border public procurement.



1. EU15 calculated using a simple average.
2. Triadic patents are those that have been applied for at the European Patent Office and the Japan Patent Office, and granted by the United States Patent and Trademark Office to protect the same invention.

Source: Charts A and B: OECD, Main Science and Technology Indicators database.

StatLink: *http://dx.doi.org/10.1787/232474884467*

ECONOMIC POLICY REFORMS: GOING FOR GROWTH – ISBN 92-64-03591-5 – © OECD 2006

FINLAND

Finland is among the top R&D performers in the OECD area, but innovation activities are narrowly concentrated in the ICT sector.

Indicator-based recommendations

Improve incentives to provide start-up venture capital

Ease capital gains taxation and reform bankruptcy laws to promote the development of high-risk capital markets.

Attract and make better use of high-skill labour

Reduce average tax rates for high-income earners, which are among the highest in the OECD, to encourage skilled workers to stay in, and foreign workers to come to, Finland.

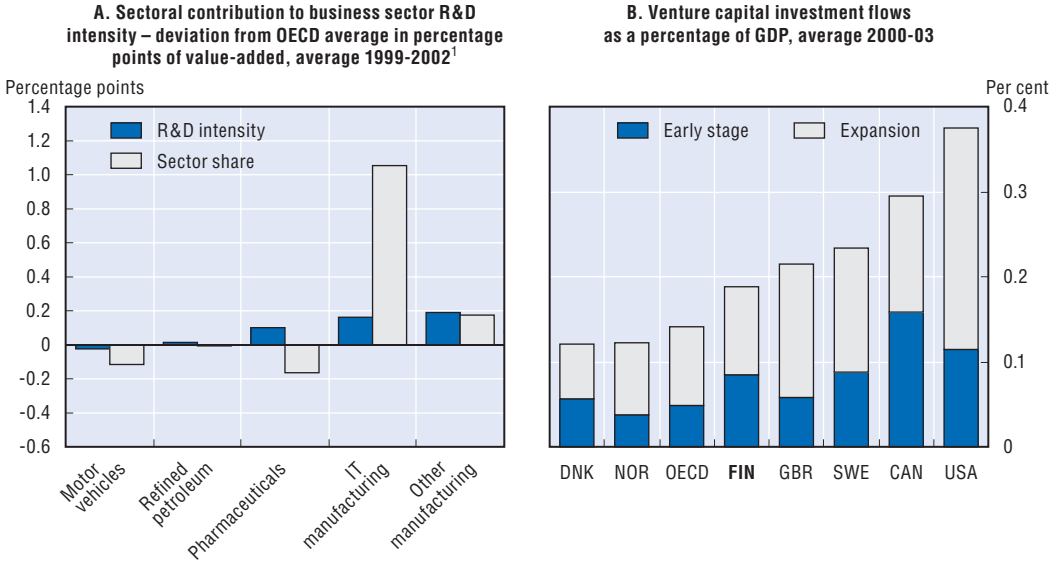
Other recommendations

Foster the development of knowledge-intensive services

Reduce the "manufacturing bias" in public support to R&D in order to foster the development of knowledge-intensive services and, more generally, innovation in services.

Strengthen international collaboration

Promote more balanced patterns of internationalisation, including greater participation of foreign firms, researchers and students in national innovation networks.



1. Contribution of sector-specific R&D intensities and sector size to the deviation of total business-sector R&D intensity from the OECD average.

Source: Chart A: OECD, Analytical Business Enterprise Research and Development (ANBERD) database and OECD, Structural Analysis (STAN) database; Chart B: OECD, Venture capital database.

StatLink: *http://dx.doi.org/10.1787/232474884467*

FRANCE

France performs above OECD average in terms of business R&D investment and patent intensities, but the contribution of universities to innovation remains weak.

Indicator-based recommendations

Ease further administrative burdens on small and medium-sized firms

In order to stimulate the development of innovative firms and to increase the diffusion of new technologies, further reduce administrative burdens for SMEs, notably by reviewing the size thresholds for eligibility for simplified regulatory compliance.

Improve efficiency of public support to private R&D

In implementing government direct support to business R&D, develop risk-sharing mechanisms, introduce more competition and facilitate spillovers for SMEs. Give a preference to research projects associating public and private actors.

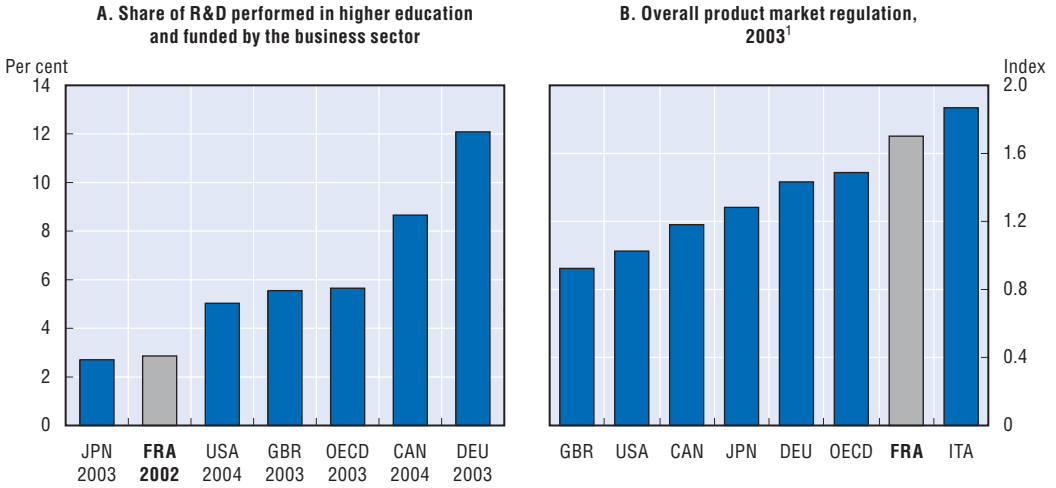
Other recommendations

Strengthen university research and industry-science linkages

Grant more autonomy to higher education institutions engaged in research activities. Foster the development of technology transfer offices and technology licensing offices to strengthen these institutions' initiatives and capacity to collaborate with the private sector.

Monitor governance of innovation policy

Establish an independent process to evaluate the cost-efficiency of R&D and innovation support programmes. Related to this, ensure greater coordination among the multiplicity of publicly-supported institutions involved in R&D promotion, including public research organisations and the new "pôles de compétitivité", to avoid duplication of effort.



1. Index scale of 0-6 from least to most restrictive.

Source: Chart A: OECD, *Science, Technology and Industry Scoreboard*, 2005; Chart B: OECD, *Economic Policy Reforms: Going for Growth*, 2005.

StatLink: *http://dx.doi.org/10.1787/232474884467*

GERMANY

Germany ranks above OECD average in terms of business R&D intensity and the share of innovative companies is high, but firm creation has been subdued and the graduation rates of highly qualified workers are relatively low.

Indicator-based recommendations

Stimulate the development of the venture capital market

Remove distortions in the tax system hindering the supply of venture capital, such as provisions generating disincentives for initial public offerings and for venture capital funds to provide management services to client firms.

Improve attractiveness of tertiary studies

Expand the availability of shorter study programmes, and foster competition among universities, by enhancing their autonomy and relating university funding more strongly to education and research outcomes.

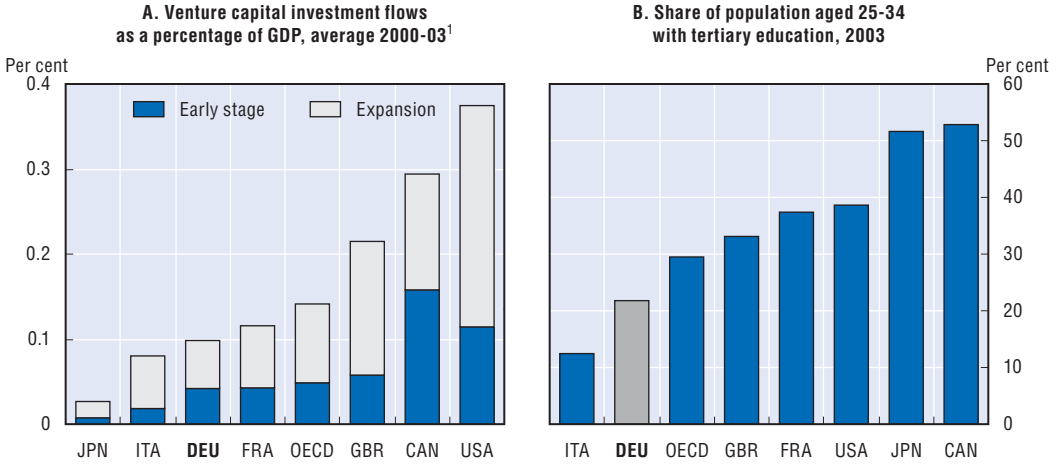
Other recommendations

Foster product market competition

Reduce administrative burdens on entrepreneurship by simplifying tax rules and by reducing further the administrative costs of creating a limited liability company and the complexity of administrative procedures more generally. Accelerate privatisation and strengthen competition in the professional services, the handcraft sector and network industries.

Evaluate and reform public support schemes

Pursue efforts to evaluate public support schemes for science, technology and innovation on a more systematic basis, with a view, *inter alia*, to increase competition for research funds. Also, simplify public support schemes in order to improve their uptake by innovative start-ups and SMEs.



1. 1998-2001 for Japan.

Source: Chart A: OECD, Venture capital database; Chart B: OECD, *Education at a Glance*, 2005.

StatLink: *http://dx.doi.org/10.1787/232474884467*

GREECE

Innovation performance is weak relative to other OECD countries. Despite growing at a faster-than-average pace, expenditure on business R&D relative to GDP remains among the lowest in the area.

Indicator-based recommendations

Improve educational achievements in mathematics and science

Strengthen mathematics and science qualifications by introducing practical science subjects in compulsory school curricula and by retraining teachers.

Reduce barriers to entrepreneurship

Facilitate the creation of firms by reducing the regulatory burden of establishing new firms.

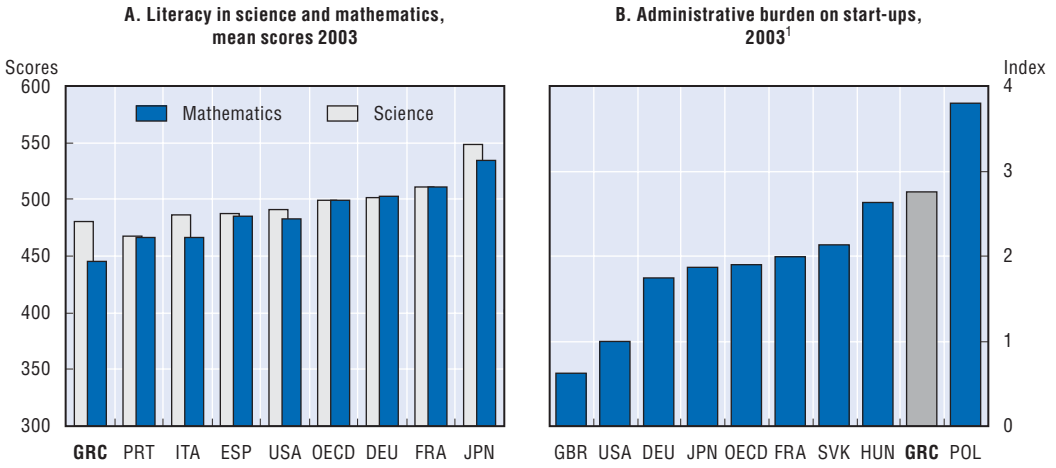
Other recommendations

Strengthen industry-science linkages

Grant more autonomy to higher-education institutions to allow them to cooperate with the private sector on research-based innovation projects.

Reform public research institutes

Reform the system of public research institutes by rationalising their operations in order to create critical mass in research and to make them more attractive to private partners. Introduce effective evaluation.



1. Index scale of 0-6 from least to most restrictive.

Source: Chart A: OECD, *Learning for Tomorrow's World*, PISA 2003; Chart B: OECD, *Economic Policy Reforms: Going for Growth*, 2005.

StatLink: *http://dx.doi.org/10.1787/232474884467*

HUNGARY

Private spending on R&D is low in Hungary and performed mostly by foreign affiliates, reflecting strong openness to FDI as well as the limitations of domestic innovation efforts.

Indicator-based recommendations

Improve performance of compulsory education

Raise the efficiency and quality of the compulsory school system by reforming the current practice of segregating students into vocational and academic streams, as well as by reviewing strict job protection regulation and the reward structure for teachers.

Raise competition in the telecommunications market

Access to telephony markets should be fostered via close monitoring of incumbents' behaviour in order to ensure that benefits of market liberalisation in terms of greater diffusion of information and communications technology are fully reaped.

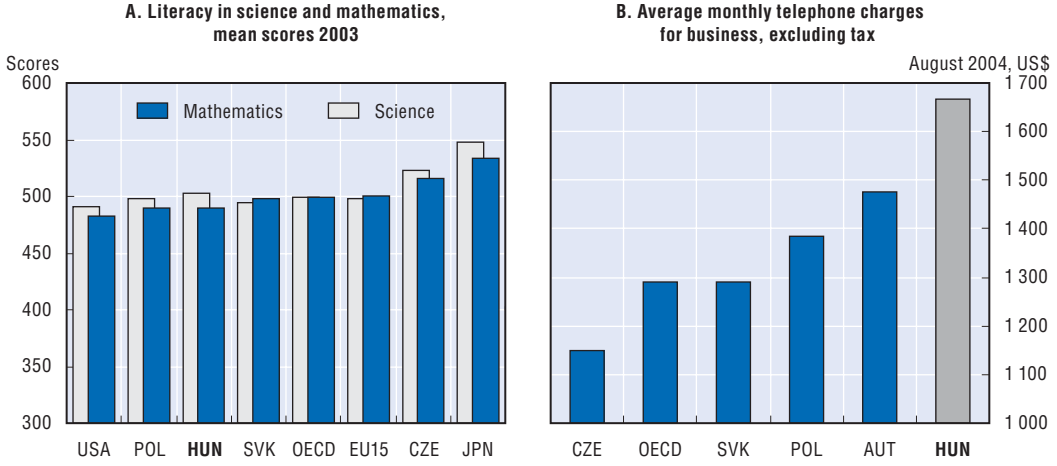
Other recommendations

Improve efficiency of public support for private R&D

Recent efforts aimed at increasing the commercialisation of research should be complemented with measures to strengthen the monitoring of recent policy initiatives, such as the new tax breaks for R&D spending, and the Innovation Contribution and grant allocation schemes.

Strengthen science-industry linkages

Reform the Hungarian Academy of Science by reinforcing the link between performance and budget allocation and by amending the tenure status of researchers so as to raise incentives to engage in commercially-oriented research.



Source: Chart A: OECD, *Learning for Tomorrow's World*, PISA 2003; Chart B: OECD, *Communications Outlook*, 2005.

StatLink: *http://dx.doi.org/10.1787/232474884467*

ICELAND

Iceland ranks highest in terms of public R&D spending as a share of GDP and above average in terms of business R&D spending, reflecting high levels of investment in biotechnology, but there is room for improving the efficiency of public innovation policy.

Indicator-based recommendations

Streamline the public research system

Reform the system of public research institutes by merging and streamlining their operations and strengthening their relationship with the universities in order to create critical mass in research capabilities.

Improve graduation rates from upper-secondary education

In order to improve the capacity of the workforce to make use of innovation, pursue efforts to reduce the proportion of early school leavers, by proceeding with plans to reform curriculum and post-secondary education.

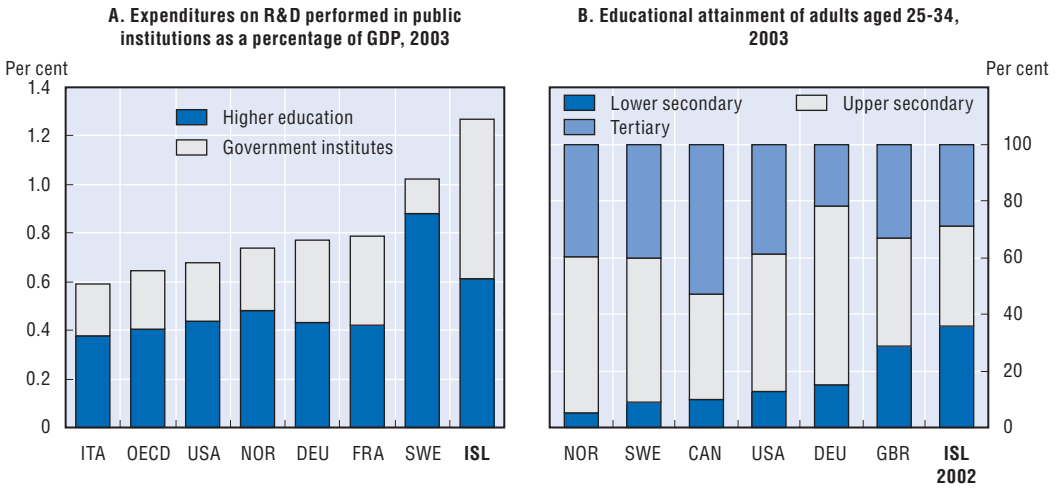
Other recommendations

Improve governance of innovation policy

Improve the governance of innovation policy by strengthening the role of the Science and Technology Policy Council in mobilising national resources for research and innovation, and by expanding its membership to include representatives of all relevant government ministries, the research community and industry.

Raise the share of competitive R&D funding

Improve the quality and relevance of research by continuing to increase the share of competitive funding in total government support for R&D.



Source: Chart A: OECD, *Science, Technology and Industry Scoreboard*, 2005; Chart B: OECD, *Education at a Glance*, 2005.

StatLink: *http://dx.doi.org/10.1787/232474884467*

IRELAND

Ireland ranks well below OECD average in terms of private R&D intensity, despite benefiting from a relatively favourable industrial structure and from a significant contribution by foreign affiliates.

Indicator-based recommendations

Secure adequate funding for university research

Ensure adequate funding for research performed in higher education, including by re-introducing student fees accompanied by a student loan scheme, in order to improve quality of basic research and to reduce risk of facing future shortage of qualified scientists.

Reduce state ownership in services industries

In order to promote product market competition and raise incentives to innovate, reduce state ownership in services industries and strengthen the enforcement of competition law by speeding up and lowering the costs of court proceedings.

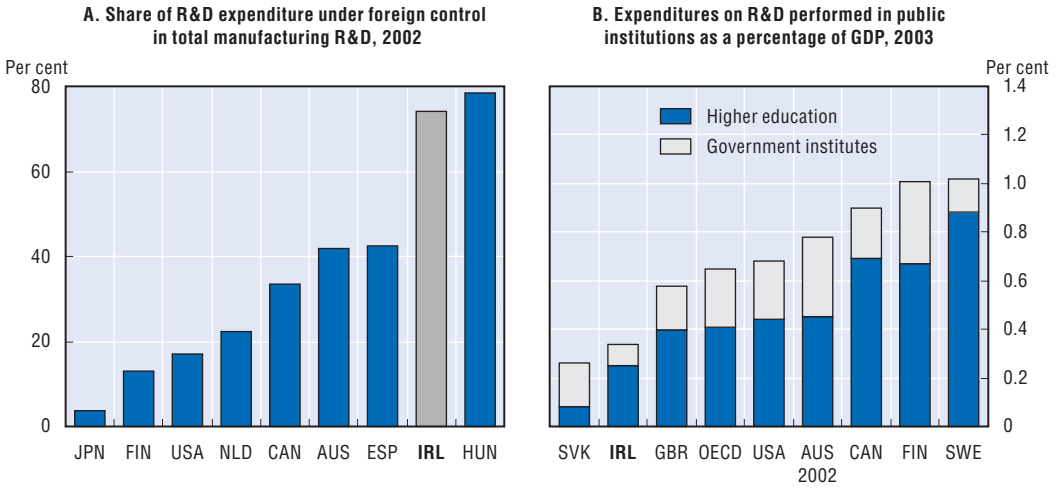
Other recommendations

Strengthen industry-science linkages

Strengthen industry-science linkages by concentrating efforts on the development of a small number of centres based around major universities and financed jointly by public and private sources.

Improve governance of research infrastructure

Strengthen the evaluation of research institutions, as well as of R&D and innovation support programmes, and consider streamlining the different funding agencies to ensure that evaluation results are reflected in funding policy.



Source: Charts A and B: OECD, *Science, Technology and Industry Scoreboard*, 2005.

StatLink: *http://dx.doi.org/10.1787/232474884467*

ITALY

Italy lags other G7 countries in terms of innovation efforts and outcomes, underscoring the need to improve knowledge infrastructures and incentives to engage in higher-risk activities.

Indicator-based recommendations

Improve quality of, and graduation rates from, tertiary education

Raise quantity and quality of tertiary level degrees by granting more autonomy to universities with respect to human resource management, by linking grants and promotions more closely to performance and by broadening the scope of competition for research funding and student recruitment.

Raise efficiency of bankruptcy procedures

In order to strengthen entrepreneurship in higher-risk activities, proceed with the implementation of bankruptcy reform with a view to accelerate liquidation procedures, reduce failure stigmatisation and lower the cost of collateral required by lending institutions.

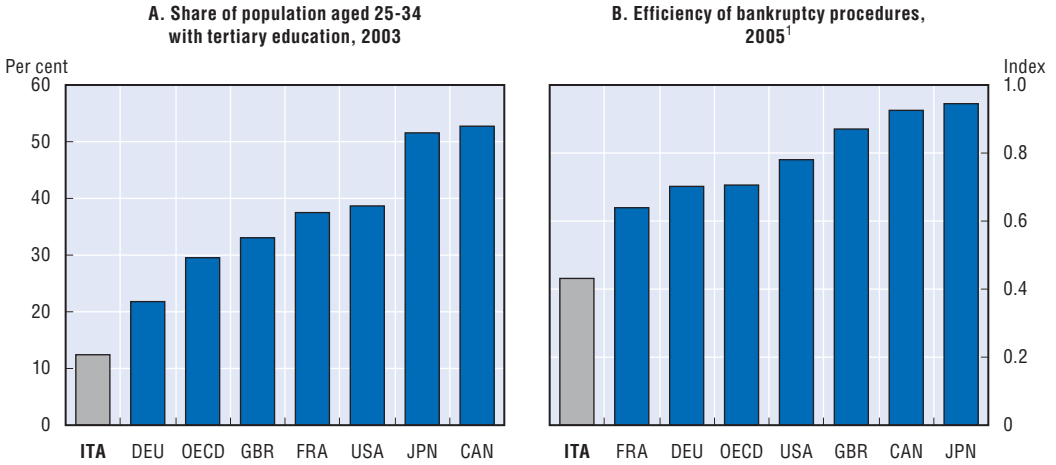
Other recommendations

Promote R&D-based innovation in SMEs

Improve the policy mix for promoting R&D-based innovation capabilities in SMEs and SME networks by shifting the balance away from tax incentives and toward more direct funding.

Strengthen industry-science linkages

Ensure that R&D support schemes give proper incentives for companies to provide funds to universities for specific research projects, establish joint laboratories and train young applied researchers. Strengthen incentives for university professors to undertake applied research.



1. Synthetic index on a scale of 0 to 1, measuring the time and cost efficiency of legal and/or administrative proceedings in the case of a bankruptcy involving a domestic entity. The cost includes both various professional and court fees as well as an estimate of the recovery rate. The higher the value of the index, the higher is the cost-efficiency of the bankruptcy procedure.

Source: Chart A: OECD, *Education at a Glance*, 2005; Chart B: World Bank Doing Business database, 2005.

StatLink: *http://dx.doi.org/10.1787/232474884467*

JAPAN

Japan performs above OECD average in terms of business R&D and patent intensities but shows weak performance in service sector innovation and limited openness to international knowledge transfers.

Indicator-based recommendations

Further reduce barriers to foreign direct investment (FDI)

Encourage FDI inflows in order to bring in R&D investments and new technology by reforming domestic regulations and licensing requirements that prevent foreign firms from entering domestic markets. Further, activate the merger and acquisition market through regulatory reform.

Improve access to early stage financing capital

Promote reforms that facilitate the development of venture capital funds and access to new sources of finance by technology-based SMEs.

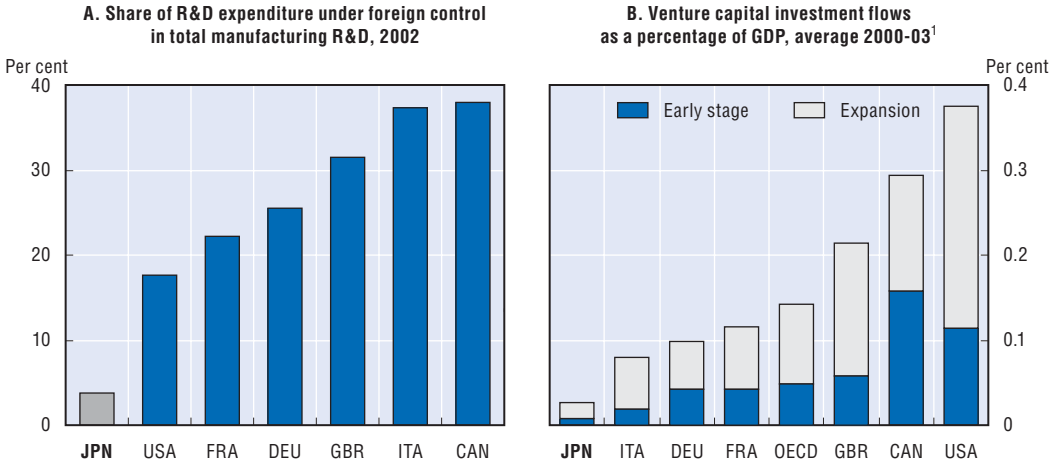
Other recommendations

Strengthen industry-science linkages

Improve the match between business needs and human resources development in higher education institutions by enhancing industry-university co-operation in areas related to management of technology and core engineering disciplines.

Promote innovation in services

Strengthen innovation in the service sector by designing policies to broaden opportunities for this sector to participate in innovation programmes. Encourage the development of regional clusters through decentralisation.



1. 1998-2001 for Japan.

Source: Chart A: OECD, *Science, Technology and Industry Scoreboard*, 2005; Chart B: OECD, Venture capital database.

StatLink: *http://dx.doi.org/10.1787/232474884467*

KOREA

Korea performs well above average in terms of business R&D as a share of GDP, largely reflecting an industry structure characterised by a relatively high share of research-intensive activities.

Indicator-based recommendations

Lower FDI restrictions

Promote technological co-operation between domestic and foreign companies by easing restrictions on inflows of foreign direct investment.

Evaluate and reform public support system

Develop and implement a performance-based evaluation system for public R&D and ensure that evaluation outcomes are adequately taken into account when allocating R&D funds.

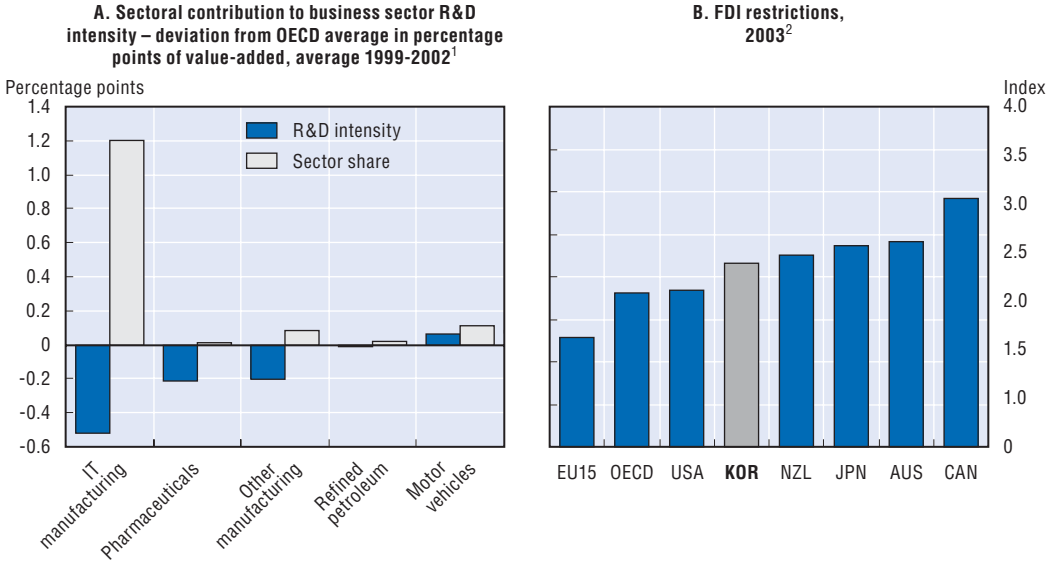
Other recommendations

Improve management of intellectual property rights

Promote better management of intellectual assets in both the public and private sectors, including by further strengthening the enforcement of intellectual property rights and by increasing public awareness of their importance.

Strengthen industry-science linkages

Strengthen industry-science relationships by encouraging the mobility of scientists and researchers, and by ensuring greater participation of the private sector in national R&D programmes.



1. Contribution of sector-specific R&D intensities and sector size to the deviation of total business-sector R&D intensity from the OECD average.
2. Index scale of 0-6 from least to most restrictive.

Source: Chart A: OECD, Analytical Business Enterprise Research and Development (ANBERD) database and OECD, Structural Analysis (STAN) database; Chart B: OECD, *Economic Policy Reforms: Going for Growth*, 2005.

StatLink: *http://dx.doi.org/10.1787/232474884467*

LUXEMBOURG

Luxembourg is ranked close to OECD average in terms of overall R&D patent intensities, and public R&D expenditure has grown considerably in recent years from a very low base.

Indicator-based recommendations

Improve education achievements

Improve education achievements in the fields of science and mathematics at the secondary level by defining nation-wide performance standards and by raising schools' autonomy and accountability.

Raise capacity of public R&D

Maintain efforts to raise scientific output by building an efficient public R&D system, including university-based R&D with critical mass and appropriate international linkages.

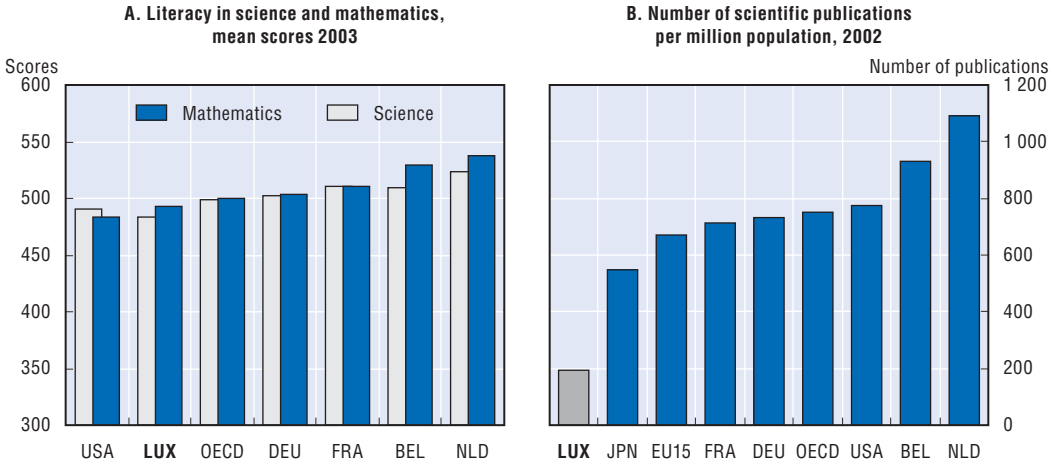
Other recommendations

Strengthen-industry-science linkages

Give industry a larger role in the selection, financing and implementation of research programmes/activities carried out in Public Research Centres.

Improve governance of the innovation system

Reform institutional structures for steering and funding of public research, in order to cope with the increasing scale, scope and complexity of the innovation system.



Source: Chart A: OECD, *Learning for Tomorrow's World*, PISA 2003; Chart B: EC, *Towards a European Research Area, Science, Technology and Innovation*, Key Figures 2003-04.

StatLink: *http://dx.doi.org/10.1787/232474884467*

MEXICO

Mexico's performance in innovation is weak in terms of adopting new technologies and business R&D expenditure as a share of GDP.

Indicator-based recommendations

Raise overall workforce skills

In order to raise the capacity to absorb innovation, improve the basic level of skills, including in the fields of science and mathematics, by pursuing reform of the school system and by promoting effective on-the-job training.

Reduce barriers to foreign direct investment

Facilitate the acquisition and diffusion of foreign technology by further reducing barriers to foreign direct investment, in particular those in the forms of limits on shares bought by foreign investors.

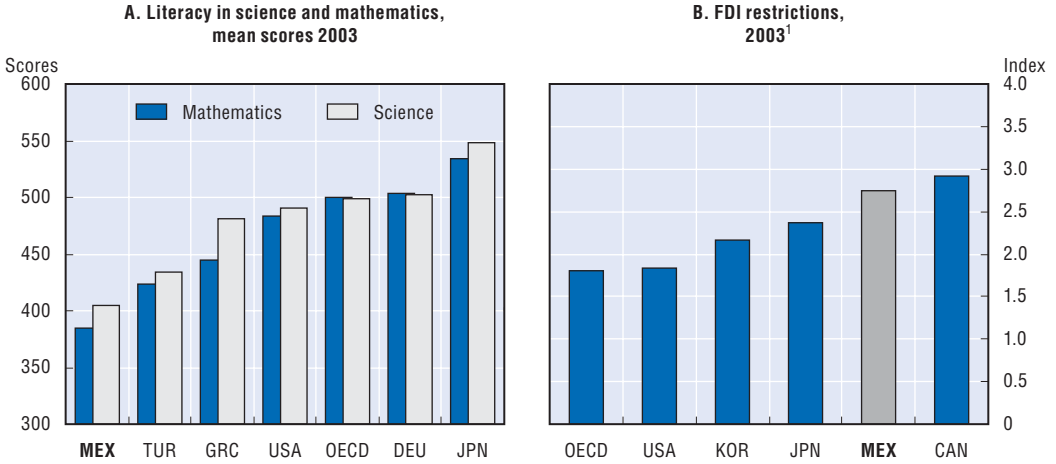
Other recommendations

Assess the effectiveness of public support for private R&D

Assess the effectiveness of measures to promote business R&D (mostly tax incentives), in particular with a view to improving access for SMEs.

Strengthen industry-science linkages

Promote closer collaboration between the public research institutions and industry, notably through support for the development of technology transfer offices, via public/private partnerships for research and innovation and by reforming the National System of Researchers.



1. Index scale of 0-6 from least to most restrictive.

Source: Chart A: OECD, *Learning for Tomorrow's World*, PISA 2003; Chart B: OECD, *Economic Policy Reforms: Going for Growth*, 2005.

StatLink: *http://dx.doi.org/10.1787/232474884467*

NETHERLANDS

The Netherlands has strong research capabilities, but its overall innovation performance has weakened relative to other OECD countries.

Indicator-based recommendations

Raise attractiveness for R&D-intensive foreign direct investment

Step up efforts to increase the country's attractiveness as a location for foreign direct investment in R&D by upgrading specialised knowledge infrastructure and regional clusters, and by increasing the visibility and accessibility of public-private partnerships for research.

Ease employment protection for regular workers

Ease employment protection for regular contracts to facilitate workplace re-organisation and the diffusion of innovation, in particular in service industries and SMEs.

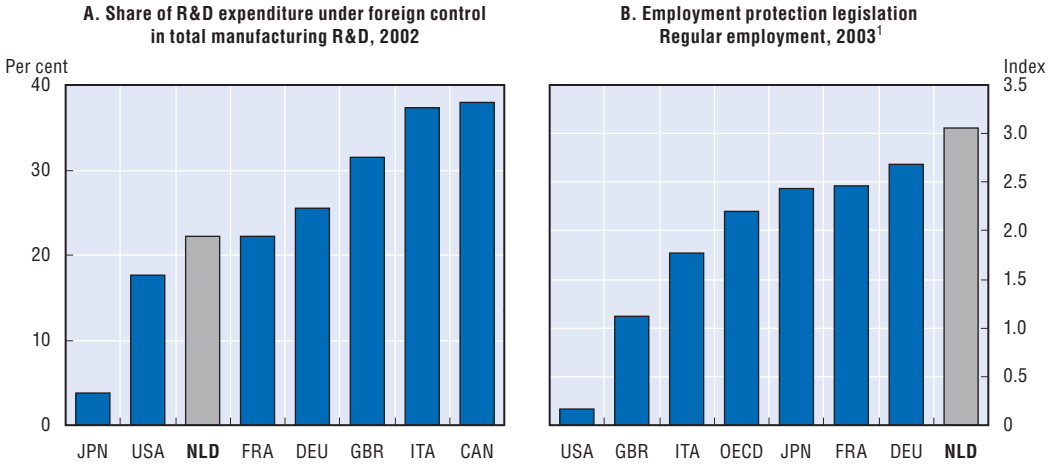
Other recommendations

Improve graduation rates from tertiary education

Increase funding and strengthen incentives for universities to raise quality and to help them offer short (two-year) courses as in many other countries. Such an increase could involve higher tuition fees for students combined with income-contingent loan repayment obligations.

Facilitate entry of foreign knowledge workers

Prevent potential shortages of knowledge manpower by extending recent changes facilitating immigration of highly skilled workers with the introduction of a point system for immigrants and through measures encouraging foreign students to stay and to take up work after school completion.



1. Index scale of 0-6 from least to most restrictive.

Source: Chart A: OECD, *Science, Technology and Industry Scoreboard*, 2005; Chart B: OECD, *Employment Outlook*, 2004.

StatLink: *http://dx.doi.org/10.1787/232474884467*

NEW ZEALAND

R&D expenditures as a percentage of GDP are below the OECD average and most research is performed in the public sector, reflecting the small number of large firms and the large primary sector.

Indicator-based recommendations

Assess the mix of financial support to private R&D spending

Regularly assess the relative effectiveness of the current discretionary grants system against broadly-based, non-discretionary financial support for business R&D.

Streamline the administration of the grants system

Streamline the delivery of public support for businesses, improve co-ordination between the different agencies involved, and more systematically evaluate the efficiency and effectiveness of grant programmes.

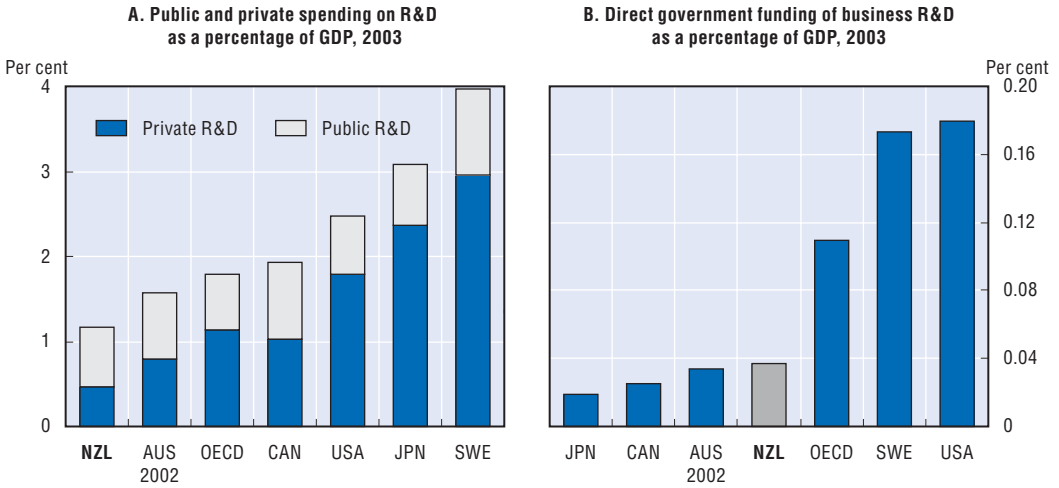
Other recommendations

Strengthen industry-science linkages

Encourage closer co-operation between universities and the private sector, for example by making greater use of joint funding and governance of research, greater involvement of industry and society in priority-setting and by facilitating the mobility of researchers between sectors.

Foster development of international linkages in science and technology

Pursue efforts to strengthen domestic industry, education and science institutes' linkages with international innovation networks by further encouraging FDI and through other measures such as, *inter alia*, the Investment Opportunities programme.



Source: Charts A and B: OECD, Main Science and Technology Indicators database.

StatLink: *http://dx.doi.org/10.1787/232474884467*

NORWAY

The relatively low private R&D intensity is largely accounted for by the industrial structure, as traditionally R&D-intensive sectors are comparatively small.

Indicator-based recommendations

Improve efficiency of the financial system

In order to improve the funding of R&D investment, strengthen competition in the financial system by easing entry regulation and reducing state control. Also, ease regulatory restrictions on high-risk investment allowed by public and private financial institutions.

Improve education achievements

Improve education achievements in the fields of science and mathematics at the secondary level by reforming national tests to strengthen evaluation, increasing the weight of mathematics in the curriculum and ensuring recruitment and adequate training of teachers in mathematics and science.

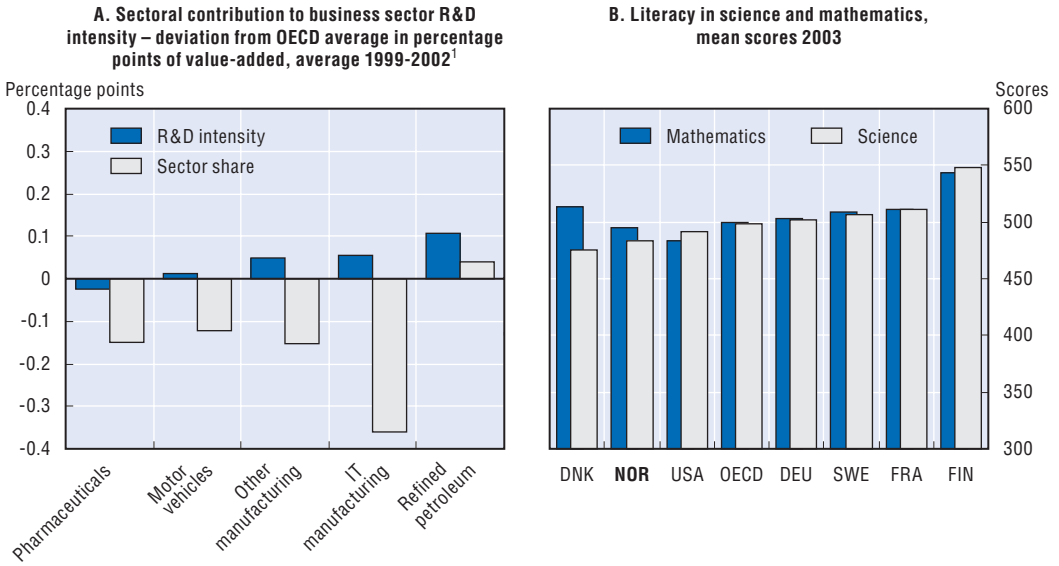
Other recommendations

Improve efficiency of public support for innovation

Promote innovation in the services sector through securing competition in public procurement and by facilitating outsourcing of public services.

Strengthen industry-science linkages

Facilitate the mobility of engineers and scientists between public and private sectors *inter alia* by ensuring easier transferability of pension rights and by allowing flexible employment contracts for researchers in the public sector.



1. Contribution of sector-specific R&D intensities and sector size to the deviation of total business-sector R&D intensity from the OECD average.

Source: Chart A: Chart A: OECD, Analytical Business Enterprise Research and Development (ANBERD) database and OECD, Structural Analysis (STAN) database; Chart B: OECD, *Learning for Tomorrow's World*, PISA 2003.

StatLink: *http://dx.doi.org/10.1787/232474884467*

POLAND

Poland lags most OECD countries in terms of innovation outcomes and efforts, underscoring the need to improve both the capacity to absorb and diffuse foreign innovation as well as to stimulate domestic investment in private R&D.

Indicator-based recommendations

Reduce barriers to entrepreneurship

Reduce administrative burdens on corporation and sole proprietor start-ups in order to stimulate the development of domestic innovative firms and facilitate the diffusion of innovations.

Facilitate access to foreign technology

Facilitate the acquisition and diffusion of foreign technology by further reducing barriers to foreign direct investment, in particular limits on foreign ownership of domestic companies.

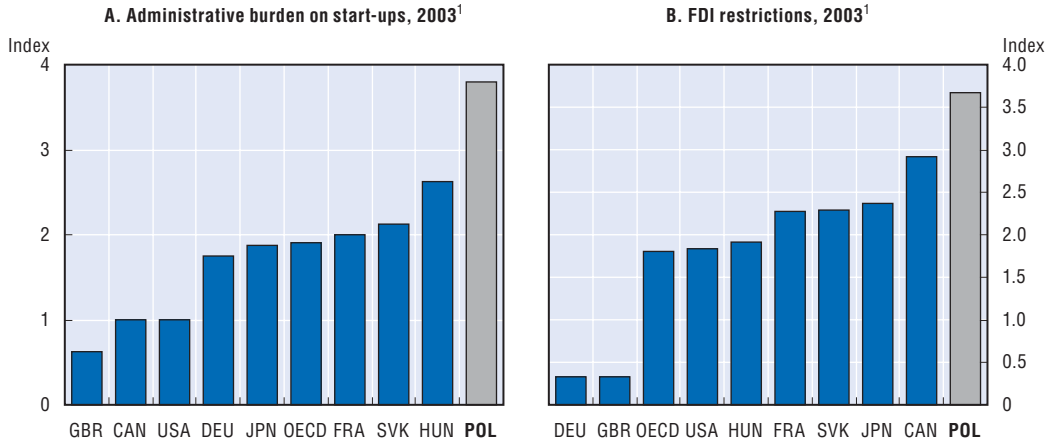
Other recommendations

Improve quality and accessibility of knowledge infrastructure

Enhance the country's capacity to absorb innovation and its attractiveness for R&D-related foreign direct investment through the improvement of the quality and accessibility of knowledge infrastructure.

Strengthen industry-science linkages

Ensure that reform of funding and organisation of tertiary education includes measures to facilitate research links between the private and public sectors, as well as between the enterprise sector and research and higher-education institutions.



1. Index scale of 0-6 from least to most restrictive.

Source: Charts A and B: OECD, *Economic Policy Reforms: Going for Growth*, 2005.

StatLink: *http://dx.doi.org/10.1787/232474884467*

PORTUGAL

Despite improvements in scientific capacity, the innovation performance of Portugal remains generally weak, reflecting in part the large share of low-value-added sectors in GDP, and the low overall skills level of the population.

Indicator-based recommendations

Raise the educational attainment of the population

Reduce the drop out-rates in secondary education by strengthening support to low achievers and making better use of school evaluations, as well as by continuing with the implementation of current reforms, such as revision and diversification of the curricula, with more focus on mathematics and sciences.

Ensure adequate support for public R&D

Maintain funding for public R&D spending through the required consolidation of public finances while enhancing the efficiency of public research organisations by increasing the share of performance-based financing in universities.

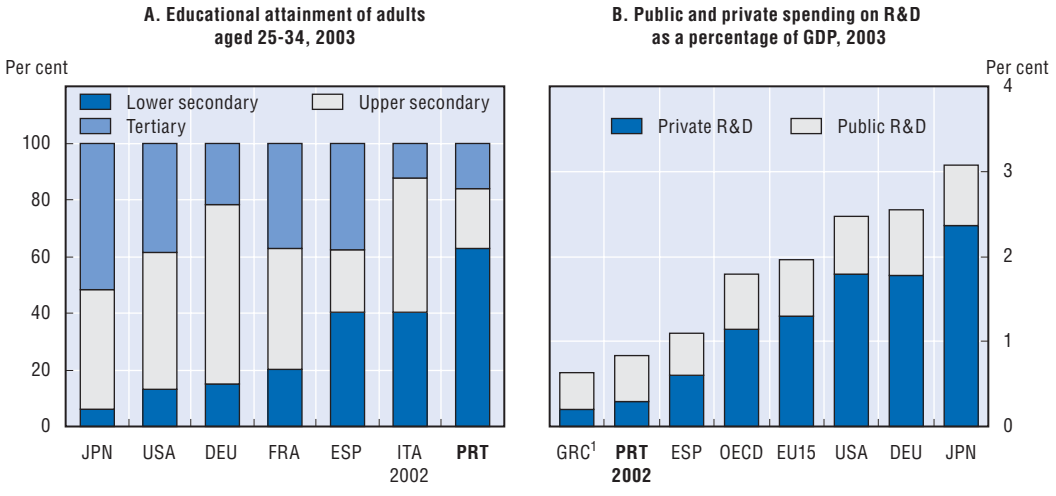
Other recommendations

Assess the efficiency of public support to private R&D spending

Assess the effectiveness of the current measures (mostly tax incentives) to promote business R&D, and ensure in particular access for SMEs.

Strengthen industry-science linkages

Promote closer collaboration between public research (concentrated in universities) and industry by facilitating the mobility of researchers, and by providing financial encouragement to the development of scientific networks and partnerships with the international business world.



1. 2001 for public R&D.

Source: Chart A: OECD, *Education at a Glance*, 2005; Chart B: OECD, Main Science and Technology Indicators database.

StatLink: *http://dx.doi.org/10.1787/232474884467*

SLOVAK REPUBLIC

Following cuts in R&D spending over the past decade, innovation performance measured in terms of business R&D expenditure as a share of GDP is among the weakest in the OECD area.

Indicator-based recommendations

Improve educational achievements

Upgrade the school curriculum and teaching methods to strengthen educational outcomes, and hence the capacity of the future workforce to make use of innovation.

Improve the access of SMEs to venture capital

Facilitate the access of SMEs to capital by improving the tax treatment of capital gains and by relaxing the current rules that prevent private pension funds from investing in venture capital and private equity funds.

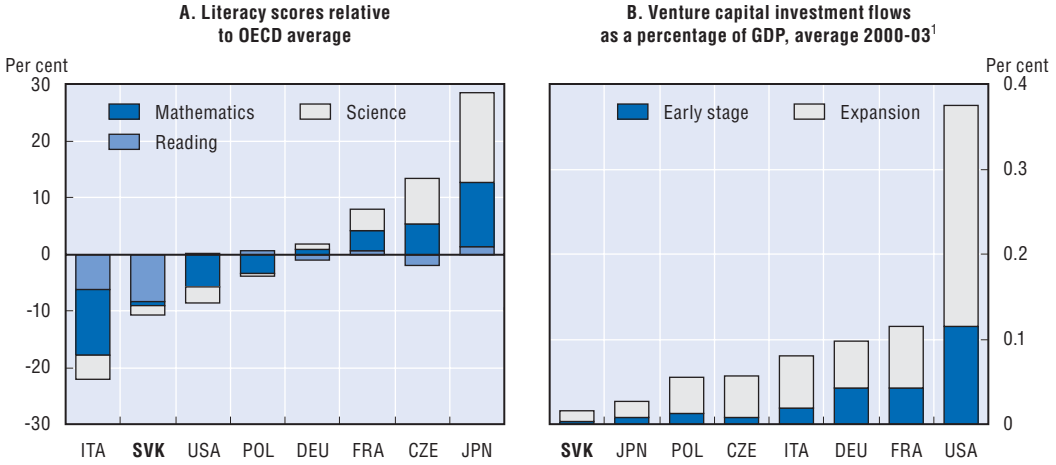
Other recommendations

Lower the administrative burden on start-ups

Enhance the creation of new technology-based enterprises by lowering the administrative burden faced by entrepreneurs.

Enhance innovation capabilities of domestic firms

Facilitate the diffusion of relevant information across business sectors, and encourage greater collaboration between the public and private sectors.



1. 1998-2001 for Japan.

Source: Chart A: OECD, *Learning for Tomorrow's World*, PISA 2003; Chart B: OECD, Venture capital database.

StatLink: *http://dx.doi.org/10.1787/232474884467*

ECONOMIC POLICY REFORMS: GOING FOR GROWTH – ISBN 92-64-03591-5 – © OECD 2006

SPAIN

Despite recent progress, innovative activities are hampered by various barriers to entrepreneurship and weak linkages between university research and industry.

Indicator-based recommendations

Facilitate access to early-stage venture capital

Stimulate the development of a venture capital market more oriented towards seed capital by further relaxing quantitative portfolio restrictions on institutional investors and by developing government equity programmes aimed at funding start-up firms to help develop management expertise.

Improve effectiveness of financial support for private R&D

Increase the leverage of government support to business R&D by evaluating the effectiveness of already generous support programmes via, for instance, an independent agency and by giving more attention to the needs of the service sector.

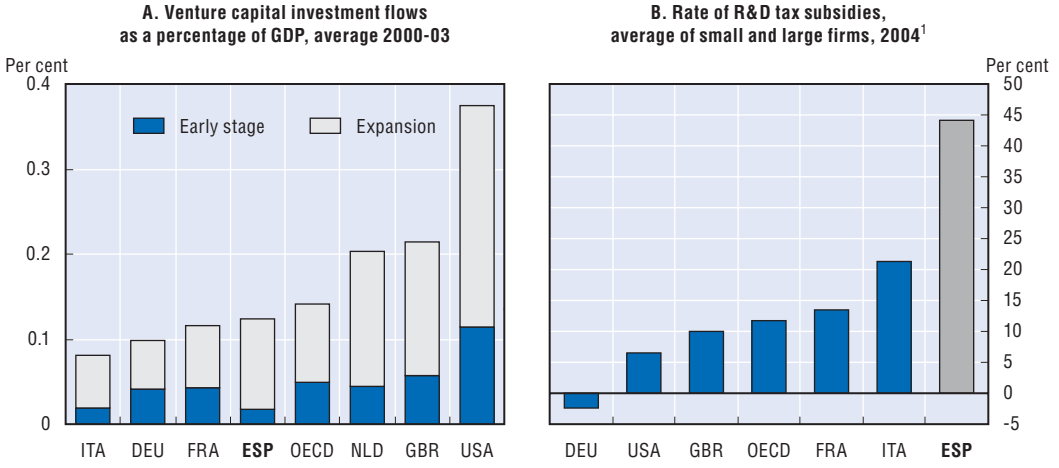
Other recommendations

Improve quality of tertiary education

Raise the quality of education and research at the tertiary level by linking grants and teachers' promotions more closely to performance and by broadening the scope of competition for research funding and student recruitment. Consider also raising student fees, in particular for post-graduate studies, along with grants and income-contingent loan repayments to provide more resources for universities.

Improve synergies between regional innovation systems

Encourage inter-regional collaboration in building and operating knowledge infrastructure (*e.g.* technological centres) and in promoting innovation clusters. Facilitate mobility of researchers across regions as well as between the public and private sectors.



1. Measures the generosity of tax incentives to invest in R&D on the basis of the pre-tax income necessary to cover the initial cost of R&D spending and pay corporate taxes (B-index). A value of zero means that the tax concession for R&D spending is just sufficient to offset the impact of the tax rate on corporate profits.

Source: Chart A: OECD, Venture capital database; Chart B: OECD, *Science, Technology and Industry Outlook*, 2004.

StatLink: *http://dx.doi.org/10.1787/232474884467*

SWEDEN

Business R&D spending as a share of GDP is far above the OECD average. But most of this concerns the larger multinational companies, while indicators for start-ups and entrepreneurial activities are weaker.

Indicator-based recommendations

Review capital gains tax

Review the relatively high personal tax rate for capital gains on share holdings, as it creates a disincentive for entrepreneurial investments, including by business angels.

Reform employment protection legislation

Improve the use and mobility of human resources by reforming employment protection legislation insofar as it makes work reorganisation costly, hindering the introduction of new processes, and reduces incentives for entrepreneurial activities.

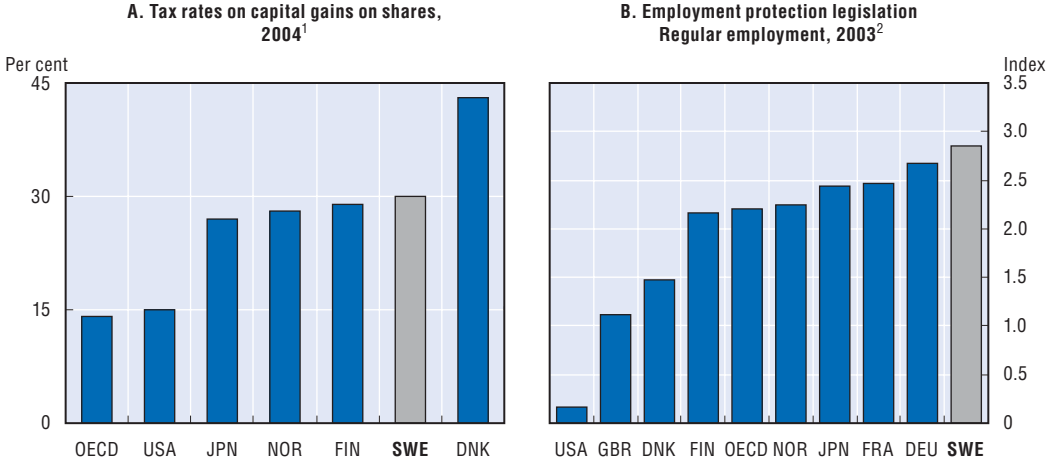
Other recommendations

Strengthen public-private partnerships

Develop public-private partnerships to better exploit the potential for demand-driven innovation in the public sector and also stimulate innovative business ventures.

Promote innovation based on publicly-funded research

Encourage the mobility of researchers between universities and firms by making employment contracts more flexible and enhance commercialisation of publicly-funded research by improving incentives and capabilities for exploiting the resulting intellectual property.



1. See Table 3.1 in this publication.
2. Index scale of 0-6 from least to most restrictive.

Source: Chart A: OECD, *Tax Policy Studies* (forthcoming); Chart B: OECD, *Employment Outlook*, 2004.

StatLink: *http://dx.doi.org/10.1787/232474884467*

SWITZERLAND

Switzerland performs well in terms of private R&D spending and patents but needs to strengthen competition and higher education to maintain its overall ranking.

Indicator-based recommendations

Reduce barriers to domestic competition

Pursue efforts to reduce market segmentation and foster competition by revising the domestic market law, removing administrative and technical barriers to imports and reducing administrative burdens on firms.

Improve quality of higher education

Pursue the reform of tertiary education with the consolidation of the fragmented university system, the introduction of a standard education subsidy per student in each field and the development of quality assessments of universities.

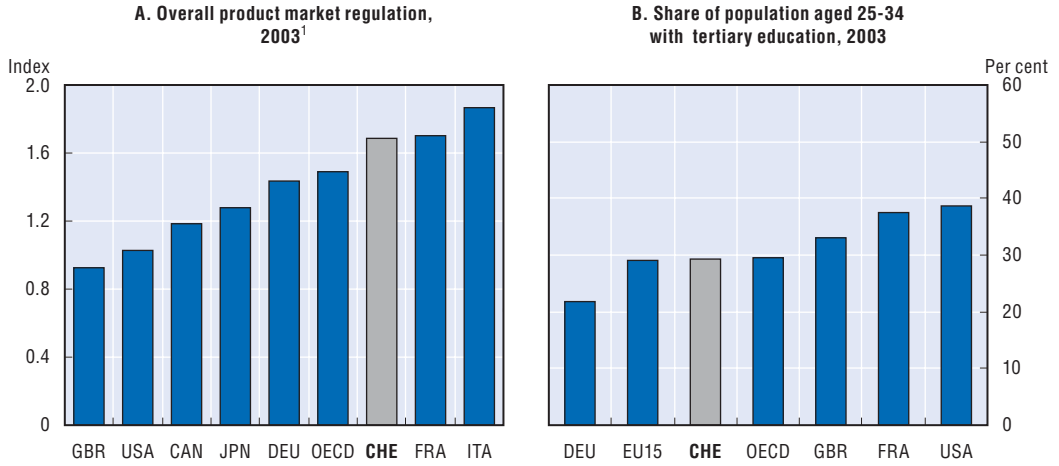
Other recommendations

Improve efficiency of public support for R&D

While maintaining strong support for fundamental research, better bridge the gap between it and product/process development by increasing the resources of the Commission for Research Co-operation between universities and businesses.

Raise efficiency of bankruptcy procedures

Reform the bankruptcy law to reduce the period over which creditors can make claims on owners who had – when launching their company – to accept personal liabilities for credits obtained, and to facilitate the use of the *concordat* procedure.



1. Index scale of 0-6 from least to most restrictive.

Source: Chart A: OECD, *Economic Policy Reforms: Going for Growth*, 2005; Chart B: OECD, *Education at a Glance*, 2005.

StatLink: *http://dx.doi.org/10.1787/232474884467*

TURKEY

Turkey ranks low in terms of innovation efforts and outcomes, and needs to improve its overall capacity to absorb and diffuse technology.

Indicator-based recommendations

Improve performance of compulsory education

Raise the quality of the compulsory school system and educational opportunities, in particular for girls, by enforcing minimum schooling rules and by reforming teaching methods, with a view to strengthening skills in core subjects, including mathematics and science.

Lower barriers to growth in the formal sector

Facilitate the acquisition and broad diffusion of foreign technology by reducing the barriers for unregistered enterprises to join the formal sector and by reforming employment protection legislation and labour taxation so as to stimulate investment in physical and human capital in the formal sector.

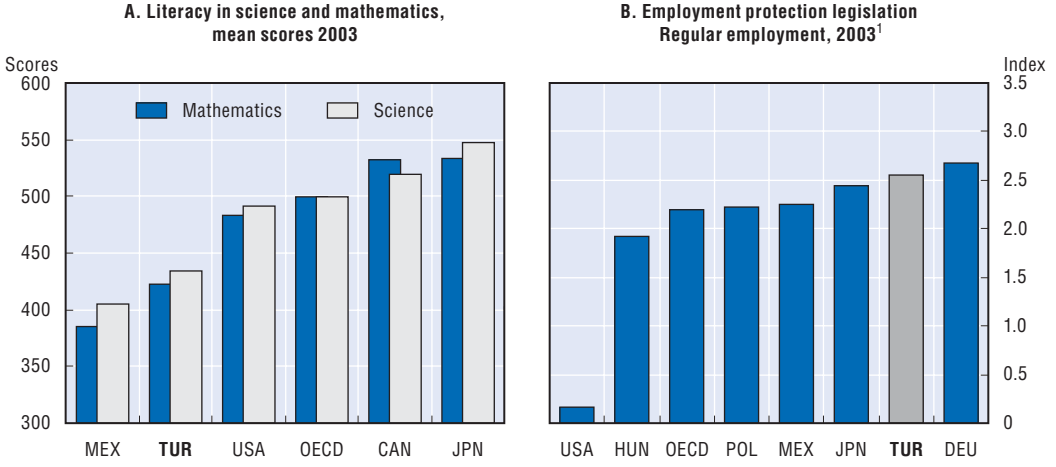
Other recommendations

Improve access to, and quality of, tertiary education

Increase the number of places and the quality of education in public universities by raising tuition fees while ensuring equitable access with income-contingent loan repayments.

Strengthen industry-science linkages

Reduce the remaining obstacles to industry-science co-operation. Ensure that R&D support schemes give proper incentives for companies to provide funds to universities for specific research projects.



1. Index scale of 0-6 from least to most restrictive.

Source: Chart A: OECD, *Learning for Tomorrow's World*, PISA 2003; Chart B: OECD, *Employment Outlook*, 2004.

StatLink: *http://dx.doi.org/10.1787/232474884467*

ECONOMIC POLICY REFORMS: GOING FOR GROWTH – ISBN 92-64-03591-5 – © OECD 2006

UNITED KINGDOM

The United Kingdom is characterised by a strong science base and strong innovation capacity in the services sector, but business R&D spending relative to GDP is only average for the OECD.

Indicator-based recommendations

Ensure adequate support for public R&D

Assure the long-term capability of the public R&D system by securing adequate funding to the maintenance and upgrading of research infrastructure.

Improve effectiveness of public support to private R&D

Consider the balance of direct funding of R&D between SMEs, where market failures concerning the ability to raise finance are more likely, and larger firms, where support is focused at present.

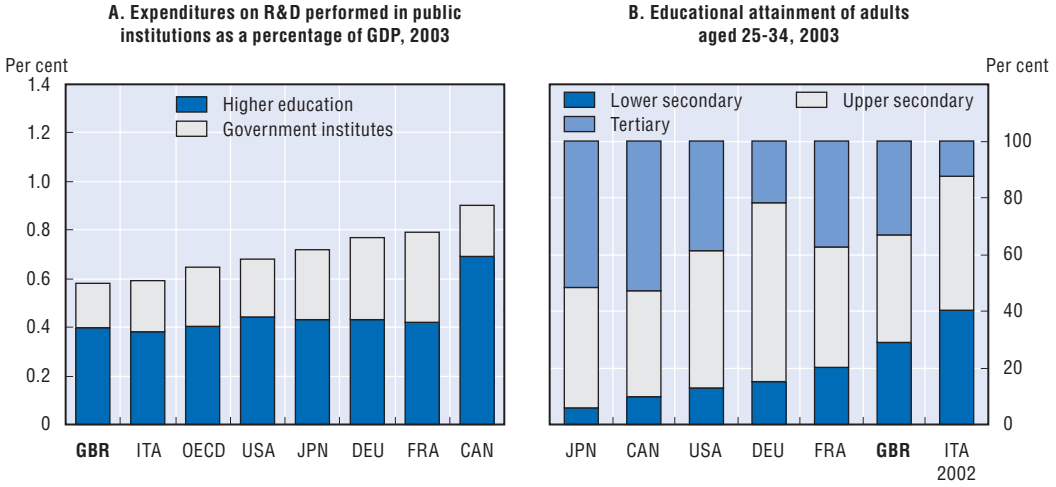
Other recommendations

Raise post-compulsory enrolment rates at school

Take steps to improve overall workforce skills so as to raise the absorptive capacity of the workforce, particularly by focusing on improving the relevance and quality of vocational programmes at the secondary level.

Promote innovation in universities

In line with the recommendations of the *Lambert Review*, consider raising the funding of the universities which have a track record of successful collaboration with businesses in addition to other criteria included in the existing review process.



Source: Chart A: OECD, *Science, Technology and Industry Scoreboard*, 2005; Chart B: OECD, *Education at a Glance*, 2005.

StatLink: *http://dx.doi.org/10.1787/232474884467*

UNITED STATES

The United States performs above the OECD average in terms of business R&D investments and patenting relative to GDP, but government finance concerns are putting pressures on public R&D spending.

Indicator-based recommendations

Maintain public R&D spending

Secure funding for public R&D spending during the required consolidation of public finances in the coming years.

Improve educational achievements

With below average scores in science and mathematic literacy deteriorating further over the 2000-03 period, ongoing efforts to improve student outcomes and the quality of teaching at the primary and secondary levels (including provisions of the No Child Left Behind Act) should be evaluated and appropriately reinforced.

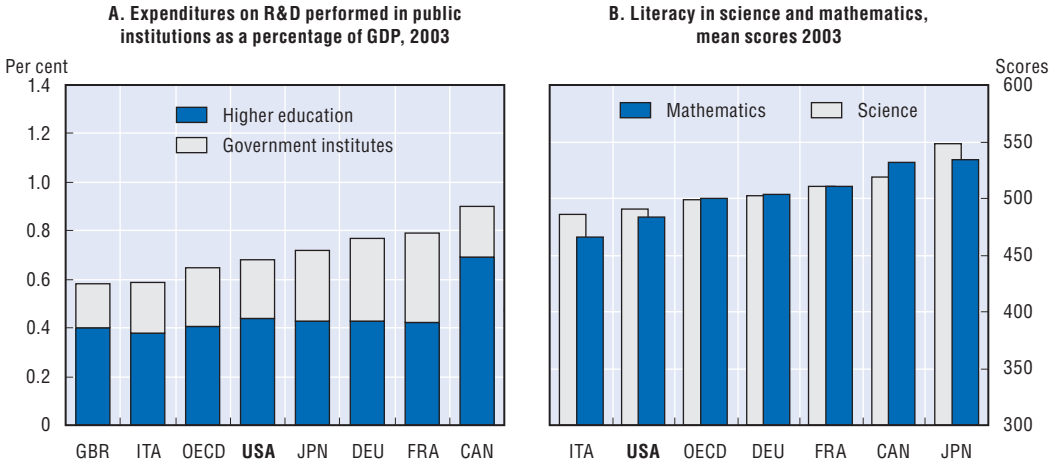
Other recommendations

Co-ordinate public innovation policy

Improve co-ordination of science and innovation policy across the government sector to ensure greater consistency and complementarity among policies, especially with a view to make them more responsive to globalisation.

Reform the patenting process

Continue efforts to enhance the performance of the patenting system, especially in new technological areas, by ensuring adequate resources and improving information about existing patents and post-grant review procedures.



Source: Chart A: OECD, *Science, Technology and Industry Scoreboard*, 2005; Chart B: OECD, *Learning for Tomorrow's World*, PISA 2003.

StatLink: *http://dx.doi.org/10.1787/232474884467*

ECONOMIC POLICY REFORMS: GOING FOR GROWTH – ISBN 92-64-03591-5 – © OECD 2006

PART III

Thematic Studies

ISBN 92-64-03591-5
Economic Policy Reforms
Going for Growth

PART III

Chapter 5

Regulation of Financial Systems and Economic Growth

This chapter sheds some light on the link between financial market regulation and economic growth. Financial systems are found to differ substantially across OECD countries in terms of overall size, structure as well as in the degree of competitive pressures prevailing in the banking and securities markets. To some extent, these variations reflect differences in regulatory underpinnings. In particular, regulatory settings that maintain excessively high barriers to competition in banking, or that provide too little protection for investors in securities markets, hamper the development of financial systems, resulting in weaker economic growth.

Introduction

The operation of financial systems can have an important effect on economic growth. Well-functioning banking systems and securities markets channel funds efficiently between savers and investors, diversify risks of households, and generate information on prospective as well as ongoing investment projects (OECD, 2004). The result is that scarce saving is allocated to investment projects with high returns for individual investors and society at large.

Many factors affect the workings of financial systems and the links to economic growth are often complex. This chapter focuses on one aspect of these links: the impact of financial-market competition and regulation on growth.[1] After reviewing some stylised facts of the size and structure of financial sectors across OECD countries, it presents a set of indicators synthesising national regulatory frameworks that have a bearing on competition in banking and securities markets. It then briefly summarises recent evidence suggesting that economic growth is affected by competition and the stance of regulations.

The main findings in this chapter are as follows:

- The size and structure of the financial sector vary significantly across OECD countries.
- As measured by competition-restraining regulations, the degree of competition in banking and securities markets differs across OECD countries.
- Empirical analyses suggest that government regulations of financial systems have a significant impact on economic growth. In particular, industrial sectors where firms traditionally rely more heavily on external sources of finance grow faster in countries where the stance of regulation is more conducive to competitive and efficient financial systems.

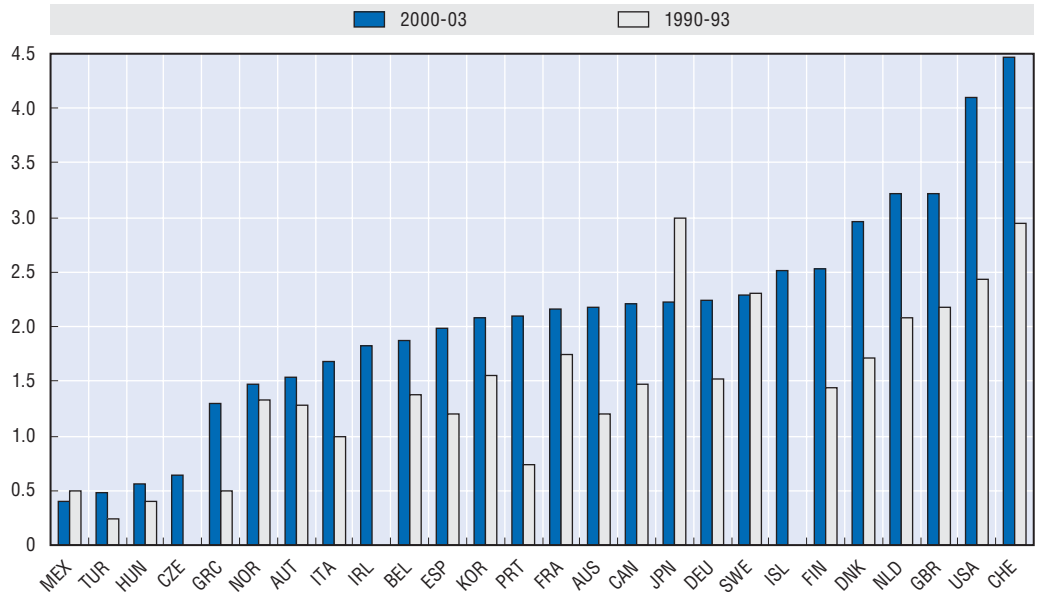
Financial development and performance

The size and structure of financial systems are strikingly different across countries despite ongoing financial integration around the globe. This can be illustrated by two indicators:

- The sum of total loans to the private sector plus stock and private bond market capitalisation is a measure of the size of the financial sector. It was more than four times higher than GDP in the early 2000s in Switzerland and the United States, whereas it was less than 50% of GDP in Mexico and Turkey (Figure 5.1). In most countries, the size of financial systems has increased strongly between the early 1990s and early 2000s.
- In some European countries and Japan, bank loans constitute a major source of external finance for the private sector, reaching more than 50% of the overall financial sources (Figure 5.2). In contrast, the share of bank loans is only 15% in the United States, where securities markets constitute the major financial source.

In terms of performance, the efficiency of financial systems is influenced by competition in the markets for securities and banking services.[2] Past trends in deregulation (removal of price controls, elimination of barriers to cross-border capital flows, easing of regulation of banking activities, etc.) and improvements in the technologies of information and

Figure 5.1. **Total loans to private sector and securities market capitalisation as a ratio of GDP**



Source: World Bank, Financial structure database.

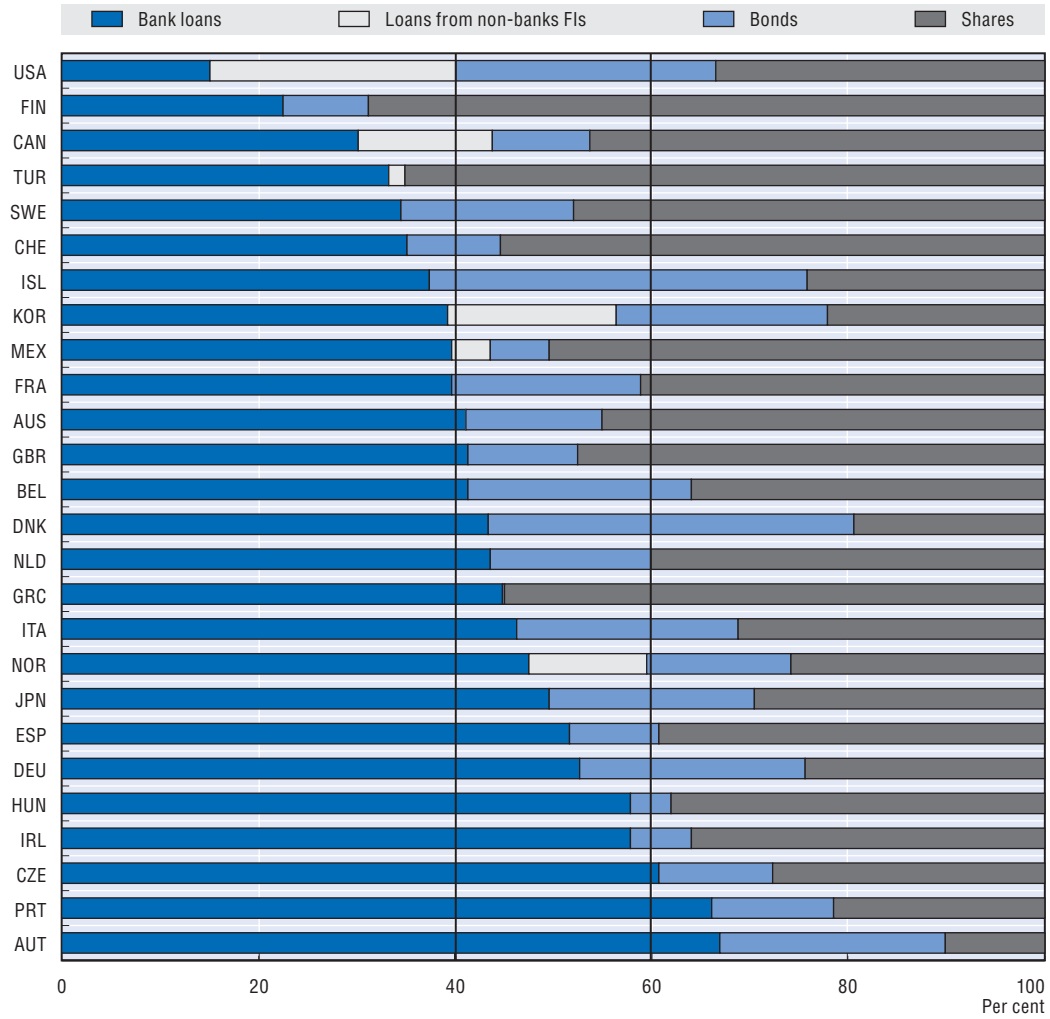
StatLink: *http://dx.doi.org/10.1787/321641370064*

communication have undoubtedly raised competitive pressures in most segments of banking services, as well as in the market for corporate bonds and equity issuance. Just how intense these pressures have become is more difficult to judge, however, given that the degree of competition in markets for banking or securities issuance and trading services cannot be directly observed.[3] Even so, various indicators of competition based on measures of costs, margins and import penetration rates point to sizeable differences across OECD countries.

- Overhead costs as well as net interest margins show that cost structures and pricing strategies vary to a great extent (Figure 5.3). Banks' overhead costs tend to be relatively high in some lower-income countries, reaching nearly 7% of total assets in Mexico and Turkey, whereas they are comparatively low (less than 1.5%) in Luxembourg and Ireland. Similarly, banks' net interest margins are particularly high in Turkey (11.7% of total interest-bearing assets), while they are less than 1.5% of total interest-bearing assets in Ireland and Luxembourg.
- For countries where domestic competition in banking is impeded by either small size or regulatory barriers, competition from abroad is important. Measures of international competition in banking suggest that domestic banks are subject to varying degrees of competition from foreign rivals (Figure 5.4). In some countries (Greece, Iceland, Ireland and Luxembourg), more than 30% of borrowed funds by the private sector comes from across the border, whereas in countries such as Korea and Japan the share of cross-border loans is less than 5%.
- In order to compete in retail banking services, a physical presence is usually required, either in the form of branches or subsidiaries. However, foreign-owned banks play a major role in domestic lending to the private sector in only a few countries (notably in Mexico, New Zealand and Central and Eastern European countries). In most other countries, domestic loan market penetration rates by foreign institutions remain low,

Figure 5.2. **The relative importance of loans and securities**

Average 2000-03



Source: World Bank, Financial structure database.

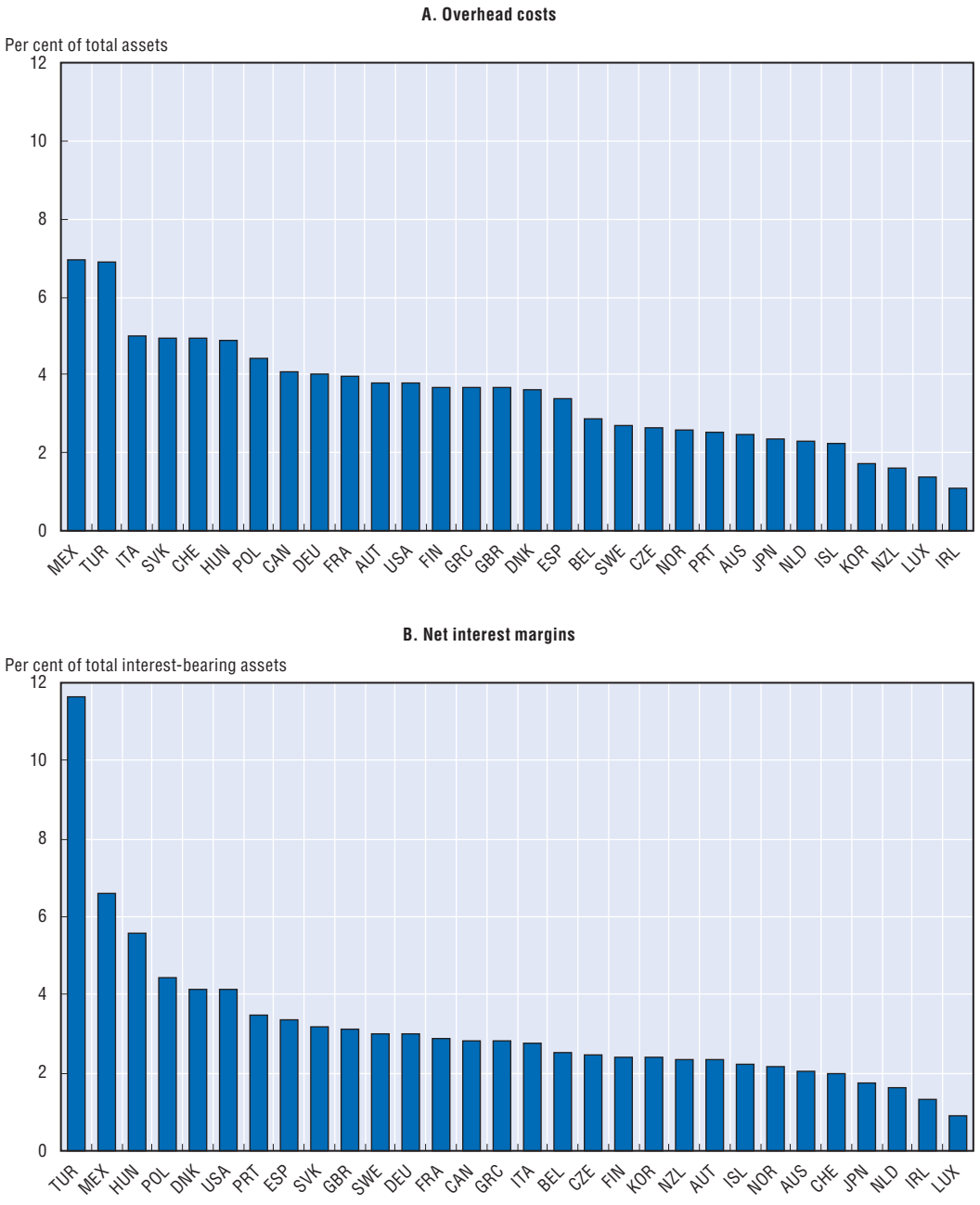
StatLink: *http://dx.doi.org/10.1787/321641370064*

particularly so in Japan and euro area countries. The latter is somewhat surprising in light of EU efforts to bolster financial integration.

There are indications that markets for corporate bonds and shares have become more competitive in recent years, reflecting to a large extent the high degree of integration in the market for investment banking services. This is particularly manifest in the case of corporate bonds, where the share of domestic issuance that is underwritten by foreign banks has risen substantially over the past ten years, especially in the euro area (Barros *et al.*, 2005). This has been accompanied by a substantial reduction in underwriting fees (Santos and Tsatsaronis, 2003). As regards the equity market, cross-country variations still exist in transaction prices despite the tendency for global integration of the industry. Thus, effective spreads for equity trading, which consist of brokerage fees as well as clearing and settlement fees, differ markedly across countries, for example varying from 1.2% of the price in the United States to 9.5% in Australia (London Economics, 2002).

Figure 5.3. **Bank activities: costs and interest margins**

Average 1996-2003



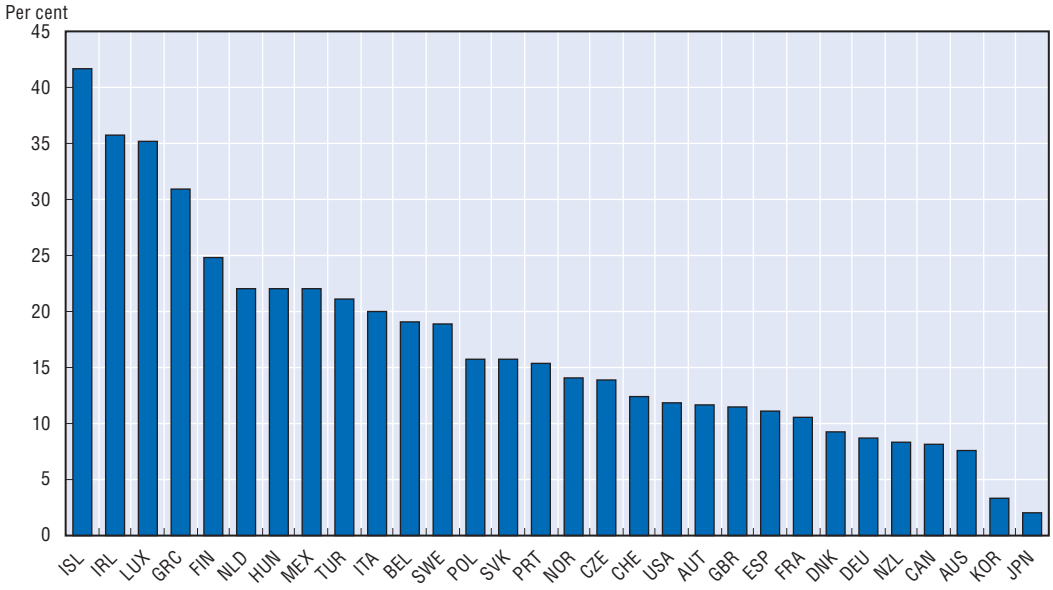
Source: World Bank, Financial structure database and *World retail banking report*, 2005.

StatLink: *http://dx.doi.org/10.1787/321641370064*

Figure 5.4. **International competition in banking**

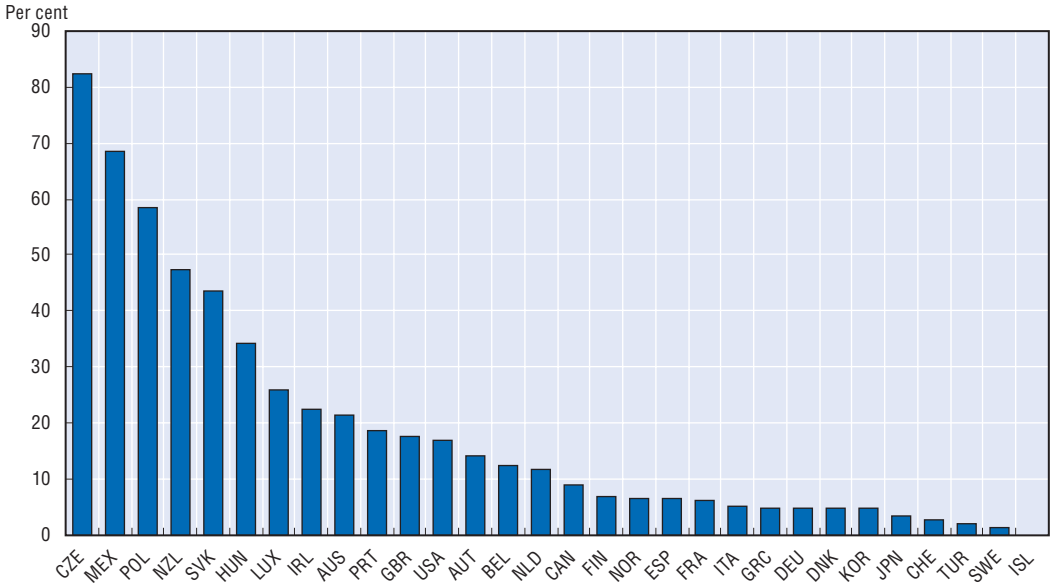
Average 2000-03

A. Share of cross-border loans in total domestic borrowing[1]



B. Foreign banks' penetration of domestic loan market

Local claims in local currency only[2]



1. Measured as foreign banks' cross-border claims on non-banks as a percentage of all commercial banks' local claims on non-banks plus cross-border claims on non-banks.
2. Measured as foreign banks' local claims in local currencies as a percentage of all commercial banks' local claims on non-bank sectors (*i.e.* household, non-bank corporations and public sectors). Since the data on local claims in local currencies are not broken down by sector, they include lending to banks as well as to non-bank sectors. As a result, the measure over-estimates the underlying rate of foreign penetration of non-bank domestic loan markets.

Source: BIS and IMF.

StatLink: *http://dx.doi.org/10.1787/321641370064*

Behind this are structural factors that hamper competition. Security exchanges are often fragmented along national lines, preventing scale economies from taking place. Foreign equity transactions account for slightly more than a third of total transactions at the London Stock Exchange, but for most other exchanges, including Deutsche Börse and Euronext, they constitute less than 10% of total transactions. One reason for the lack of cross-border mergers between security exchanges is that the process of clearing and settlement differ between countries as regards technical requirements, tax regimes and legal systems. This significantly raises the cost of cross-border transactions given the required involvement of additional intermediaries to complete the post-trade process. Furthermore, in some cases, the vertical integration structure of stock exchanges prevents different providers of clearing services from having access to a stock exchange, limiting competition for such services within a country.

Government regulation of the financial system

As in other sectors of the economy, the size, structure and performance of the financial sector is influenced by government regulation of banks and securities markets. This section shows how such regulations differ across OECD countries, based on a set of synthetic indicators that summarise the stance of regulations in particular areas (see Box 5.1 and Figure 5.5).

Banking regulation

Banking regulation has often been put in place with several – and sometimes conflicting – objectives in mind, such as promoting strong national financial institutions, offering consumer protection, assisting industrial and/or regional development and preserving financial stability, in particular the safeguarding of the payment and settlement system. This has led in the past to tight and widespread regulation, ranging from interest rate ceilings and branching restrictions to capital requirements and deposit insurance. The most stringent rules, such as interest rate controls and branching restrictions, have by now been largely eliminated in most OECD countries, but the sector remains nevertheless one of the most intensely regulated across countries. In parallel, the main objectives of regulation have generally become more narrowly focused, with the main emphasis put on crisis prevention, in particular on limiting systemic risks should one or more institutions get into trouble. Furthermore, in an effort to level the playing field internationally, efforts have been made to harmonise prudential regulation across countries via the Basel I and II rules.

Figure 5.6 shows the indicators identified as barriers to competition in banking in 2003 (Panel A), both the overall indicator and its four main sub-elements: licensing requirements, foreign entry, activity controls and government ownership of banks. Competition in banking is considered to be weakened when licensing requirements are strict, regulations hamper foreign entry, banks' ability to engage in non-bank activity is limited and government ownership of banks is extensive.

For the overall indicator, both a mid-point and a range are provided. The range is an attempt to capture the inherent uncertainty in providing such indicators and shows the margin within which the "true reading" is likely to fall with a very high likelihood. On the whole, most OECD countries appear to lie close to the OECD average as indicated by the mid-point for individual countries, suggesting that indicators are not significantly different

Box 5.1. **The construction of regulatory indicators for banking and the securities industry**

The regulatory information is essentially based on surveys conducted by the World Bank on regulations in banking and securities markets. The *Bank Regulation and Supervision Database* (2004) collects information as regards the regulation and supervision of commercial banks, including entry restrictions, the extent of government ownership, capital-adequacy rules and deposit insurance arrangements. The *Doing Business Database* (2005) compiles information as regards information disclosure and efficiency of legal procedures, contained in securities exchange rules, company law and bankruptcy law.

The structure of the indicator system is shown in Figure 5.5. In banking, attempts have been made to separate policies into two broad categories: regulatory barriers to competition and regulations aimed at financial stability. This leaves the system of regulatory indicators with three broad categories, namely regulatory barriers to competition, regulations aimed at stability and securities market regulation. In the following analysis, regulatory barriers to competition and securities market regulation will be examined while leaving out stability regulations.[1]

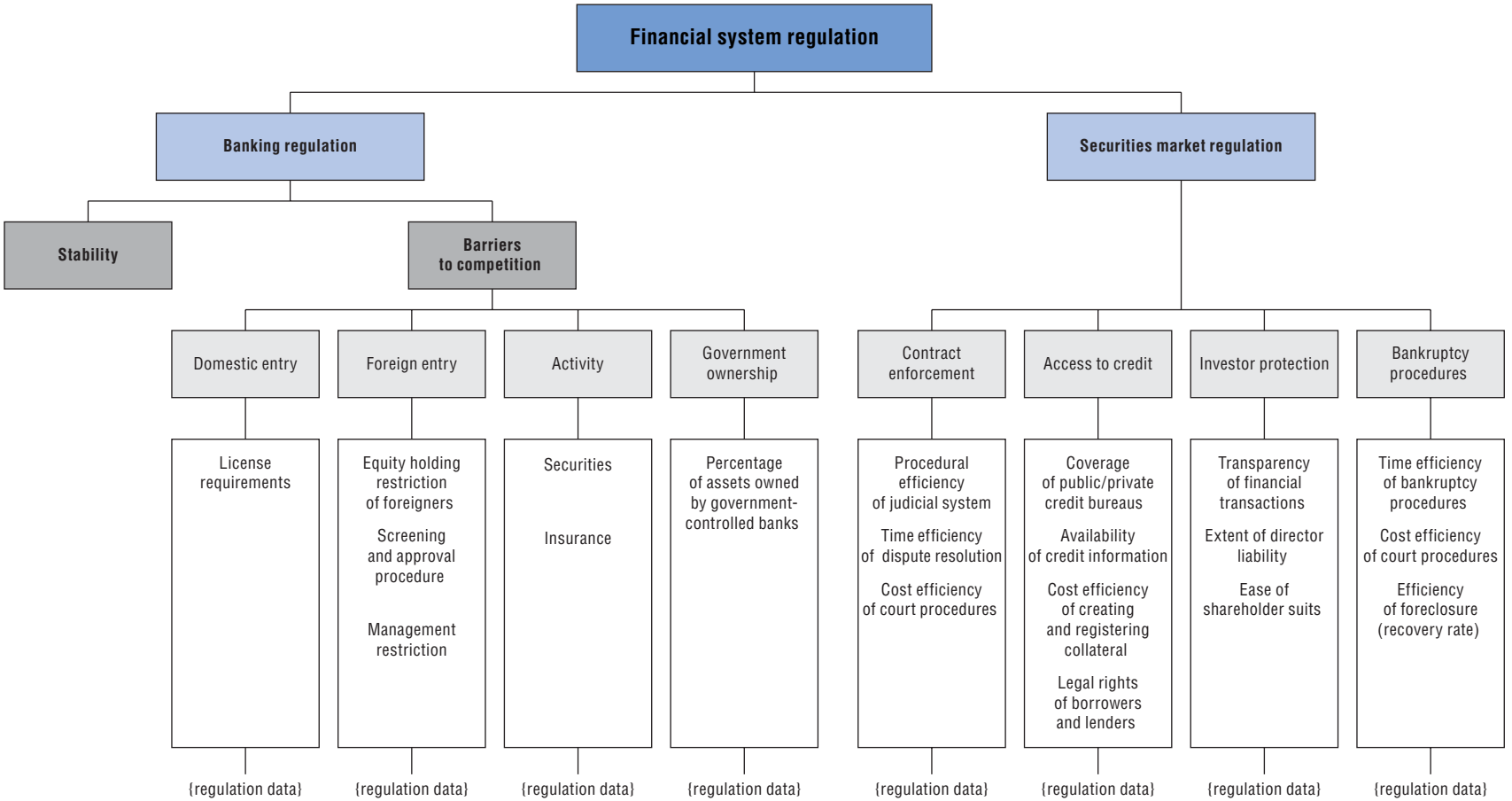
Each category then consists of sub-group indicators, which in turn are composites of specific elements of regulation. For example, under regulatory barriers to competition in banking, there is a sub-group called "domestic entry", which gathers information about licensing requirements to set up a bank as well as information about regulatory structure in granting licenses. Under securities market regulation, "contract enforcement" measures the efficiency of commercial contract enforcement from the perspective of the number of procedures, time required for dispute resolution and official cost of court procedures.

In order to derive indicators, qualitative information on each specific element of regulation, often in the form of "yes" or "no", is quantified so as to have a scale between zero and one. In banking regulation, scores are designed to increase according to the restrictiveness of regulation; hence higher scores mean higher barriers, which are *worse* for banking efficiency. In securities market regulation, scores are designed to increase according to the enforceability of claims; hence higher scores mean more investor certainty, which is *better* for market efficiency. The score attributed to individual questions has first been aggregated into sub-indices with equal weights, and then into the two categories (*i.e.* barriers to competition and securities market regulation) using a technique that provides some indication of the sensitivity of the scores and ranking to the choice of weights attributed to individual sub-elements.[2]

1. Regulations aimed at stability could have negative implications for competition and thereby economic growth (see de Serres *et al.*, 2006; Barth *et al.*, 2002). However, to the extent that a minimum level of regulation is required to ensure that financial institutions behave prudently, this is best addressed with instruments that have minimal effects on competition such as capital requirements, disclosure rules and risk-based deposit insurance, which are regrouped under stability-oriented regulations.
2. See Freudenberg (2003) for a discussion of how to create indicators using the random-weights technique.

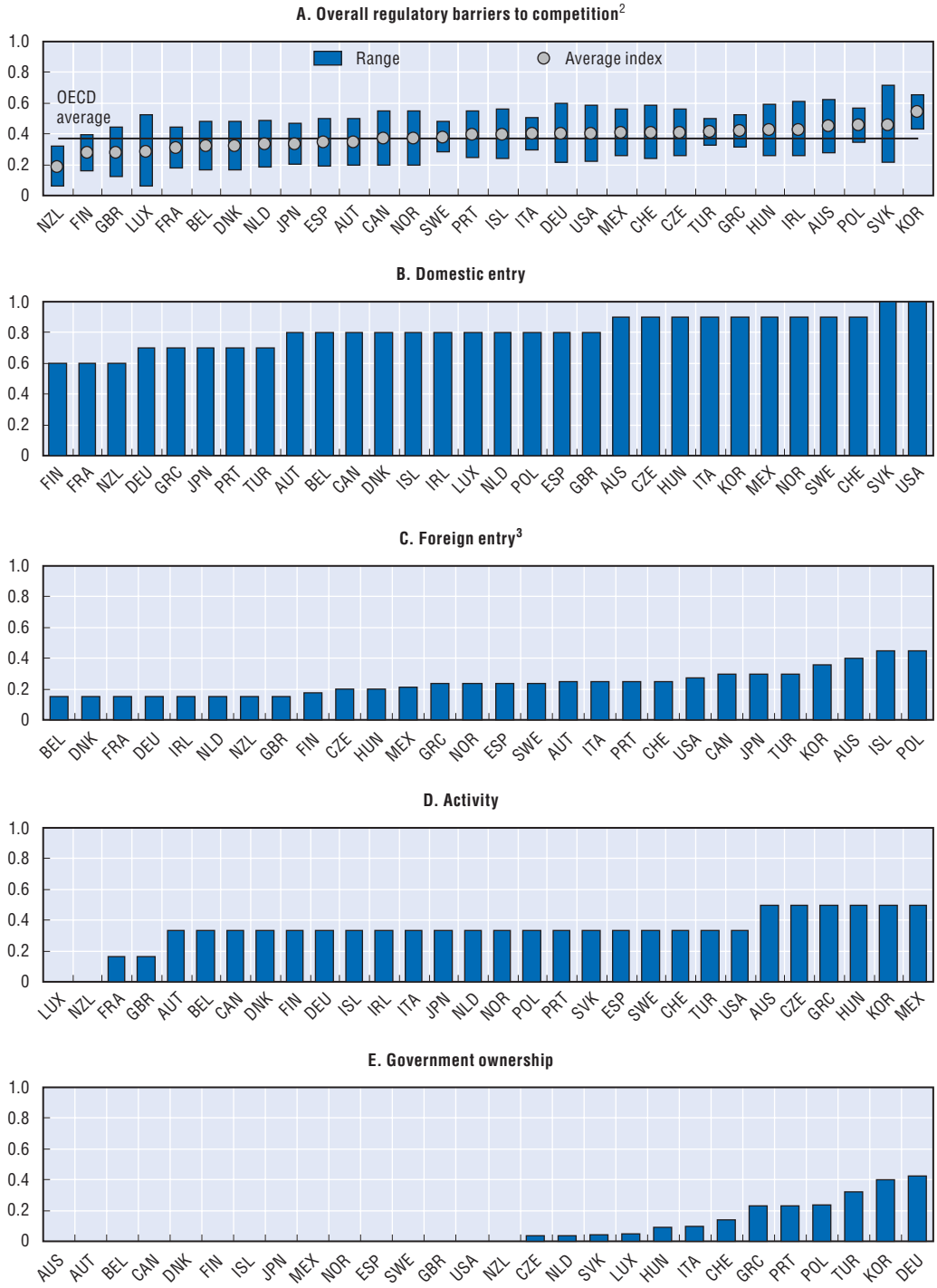
from one another. Only a few countries are significantly different from the OECD average in the sense that the OECD average is not inside the range of the overall indicator for the country in question.

Figure 5.5. **The system of regulatory indicators for banking and securities markets**



StatLink: *http://dx.doi.org/10.1787/321641370064*

Figure 5.6. **Banking regulation indices, 2003**[1]



1. The scale of the indicator is 0-1 from least to most restrictive. A higher value indicates more competition-restraining regulation.
2. Average of the items shown in Panels B to E.
3. Restrictions to foreign entry are taken from Golub, S. (2003), "Measures of restrictions on inward FDI from OECD countries", OECD Economics Department, Working Paper No. 357. This index reflects the stance of regulation prevailing in the period 1998-2000.

Source: OECD and World Bank, Bank regulation and supervision database.

StatLink: *http://dx.doi.org/10.1787/321641370064*

ECONOMIC POLICY REFORMS: GOING FOR GROWTH – ISBN 92-64-03591-5 – © OECD 2006

Securities market regulation

In contrast to banking regulation, tensions between different regulatory objectives have been less of an issue in the case of securities markets. This owes much to the fact that a core objective of market regulation – investor protection defined in a broad sense – is also viewed as contributing positively to financial system efficiency. Even so, striking the right balance between protecting the rights of various stakeholders (shareholders, creditors, entrepreneurs/managers, employees) on the one hand, while allowing firms and markets to function efficiently, on the other, does involve complex policy trade-offs, cutting through a wide range of regulatory areas such as securities exchange rules, company law and bankruptcy law. Accordingly, providing a comprehensive quantification of the stance of regulation in these areas with a view to identify best practice remains an ambitious challenge.

In any case, for securities markets the picture that emerges is somewhat different from that for banking regulation. Figure 5.7 shows the overall securities market regulatory indicator and its four key components: contract enforceability, legal rights of borrowers and lenders, investor protection and the efficiency of bankruptcy proceedings. The indicators are constructed on the basis that the development of securities markets is facilitated by regulations that strengthen all these elements. As can be seen from the overall indicator, many OECD countries have securities regulation that is either significantly more friendly to investors or significantly less so, as compared with the OECD average.

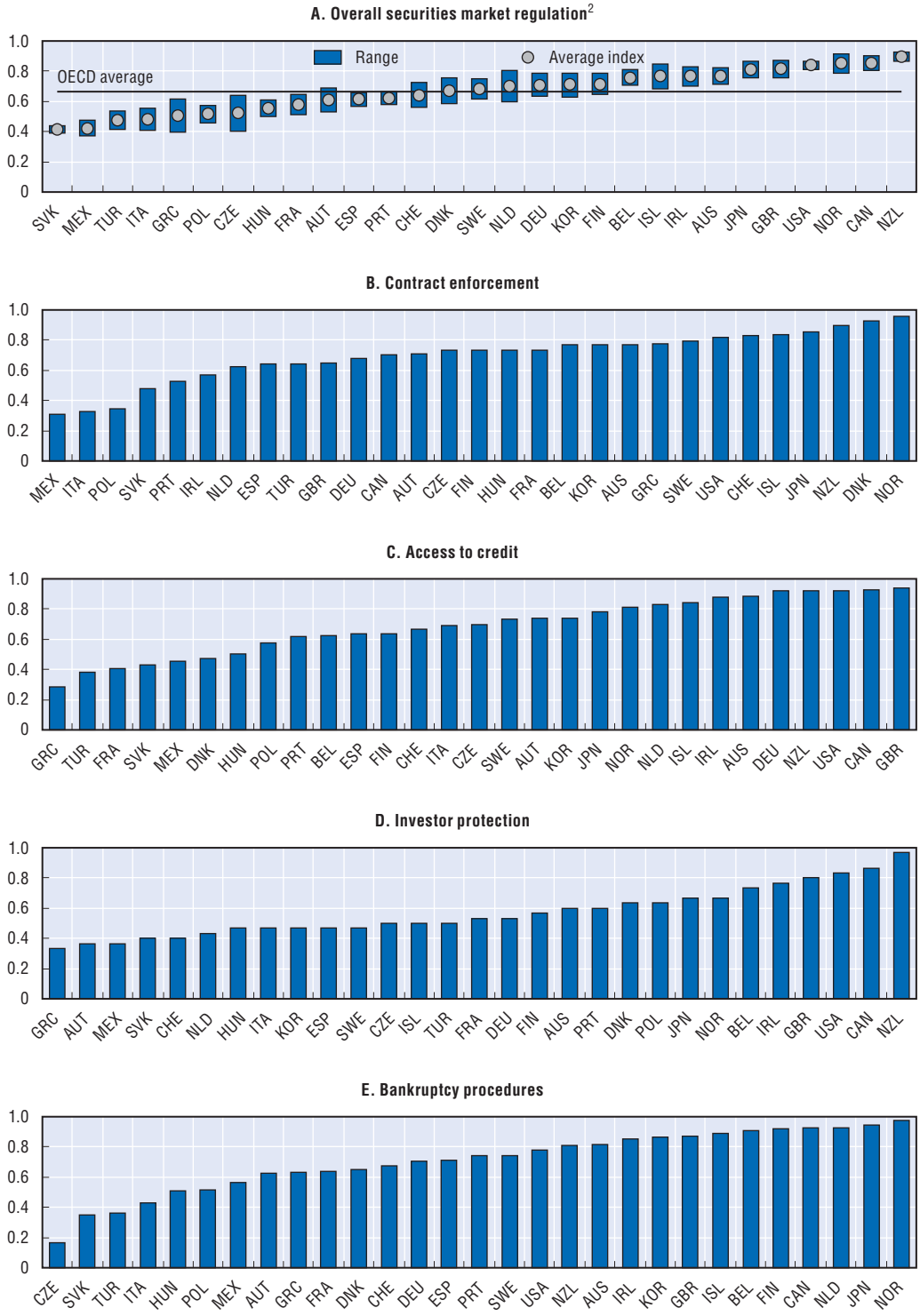
The impact of financial regulation on economic performance

A number of studies provide evidence that the size of financial systems is associated with economic growth. This is not only because financial development facilitates investment in machinery and equipment, which in turn is an important source of growth. Financial development is also found to contribute through a more efficient allocation and use of scarce capital resources.[4] In contrast, the evidence concerning the influence of the structure of a financial system – whether it is more bank-loans-oriented or securities-oriented – is more mixed. In fact, the more recent studies do not find significant evidence that the orientation of systems has a general impact on growth across countries at different stages of development (Levine, 2002).

On a simple (bilateral) cross-country basis, a number of the regulatory indicators discussed above are correlated with indicators of financial development. Regulatory barriers to competition are found to be negatively associated with the volume of bank assets (relative to GDP), which could be taken to suggest that stricter anti-competitive barriers hinder the development of the banking sector. The degree of investor protection is positively correlated with stock market capitalisation and private bond market capitalisation, suggesting that more demanding regulation in this area is beneficial to securities market development. As financial development is itself closely associated with GDP growth, these correlations provide some indirect evidence of the importance of financial regulations for economic growth. Nonetheless, this evidence should not be over-interpreted. In particular, simple bilateral correlations provide no evidence on the direction in which causality runs. For example, it might well be the case that more well-developed securities markets increase the demand for investor protection.

After controlling for such two-way causality, however, it appears that the regulatory indicators discussed above contribute to explaining growth in output and productivity.[5] As could be expected, they play a greater role in determining the growth in sectors that tend to be

Figure 5.7. **Securities market regulation indices, 2005**[1]



1. The scale of the indicator is 0-1 from least to most demanding. A higher value indicates regulation that is more conducive to financial development.
2. Covers contract enforcement, access to credit, investor protection, and bankruptcy procedures.

Source: OECD and World Bank, Bank regulation and supervision database.

StatLink: *http://dx.doi.org/10.1787/321641370064*

more dependent on external finance (such as information technologies and pharmaceuticals) than in those that are traditionally more reliant on internal funds. Regulations will thus not only affect the overall growth rate of the economy but also its industrial structure.

This analysis suggests that the impact of reducing competition-restraining banking regulations and strengthening investor protection on economic growth would be significant. By way of illustration, reforms that would align regulations in banking in countries with the most restrictive stance to the OECD average could be associated with an increase in annual GDP growth by ¼ to ½ of a percentage point for a significant period of time. The impact on growth would be somewhat smaller from strengthening investor protection from the weakest to an average stance.

These results underscore the importance of looking closely at regulation of financial systems as one area of policy settings having a significant impact on broad economic performance. However, doing so with a view to deriving and formulating country-specific policy recommendations requires further development of the set of regulatory indicators so as to better capture detailed characteristics of financial systems in OECD countries.

Notes

1. This chapter is largely based on recent OECD empirical analysis detailed in de Serres *et al.* (2006).
2. In theory, if competition in financial systems is too intense, systemic stability could be threatened. In practice this does not appear to be an important risk in the current situation. See de Serres *et al.* (2006) for a discussion of this point.
3. One traditional approach to measuring competitive pressures is based on the degree of market concentration, for instance the share of total bank assets in a given market held by the three largest banks. In the case where the domestic market is taken as the relevant market, such measures typically show that concentration is high in small countries (markets), which could be misleading given that banks operating in such markets may nevertheless be facing stiff competition from abroad. However, measures of concentration that take into account cross-border competition are difficult to construct.
4. See Pelgrin *et al.* (2002) and Leahy *et al.* (2001) which provide evidence that financial development has a significant impact on GDP per capita even after controlling for the stock of machinery and equipment.
5. See de Serres *et al.* (2006) for details.

References

Barros, P.P., E. Berglöf, P. Fulghieri, J. Gual, C. Mayer and X. Vives (2005), "Integration of European Banks: The Way Forward", *CEPR, Monitoring European Regulation 3*.

Barth, J., G. Caprio and R. Levine (2002), "Bank Regulation and Supervision: What Works Best?", *Journal of Financial Intermediation*, Vol. 13.

de Serres, A., S. Kobayakawa, T. Sløk and L. Vartia (2006), "Regulation of Financial Systems and Economic Growth", *OECD Economics Department Working Papers*, forthcoming.

Freudenberg, M. (2003), "Composite Indicators of Country Performance: A Critical Assessment", *OECD, Directorate for Science, Technology and Industry Working Paper*, 2003/16.

Leahy, M., S. Schich, G. Wehinger, F. Pelgrin and T. Thorgeirsson (2001), "Contributions of Financial Systems to Growth in OECD countries", *OECD Economics Department Working Papers*, No. 280.

Levine, R. (2002), "Bank-Based or Market-Based Financial Systems: Which is Better?", *Journal of Financial Intermediation*, Vol. 11.

London Economics (2002), *Quantification of the Macro-economic Impact of Integration of EU Financial Markets*, London.

OECD (2004), *Understanding Economic Growth*, Paris.

Pelgrin, F., S. Schich and A. de Serres (2002), "Increases in Business Investment Rates in OECD Countries in the 1990s: How Much Can Be Explained by Fundamentals?", *OECD Economics Department Working Papers*, No. 327.

Santos, J. and K. Tsatsaronis (2003), "The Cost of Barriers to Entry: Evidence from the Market for Corporate Euro Bond Underwriting", *BIS Working Papers*; No. 134.

ISBN 92-64-03591-5
Economic Policy Reforms
Going for Growth

PART III

Chapter 6

Alternative Measures of Well-being

This chapter assesses if GDP per capita can serve as a reasonable proxy of overall well-being. Other national accounts measures are arguably better suited for this purpose but they are not as readily available and are in any case closely correlated with GDP in most OECD countries. Illustrative calculations to "extend" GDP to include leisure time, the sharing of income within households and distributional concerns suggest that cross-country ranking based on these indicators and GDP per capita are generally similar. Across OECD countries, levels of most measures of specific social conditions are positively related to GDP per capita while changes over time are not. However, survey-based data on happiness and life satisfaction across OECD countries are only weakly related to levels of GDP per capita. Overall, GDP per capita remains critical for any assessment of well-being but needs to be complemented with other measures to get a comprehensive picture of well-being.

The policy priorities identified in the *Going for Growth* series aim at increasing economic growth and material living standards. However, policy makers do not focus single-mindedly on these objectives, but seek to enhance the overall well-being of citizens, taking also into account other factors, such as distributional concerns and environmental quality. This chapter[1] reviews the various potential components of well-being, and assesses if measures of economic growth and material living standards can serve as reasonable proxies for the development and level of well-being.

The OECD has normally measured the level and evolution of material living standards in member countries in terms of the level and growth of gross domestic product, or GDP, per capita. Thanks to the development of standardised national accounts, GDP is one of the best known and most widely available economic indicators, directly comparable across countries and over time. How and what it measures, and what it does not measure, are precisely defined, and the result is a number. In practice, however, countries measure key components of GDP in different ways.

"Well-being" is a complex concept. Dictionary definitions differ, but notions of prosperity, health and happiness generally figure. Well-being is not something that one can give a precise number to. Numerical indicators relevant to well-being exist and it is plausible to argue that the general well-being of society as a whole has probably risen or fallen if an indicator, or a set of indicators, move in a given direction. However, when different indicators move in opposite directions, it is not possible to say if well-being is being enhanced or reduced.

As noted above, well-being is a more fundamental goal than GDP. It would be perverse to strive for faster growth of output if this entailed reducing the well-being of the current and future generations. The following questions arise:

- Is GDP the theoretically best available indicator of well-being?
- If not, is there another indicator, or indicators, that are better in theory?
- If so, are these indicators generally accepted and widely available?
- If not, is GDP "good enough" as an indicator of well-being for most purposes?

The answers to these questions are No, Yes, No and a qualified Yes, the qualification being that GDP can be usefully supplemented with other indicators to derive a comprehensive assessment of well-being. In developing these replies, this chapter first looks at different monetary measures of well-being available in national accounts and at survey-based data on the distribution of household income, and then at various non-monetary measures, such as leisure, environmental quality, social conditions, and at surveys of self-reported happiness and life-satisfaction.

Monetary measures of well-being

What does GDP measure and how is it measured?

GDP measures the value of goods and services produced by the residents of a country or region during a given time-period. Production is defined as a process carried out by a controlling unit (a firm, a government, an individual) using inputs of goods and/or services and resources of labour and assets (of capital equipment, land and/or raw materials) to produce outputs of goods and/or services. Outputs must be capable of being sold on markets, or to be transferred to other producing or consuming units, with or without a charge. There is no double-counting: the values of the steel, glass, rubber, plastics, etc., used in the manufacture of an automobile are not added to the value of the automobile as sold to a consumer. GDP figures currently available generally exclude illegal activities,[2] leisure, and home activities (*e.g.* "housework" activities, do-it-yourself activities, etc.). This is not because such activities have no value in themselves, but because they have no easily definable market value. Many government activities in many countries in the fields of health, education, defence, policing, etc. are not sold as such on markets, but are provided free, or nearly free, of charge at the point of delivery. The costs of producing these services are nevertheless counted as part of GDP. In practice, the measurement of such public activities in national accounts is subject to a margin of uncertainty.

Production of goods and services is valued at market prices where these are available, or can be estimated. This is not because national accounts statisticians are ideologically attached to markets, or even because such prices are comparatively simple to collect (although they are). It is because, on certain assumptions,[3] the system of prices that is thrown up by freely-acting markets is an accurate reflection of the value to society of the goods and services that are consumed, given that the resources used in their production have alternative uses. However, when the production and consumption of goods and services involves externalities, the market price either under- or over-estimates the social value of the products.

GDP and well-being

Although GDP is an indicator of economic production, it is not obvious that it is also the best possible indicator of well-being for several reasons:

- GDP is a production concept, whereas well-being depends more on income and consumption of individuals and households.
- GDP is a "gross" concept: It makes no allowance for the using-up of capital equipment in the production of goods and services, and the corresponding need to re-invest part of the output to maintain production capacity unchanged.
- GDP makes no allowance for the using-up of non-renewable resources, which will impact on the well-being of future generations.
- GDP excludes leisure, which is clearly of value to society and contributes to well-being.
- GDP does not distinguish between different varieties of income distribution. A society in which there were a few colossally wealthy families, but the bulk of the population lived in abject poverty, would presumably enjoy a lower level of "general well-being" than one with the same GDP but where there was no acute poverty.
- Production might entail the co-production of "bads" (*e.g.* pollution and deterioration of the environment). These are rarely taken account of in the GDP accounts.

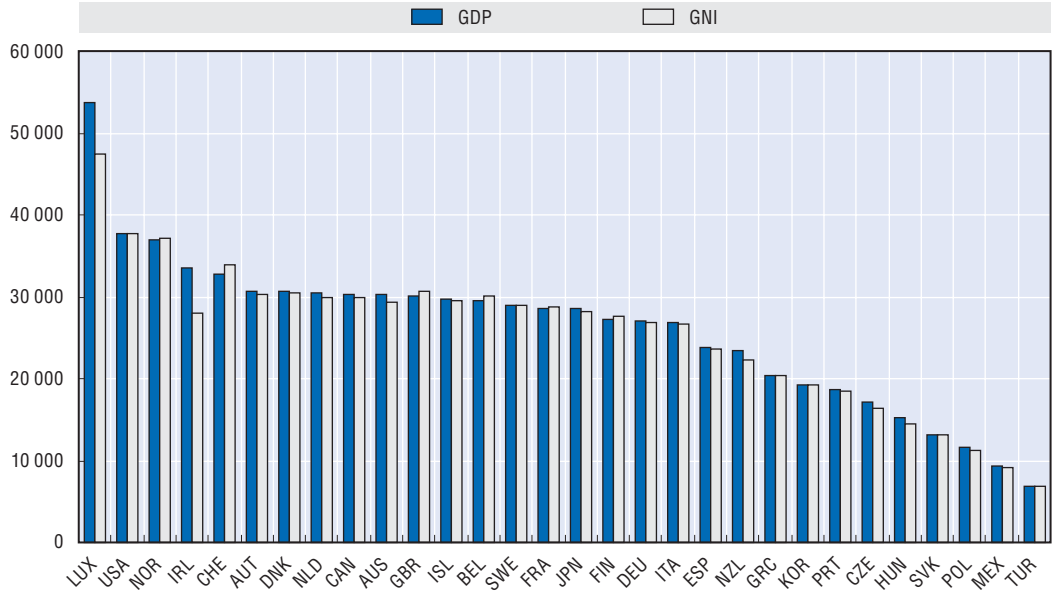
GDP and other national accounts indicators

While GDP is a production concept, the way that it is constructed makes it equal to the total income earned in the production process (excluding indirect taxes and subsidies). Some of this income is paid to non-residents, while residents receive some income from production in other countries. Over time, the international purchasing power of residents may also increase or decrease depending on movements in the external terms of trade – the price of imports relative to domestic prices. GDP can be corrected for so-called "net income from abroad" to arrive at the concept of gross national income, GNI, which is more relevant for well-being. Changes in terms of trade can also be taken into account to derive changes in GNI over time.

Data for GDP and GNI are collected in terms of the local currency used by the country. International comparisons can be made by converting the data to a common currency, usually the US dollar, using exchange rates that have been corrected for differences in purchasing power, so-called purchasing-power-parity exchange-rates, or PPPs. For the majority of countries, there is little difference between GNI and GDP (Ireland and Luxembourg are major exceptions, see Figure 6.1), they have evolved at the same rate over the past decade,[4] and data on net income from abroad are measured with less accuracy than most components of GDP. Hence there is generally not much difference in practice in using GNI rather than GDP to compare countries' relative economic performance.

Figure 6.1. **Gross domestic product and gross national income per capita, 2003**

US$ current prices and current PPPs



Source: OECD, *National Accounts of OECD Countries*, 2005.

StatLink: *http://dx.doi.org/10.1787/834618316561*

GDP and NNI

GDP makes no allowance for the using up of capital equipment during the production process. Because it ignores the need to re-invest in order to sustain production, GDP overestimates the value of output that contributes to well-being. An allowance for

depreciation of capital can be subtracted from GDP to arrive at the corresponding net concept, NDP. All countries provide estimates of capital depreciation. Unfortunately, all such estimates are to a greater or lesser extent arbitrary and countries do not all calculate depreciation in the same way, which is one reason why empirical analysts prefer to use the gross concept. In any case, the difference between gross domestic product (GDP) and net domestic product (NDP) does not fluctuate much from one year to another.[5]

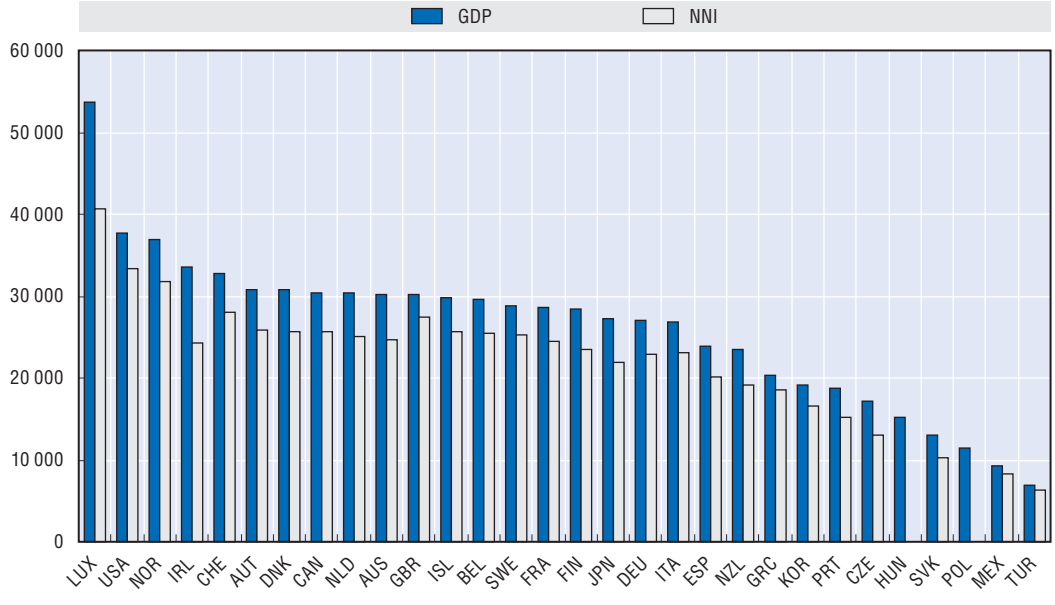
As with GDP, it is possible to add net income from abroad to NDP to obtain net national income, NNI which, if it were possible to measure it as accurately as GDP, would be a better measure than GDP of the economic resources that contribute to the well-being of the residents of a country. Figures 6.2 and 6.3 show how per capita GDP and NNI vary across countries, and how they have varied over time. In general, the country-ranking based on NNI per capita is similar to that based on GDP per capita, although the difference is significant for a few countries. The growth rates of the two measures are also similar in most countries.

GDP and household resources

Even per capita NNI is a poor approximation of the economic resources actually enjoyed by individuals and households. A better measure is the income from all sources available to households after they have paid taxes, and how much of it they consume, including of goods and services that they receive free of charge from the government and non-profit institutions (NPI). For all countries, household disposable income per person is lower than per capita GDP, and per capita household consumption levels are generally lower still. But cross-country comparisons show that there is a reasonably close correspondence between household incomes, their consumption, and GDP per capita (Figure 6.4). On the other hand, household incomes and consumption have in general risen less quickly than GDP in most countries in

Figure 6.2. **Gross domestic product and net national income per capita, 2003**

US$ current prices and current PPPs

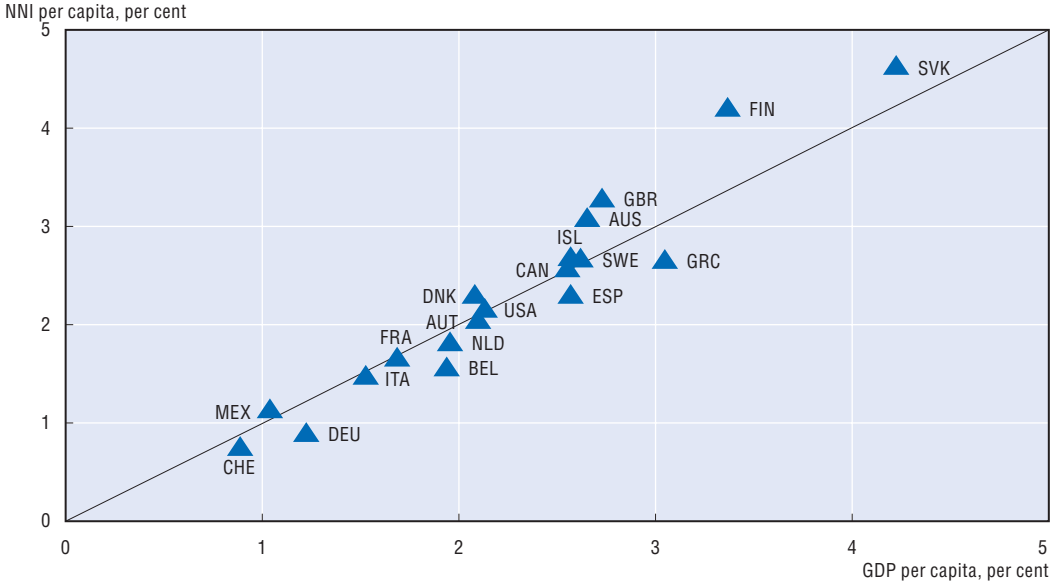


Source: OECD, *National Accounts of OECD Countries*, 2005.

StatLink: *http://dx.doi.org/10.1787/834618316561*

Figure 6.3. **Growth of per capita gross domestic product and net national income, 1994-2003**

Annual average growth rate

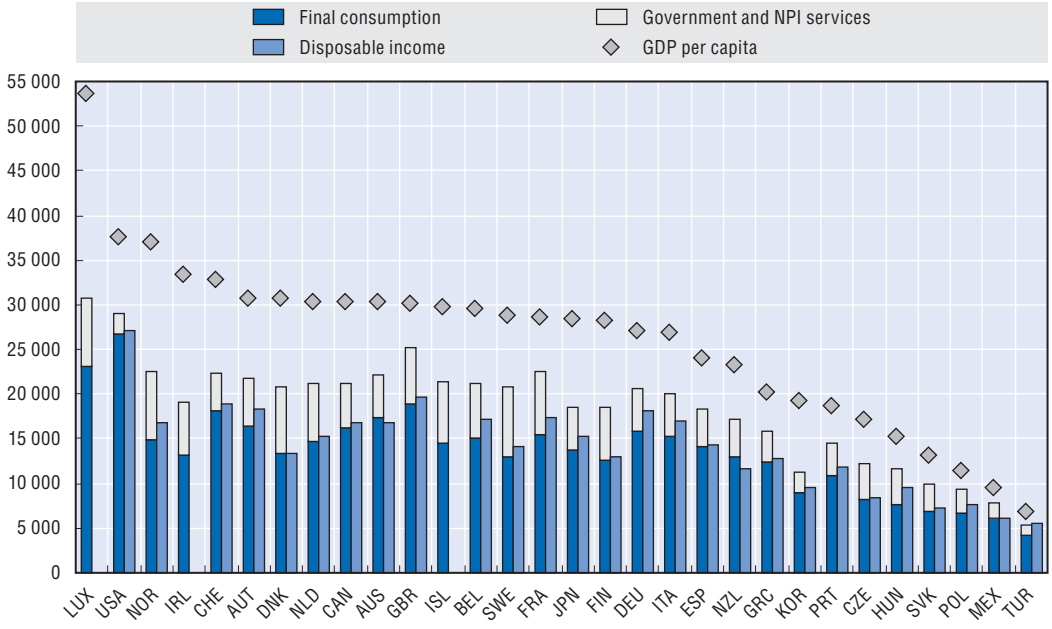


Source: OECD, *National Accounts of OECD Countries*, 2005.

StatLink: *http://dx.doi.org/10.1787/834618316561*

Figure 6.4. **GDP, household incomes and household consumption per capita, 2003**[1]

US$ current prices and current PPPs for GDP and consumption



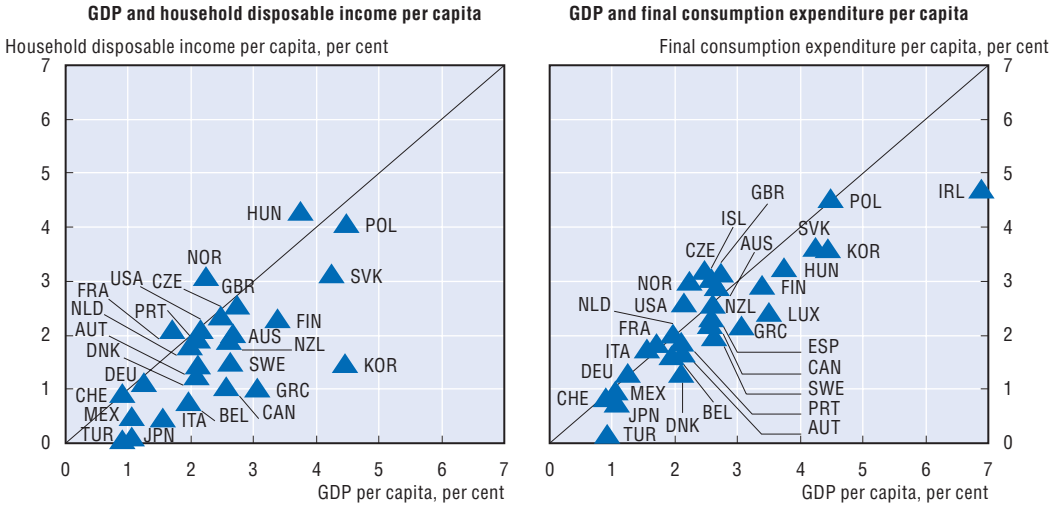
1. Countries are ranked in descending order of GDP per capita.

Source: OECD, *National Accounts of OECD Countries*, 2005 and OECD, *Economic Outlook*, No. 76.

StatLink: *http://dx.doi.org/10.1787/834618316561*

Figure 6.5. **Growth of per capita GDP, household disposable income and household consumption, 1994-2003**

Annual average growth rate



Source: OECD, *National Accounts of OECD Countries*, 2005 and OECD, *Economic Outlook*, No. 76.

StatLink: *http://dx.doi.org/10.1787/834618316561*

the past decade (Figure 6.5), mostly reflecting a shift towards higher company profits. However, as households are the ultimate owners of companies, higher income of businesses should increase household prosperity, *e.g.* through higher asset values, but this is not included in national accounts data on disposable income.

Income distribution

The above measures do not capture all the dimensions of economic resources contributing to well-being of individuals. Incomes – whether earnings or transfers – differ as between individuals, and households are of different sizes, often containing individuals with no independent income, for example children and spouses. It is possible to adjust for household size using income data at the household level. The underlying assumption is that the economic needs of households rise less quickly than their size. A household comprising one couple and two children does not necessarily need twice the income of a childless couple to maintain the same level of well-being. But however the adjustment is made, it is bound to be somewhat arbitrary.

Incomes also differ as between individuals, irrespective of household size. Income is not equally distributed in any OECD country either before or after taxes and transfers, the degree of inequality varies considerably between one country and another, and on standard measures the degree of inequality has risen in recent decades in the majority of OECD countries.

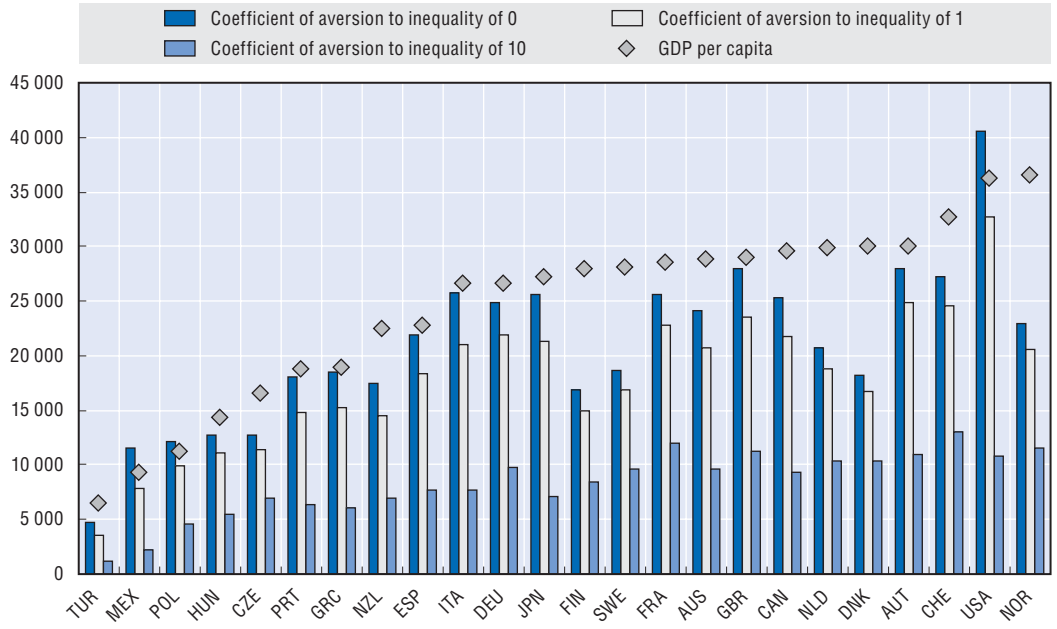
It is not possible to say *a priori* what impact income inequality has on well-being. If it is assumed that extra income brings smaller and smaller increments in well-being for individuals, and that all individuals with the same income experience the same level of well-being, then general well-being will be maximised if all incomes are equalised. A corollary is that any increase in inequality, with no increase in average incomes, reduces well-being. But it can equally well be argued that the possibility of becoming rich is needed to spur effort and innovation, which benefit society as a whole. It can also be argued that

individuals differ in their preferences for leisure as opposed to material goods (see below). Nevertheless, perceived differences in income levels do not merely reflect the personal efforts and choices of otherwise identical individuals in the labour market. A comparatively agnostic view could be that the impact of growing inequality on well-being may not be negative if it takes the form of having more rich people who became rich through their own efforts, together with at least not more people living in poverty.

It is possible to adjust GDP and household income to incorporate distributional concerns. This involves weighting average incomes in each decile of the income distribution with an "aversion coefficient" representing the degree of aversion to inequality. A higher value implies that lower weight is given to higher incomes. As can be seen from Figure 6.6, a very high degree of aversion to inequality can result in large changes in country rankings, but changes are much smaller based on an intermediate aversion to inequality.[6]

Figure 6.6. **Adjusting incomes for inequality, 2002**[1]

US$ at current PPPs[2]



1. The adjustment is based on giving different weights to each income decile in the income distribution, using coefficients of aversion to inequality of 0, 1 and 10, respectively. For further details of the methodology, see Boarini *et al.* (2006). Countries are ranked in ascending order of GDP per capita.
2. Data for household disposable income are converted into a common currency using PPPs for private consumption expenditures, data for GDP per capita are based on PPPs for GDP.

Source: OECD, *National Accounts of OECD Countries*, 2005 and OECD questionnaire on income distribution and poverty.

StatLink: *http://dx.doi.org/10.1787/834618316561*

Monetary indicators – summary

GDP is an imperfect measure of the economic aspects of well-being, and other national accounts indicators exist that are better adapted, notably net national income, and measures of the incomes and consumption of households. But data availability and reliability restrict their use for comparisons across countries and time, and they are in any case quite closely correlated with GDP. Hence despite their theoretical attractions, they are not obviously superior to GDP. None of the indicators derived from national accounts data

adequately take into account the complications arising from the unequal distribution of incomes and consumption possibilities. But this issue is strongly influenced by value judgments: what may appear to be a quite normal income distribution in one country might be thought intolerable to the citizens of another.

The economic indicators of well-being discussed above impinge directly only on the economic aspects of well-being, "prosperity", although they may influence other aspects of well-being. The old adage that "money does not buy happiness" exists in many languages, and must be presumed to be based on experience. But it does not follow that having no money makes one happiest or that having less money makes one happier, or even that having more money does not make one happier. On the contrary, most people repeatedly try to make themselves better off materially by investing in their own human capital, and applying for promotion or better-paid jobs elsewhere. They act, and continue to act, as though having higher consumption possibilities is something worth striving for. But income and consumption are not the only factors influencing well-being. Other influences include leisure, a clean environment, and social conditions.

Non-monetary measures of well-being

The importance of leisure

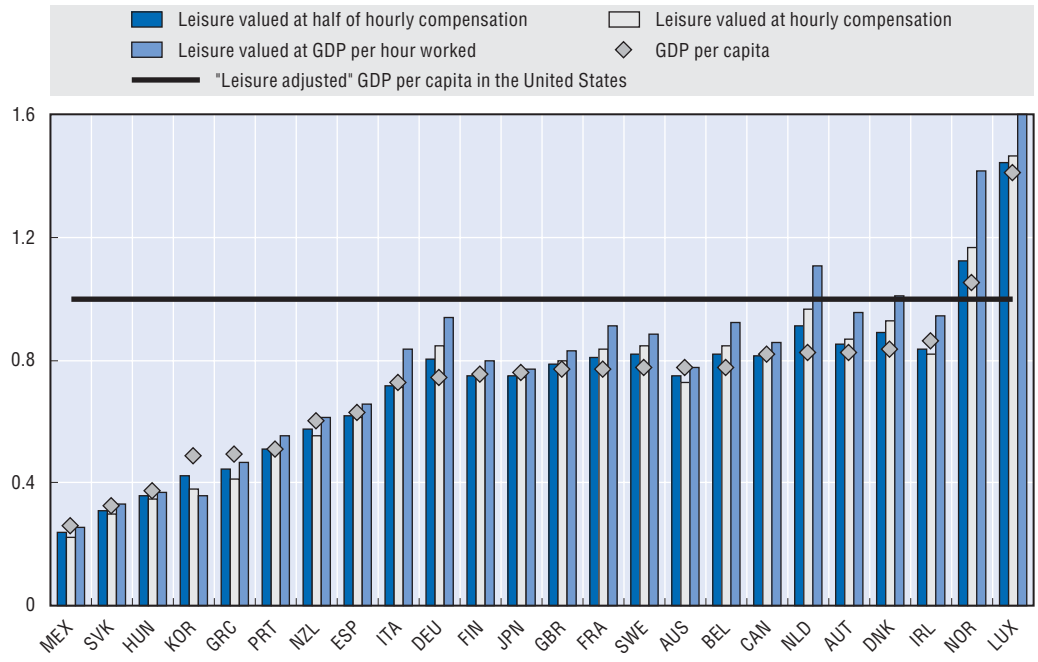
There is no doubt that for most people, longer holidays and shorter working hours contribute to well-being as long as they are not accompanied by lower incomes. Leisure in this sense is a "good". But it is not sold on markets and therefore does not enter into the national accounts. There are big differences between countries in the average amount of leisure enjoyed by their citizens, and these differences have themselves changed over time. Differences in average annual working hours go some way to explaining the differences in leisure time. Workers in the United States, the country with one of the highest levels of per capita GDP, also work many hours each year, surpassed only by a few other OECD countries.[7] Hence ascribing monetary value to the leisure time of workers, however arbitrarily, adds something to well-being above and beyond indicators of incomes in all countries (Figure 6.7). Even so, the ranking of countries on this adjusted measure is not so very different from that based on per capita GDP.

Social indicators of well-being

Social factors, such as self-sufficiency, equity, health, and social cohesion enter into well-being. Figure 6.8 shows cross-country correlations between various social indicators and GDP per capita in both levels and changes over time:

- *Self-sufficiency* is measured in terms of the overall employment rate, the proportion of the population in households where nobody has a job, the average number of years of schooling, and the average performance of school children at age 15. All these factors affect the ability of individuals to earn a decent living. Not surprisingly, employment rates and average years of schooling are strongly correlated with GDP per capita, but this is not the case for measures of student performance and of jobless households. The correlation between changes in self-sufficiency measures and GDP per capita are more tenuous.
- By *equity* is meant a distribution of household incomes that societies accept as just, or tolerable. Measures of equity include income inequality, relative poverty rates, child poverty and the gender wage gap. In general, high GDP per capita is associated with more equitable outcomes as measured by these indicators, thought the correlation is

Figure 6.7. **Adjusting per capita GDP for leisure time, 2001**[1]
(relative to the United States)



1. The quantity of leisure time of workers is estimated by deducting from the time-endowment of each worker a (common) estimate of the time devoted to personal care and unpaid activities and (country-specific) OECD estimates of annual working hours per worker. Leisure time is valued using three different prices: hourly compensation of employees, half of hourly compensation and GDP per hour worked. Countries are ranked in ascending order of GDP per capita.

Source: OECD, *National Accounts of OECD Countries*, 2005 and OECD, Productivity database.

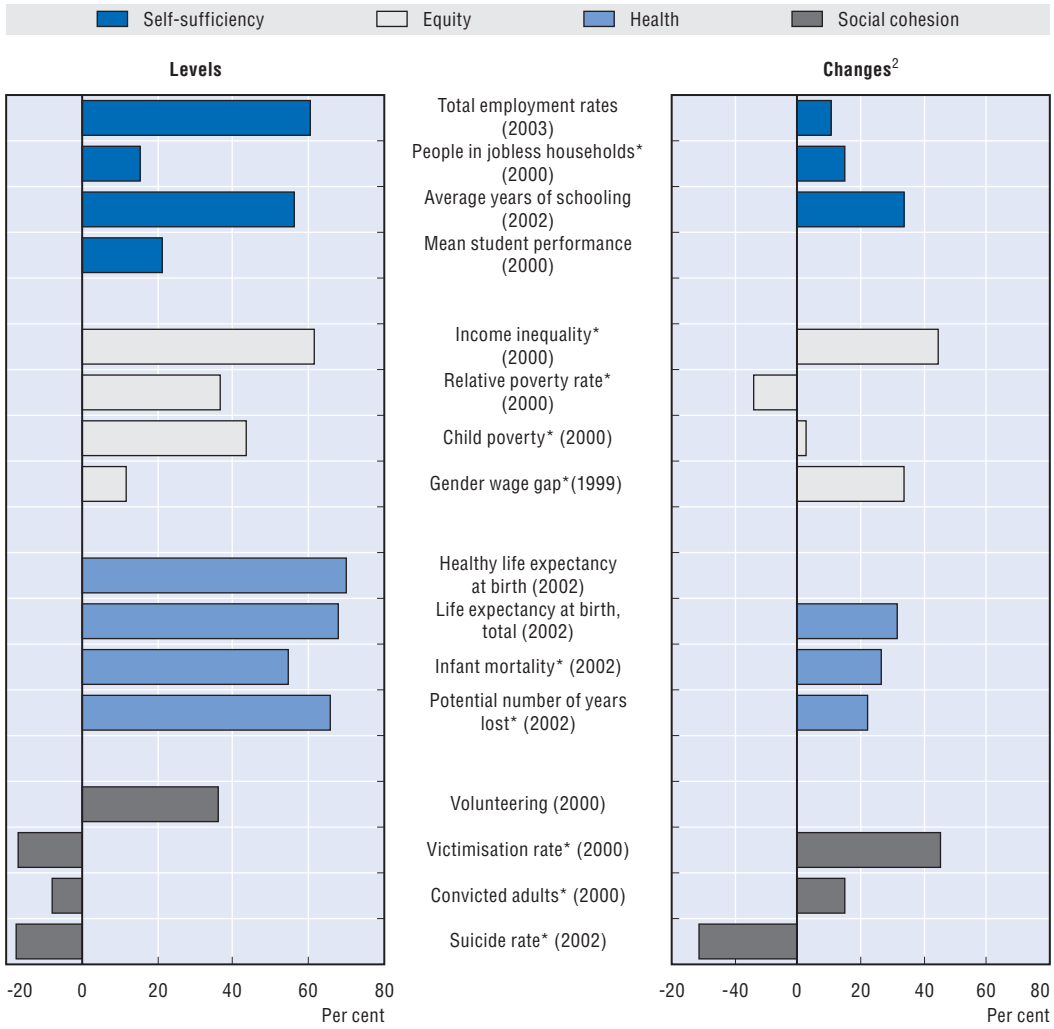
StatLink: *http://dx.doi.org/10.1787/834618316561*

weak in the case of the gender wage gap. An increase in GDP per capita goes hand in hand with reduced income inequality and gender wage gaps, but is very weakly, if at all, related to changes in child poverty or relative poverty.

- A part of well-being includes being in *good health*. Unfortunately, statistics on the numbers of people enjoying good health are not widely available, but there are several indicators of health status. Key indicators comprise life expectancy at birth, "healthy" life expectancy at birth (*i.e.* lifespan without disabling medical conditions), infant mortality rates, and potential years of life lost as a result of accidents or preventable diseases. As is to be expected, all these measures are strongly correlated with GDP per capita across countries: higher incomes go hand in hand with better health, at least on average. The association is weaker for changes in GDP per capita and changes in health indicators.
- A feeling of belonging to a group or a wider community contributes positively to well-being, whereas high levels of criminality, marginalisation and personal failure must reduce it. Indicators of *social cohesion* in the positive sense, for example participation in community activities, are associated with higher levels of per capita income.[8] Negative indicators (such as victimization, incarceration and suicides) bear no relationship to GDP.

Overall, the various social indicators provide information on specific components of well-being. With the exception of social cohesion measures, there is a positive association between social conditions and the level of GDP per capita. However, the correlations between

Figure 6.8. **Cross-country correlations between per capita GDP and different social indicators in OECD countries**[1]



1. For variables where higher values of the indicators denote worse social outcomes (*e.g.* infant mortality and convicted adults, denoted with an "*") correlations with per capita income are shown with the opposite sign (*e.g.* countries with higher per capita income have lower infant mortality rate – shown with a positive sign – and higher rates of imprisonment – shown with a negative sign). Per capita income is measured as GDP in current prices and at purchasing power parity exchange rates, divided by the total population. Correlations are computed between values of the GDP per capita and of the social indicators in the same period; the number of countries considered may vary among different pairs of variables depending on data availability.
2. Changes between the first half of the 1980s to around 2000. For the exact period for each indicator, see Boarini *et al.* (2006). Lack of data prevents the computation of changes over time for some of the indicators.

Source: OECD, *Society at a Glance* and Boarini *et al.* (2006).

StatLink: *http://dx.doi.org/10.1787/834618316561*

changes in material living standards and various social outcomes are insignificant (see Boarini *et al.*, 2005).

Well-being and the environment

The state of the environment affects people's well-being. Low environmental quality, such as air and water pollution, can result in health problems, and some forms of pollution can reduce the amenity value of the natural habitat. And even if current environmental

conditions may not have noticeable adverse effects at present, they may have serious consequences for future generations and hence on the well-being of those living today who are concerned about living standards of people yet to be born. The concern over climate change is an example of such inter-temporal dimensions of well-being.

The relationship between the state of the environment and per capita GDP is complex. Higher levels of output stress the environment more, but also raise the capacity of societies to mitigate and deal with these stresses. In the past 10-15 years, emissions of most pollutants have grown more slowly than GDP in most OECD countries. The tonnages of traditional pollutants loosed into the air and into water systems have actually fallen in most member countries. In addition, greenhouse gas emissions have fallen in absolute terms in about half of all OECD countries – although they are continuing to accumulate in the atmosphere. In part, these developments may reflect that richer countries put greater value on reducing environmental degradation and have the resources to do so. But there has been less success in managing renewable natural resources – as is the case of several commercially important fish stocks – on a sustainable basis.

Although there are no standard accounts available that adjust GDP for changes in the state of the environment,[9] the improvements discussed above suggest that environmental degradation might have become less of a drag on growth in well-being since the early 1990s in most member countries. However, this would not necessarily be the case if the cost of emissions and discharges has become higher with time as concentrations of pollutants and emitted substances continue to increase. This might arguably be the case for greenhouse gasses.

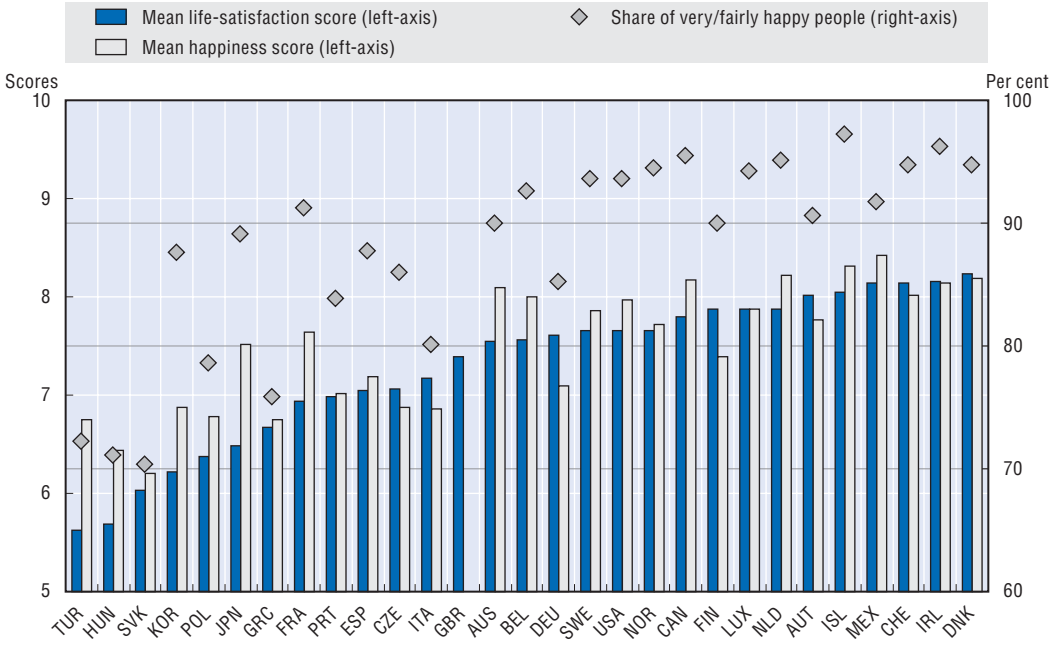
Well-being and happiness

Instead of attempting to evaluate well-being on the basis of objective indicators, it is possible to use subjective measures for the same purpose. One way of determining whether persons are happy and satisfied with their life (or not) is to ask them.[10] Surveys exist for some countries for many years, and they are now widely available, for example the *World Values Surveys*. A representative sample of people in each country is asked to check the response that best describes them, from very happy/satisfied with their life to very unhappy/dissatisfied with their life. The results seem to be reliable, in that individuals self-reporting high levels of happiness and satisfaction are also seen in that light by their friends and relatives, are more resilient to stress, are more likely to recall positive events in their lives, smile more, live longer and so on. They are also less likely to suffer from depression or lose their jobs.

A striking feature of the survey results is that most people in most OECD countries rate themselves as being fairly to very happy and satisfied with their lives almost irrespective of their income levels. Reported levels of happiness are high: in around two thirds of OECD countries, close to 90% of the people sampled claim to be very or fairly happy with their lives (Figure 6.9). There is a weak tendency for the richer OECD countries to report higher levels of life satisfaction. The five countries with the lowest happiness "scores" also have lower than average per capita incomes. But Mexicans report very high levels of happiness, and several comparatively rich OECD countries report lower than average happiness scores.

Another relevant finding from these surveys is that as individuals become better off during their lifetimes, as most people do, their self-reported levels of satisfaction do not rise proportionately (in fact they change very little for most of the samples). But those who become worse off report decreased happiness levels. It may be that there is a ratchet effect,

Figure 6.9. **Different measures of subjective well-being in OECD countries, 2000**[1]



1. Countries are ranked in ascending order in terms of increasing levels of the mean life-satisfaction score. Mean scores range between 0 and 10.

Source: World Values Survey, 1999-2001.

StatLink: *http://dx.doi.org/10.1787/834618316561*

or it may be that individual well-being depends strongly on how materially well off are the friends, relatives, colleagues, etc., of the individual. This could explain why the link between happiness scores from surveys and GDP per capita is rather tenuous. GDP per capita may provide a proxy for the absolute level of well-being, while the happiness scores can be interpreted as measures of relative well-being. Apart from income, empirical studies find that happiness scores are explained by having a job or being unemployed (Layard, 2005), the strength of family ties (Diener, 2000), health and education (Frey and Stutzer, 2002; Ross and Van Willigen, 1997), the perceived quality of institutions (Helliwell, 2003) and income inequality (Alesina *et al.*, 2001).

Summary and conclusions

Well-being has several dimensions of which monetary factors are only one. They are nevertheless an important one, since richer economies are better placed to create and maintain other well-being-enhancing conditions, such as a clean environment, the likelihood that the average person will have a right to 10 years or more of education, and lead a comparatively long and healthy life. Well-being will also be increased by institutions that enable citizens to feel that they control their own lives, and that investment of their time and resources will be rewarded. In turn, this will lead to higher incomes in a virtuous circle.

The question of which measure to use as an indicator of the economic aspects of well-being is not difficult to settle. The various ones that have been proposed in this chapter are mostly highly correlated with each other, but in general, the more they are focused on well-being (for example households' consumption of goods and services, adjusted for the size of the household), the more difficult it is to get reliable non-contentious data series that are

widely available across countries and over time. In any case, there is no doubt that whatever measure is chosen, its relationship to well-being will be neither monotonic nor precise. In that case, one might as well use per capita GDP as the indicator. It has the advantage of being available for almost all countries in the world on a comparable basis. However, for a more comprehensive measure of well-being it is necessary to supplement GDP with other indicators.

Notes

1. This chapter is based on Boarini, Johansson and Mira d'Ercole (2006).
2. National accounts contain estimates of the value of production in the informal and parallel sectors, especially in countries where this is considered to be important. Purely criminal activities are excluded.
3. The assumptions are unlikely to be fully respected in practice, but there is no alternative, easily estimated, set of values that is unambiguously superior to that, admittedly imperfect set, based on actual market prices.
4. Although this has been the case over the past decade, it is possible for GDP and GNI to grow at vastly different rates. The most extreme case would be immiserising growth, where a large increase in domestic production (recorded as an increase in GDP) drives down output prices and results in sharp terms-of-trade losses that more than cancel the impact of higher GDP on GNI.
5. There has, however, been a tendency for depreciation to rise because computers and other electronic equipment are replaced more quickly than traditional capital equipment.
6. This is particularly the case in countries where the distribution of income is relatively unequal, such as in the United States, and less so in more egalitarian societies, such as Sweden.
7. A more important explanation for cross-country variations in average annual hours worked per person of working age is differences in labour mobilisation, namely the proportion of the working-age population (conventionally aged between 16 and 65) actually working. Again, the United States is well above average, significantly surpassed by only a few countries.
8. An increase in GDP per capita may also contribute to maintain a pluralistic democratic society, with conflicting claims on total economy resources easier to solve in a growing than in a stagnating or shrinking economy (see *e.g.* Friedman, 2005).
9. Methods to adjust national income for changes in the environment have been developed for national accounts. However, such satellite accounts are not widely used in OECD countries.
10. There are of course circumstances where the increased happiness of some individuals necessitates the reduced happiness of others – the "rejoicing at others' misfortune" syndrome.

References

Alesina, A., R. Di Tella and R. MacCulloch (2001), "Inequality and happiness: Are Europeans and Americans different?", *National Bureau of Economic Research, Working Paper*, No. 8198.

Boarini, R., A. Johansson and M. Mira d'Ercole (2006), "Alternative measures of well-being", *OECD Economics Department Working Papers* (forthcoming).

Diener, E. (2000), "Subjective well-being: The science of happiness, and a proposal for a national index", *American Psychologist*, Vol. 55.

Frey, B.S. and A. Stutzer (2002), *Happiness and Economics*, Princeton University Press, Princeton and Oxford.

Friedman, B. (2005), *The Moral Consequences of Economic Growth*, Knopf, New York.

Helliwell, J.F. (2003), "How's life? Combining individual and national variables to explain subjective well-being", *Economic Modelling*, Vol. 20.

Layard, R. (2005), *Happiness – Lessons from a New Science*, Penguin Press, New York.

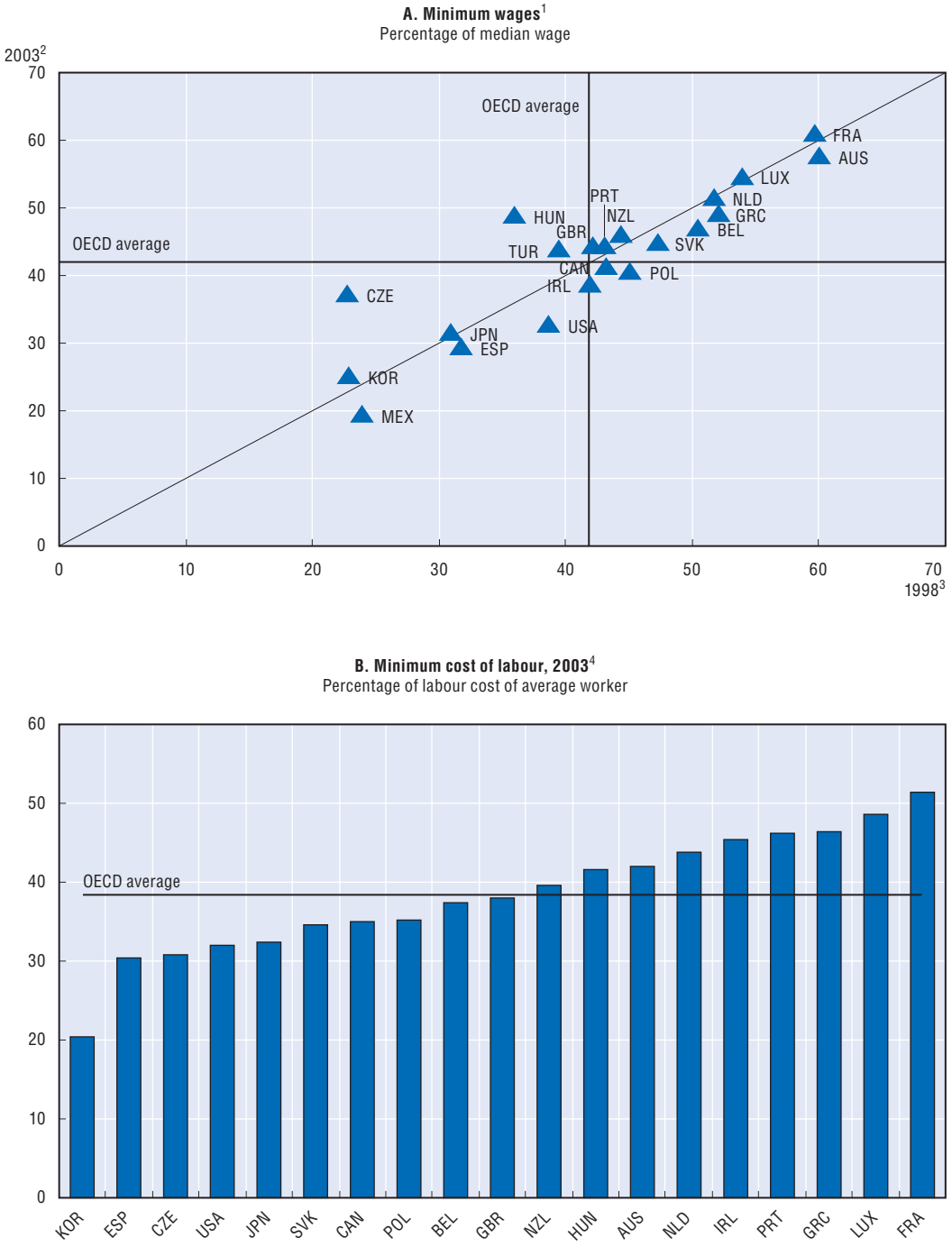
Ross, C. and M. Van Willigen (1997), "Education and the subjective quality of life", *Journal of Health and Social Behaviour*, Vol. 38.

ISBN 92-64-03591-5
Economic Policy Reforms
Going for Growth

ANNEX A

Structural Policy Indicators

Figure A.1. **Cost of labour**



1. Missing countries do not have statutory mininum wage.
2. 2002 for France, Greece, Hungary and Portugal.
3. 2000 for Ireland, Slovak Republic and the United Kingdom.
4. The cost of labour is the sum of the wage level and the corresponding social security contribution paid by employers.

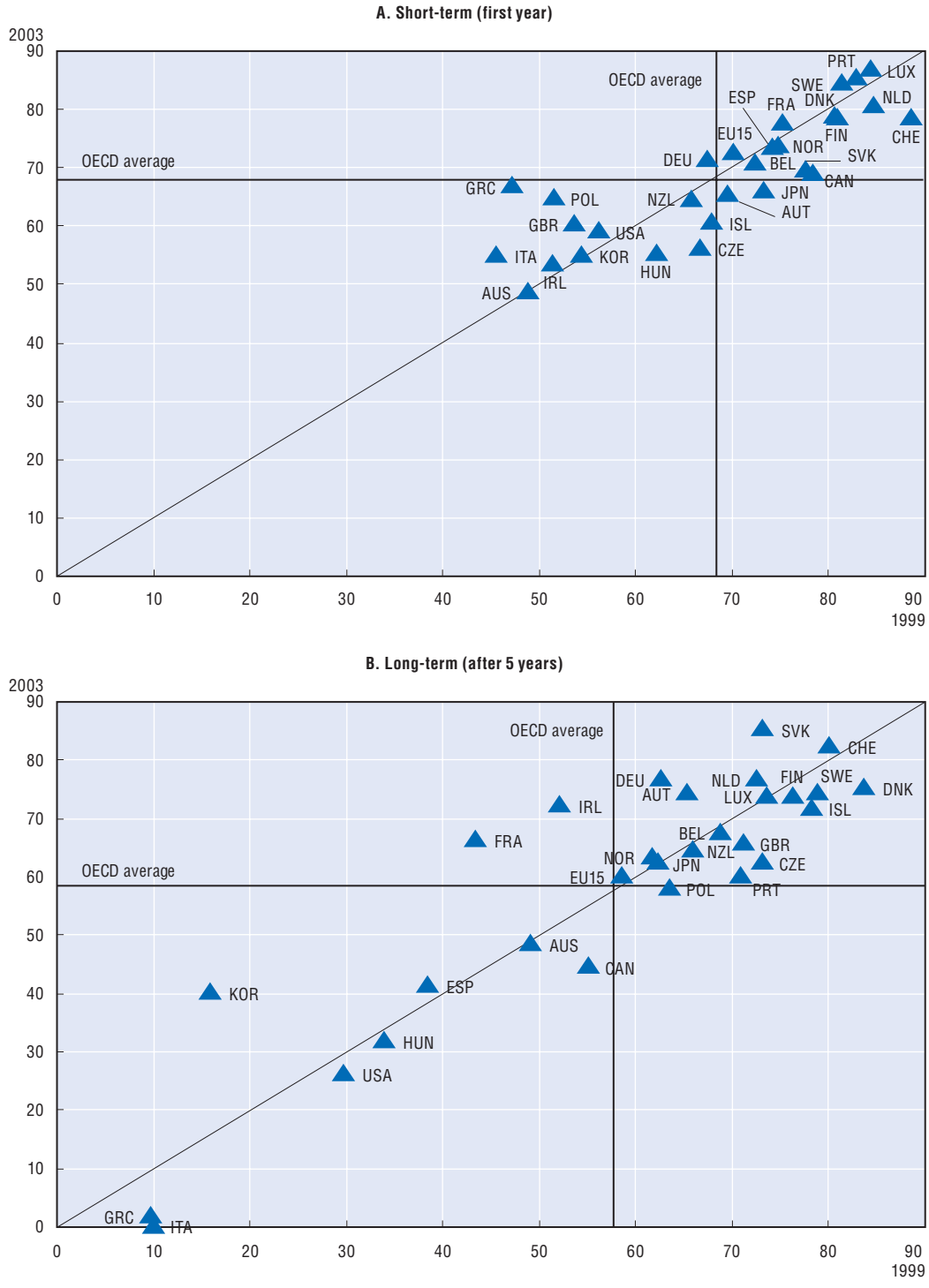
Source: Chart A: OECD, *Labour Force Statistics*, 2005; Chart B: OECD, *Employment Outlook*, 2005 and OECD, Taxing Wages database.

StatLink: *http://dx.doi.org/10.1787/866734675434*

ECONOMIC POLICY REFORMS: GOING FOR GROWTH – ISBN 92-64-03591-5 – © OECD 2006

Figure A.2. **Net income replacement rates for unemployment**[1, 2]

Percentage of earnings



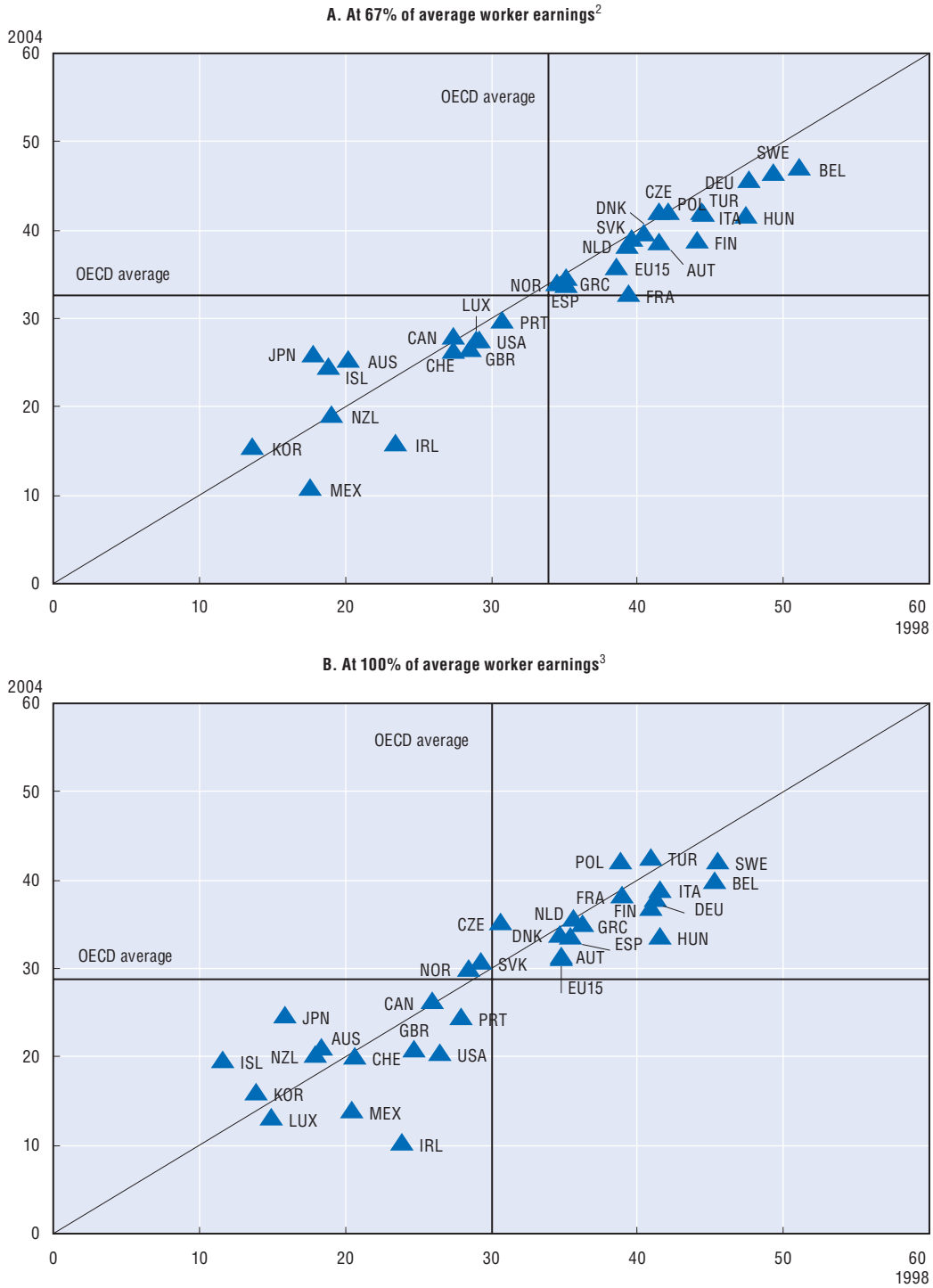
1. Average of replacement rates for unemployed who earned 67% and 100% of average worker earnings at the time of losing job.
2. The comparability of net replacement rates between two points in time may be affected by methodological or definitional changes.

Source: OECD, Benefits and Wages database.

StatLink: *http://dx.doi.org/10.1787/866734675434*

Figure A.3. **Average tax wedge on labour**[1]

Percentage of total labour compensation



1. Measured as the difference between total labour compensation paid by the employer and the net take-home pay of employees, as a ratio of total labour compensation. It therefore includes both employer's and employee's social security contributions.
2. Single person with no child.
3. Couple with 2 children, average of 3 family situations.

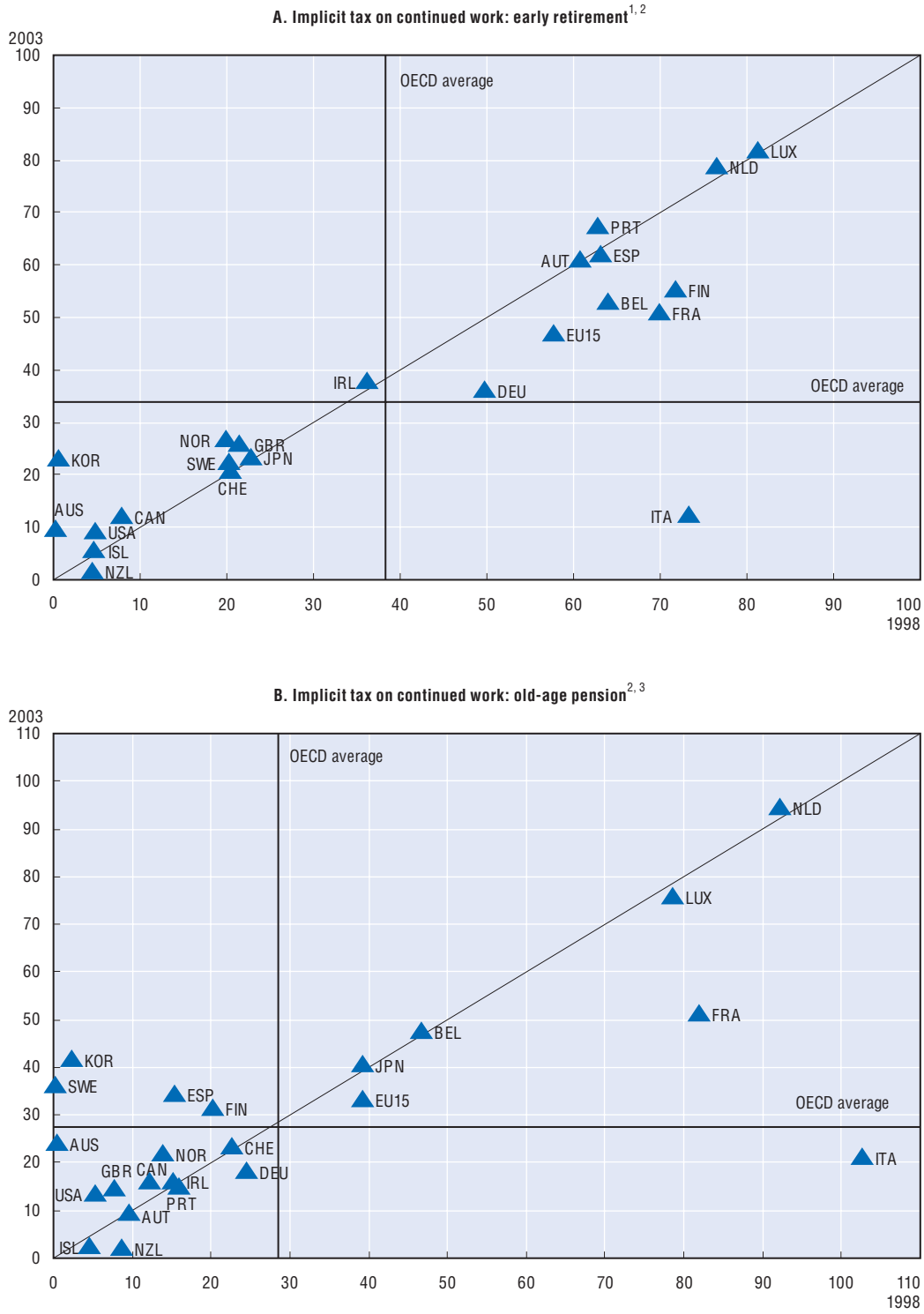
Source: OECD, Taxing Wages database.

StatLink: *http://dx.doi.org/10.1787/866734675434*

ECONOMIC POLICY REFORMS: GOING FOR GROWTH – ISBN 92-64-03591-5 – © OECD 2006

Figure A.4. **Labour taxation**

Percentage of average worker earnings



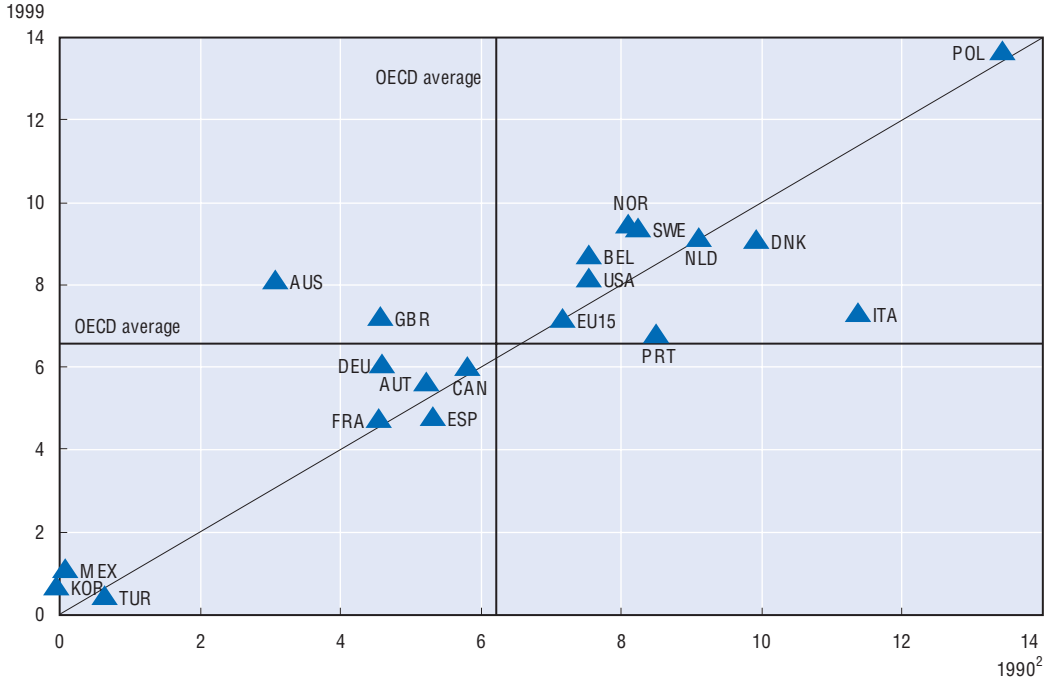
1. Average of implicit tax on continued work in early retirement route, for 55 and 60 years old.
2. EU15, excluding Denmark and Greece.
3. Implicit tax on continued work in regular old-age pension, for 60 years old.

Source: OECD, *Economic Policy Reforms: Going for Growth*, 2005.

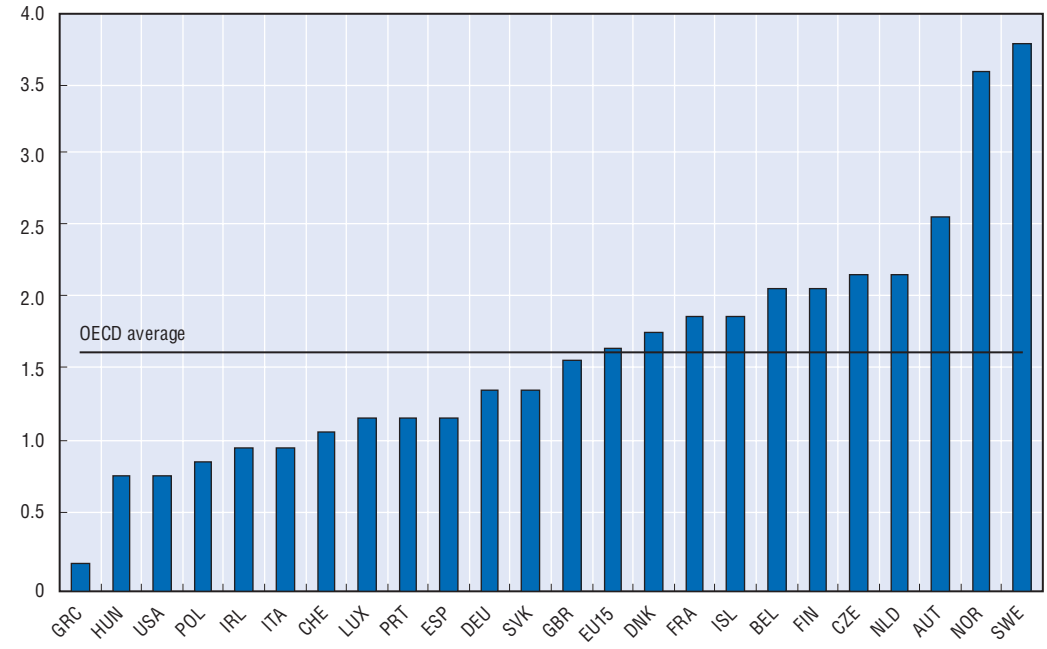
StatLink: *http://dx.doi.org/10.1787/866734675434*

Figure A.5. **Income support for disability and sickness**

A. Per cent of working age population non-employed and receiving disability benefits[1]



B. Number of weeks lost due to sickness leave in 2002[3]



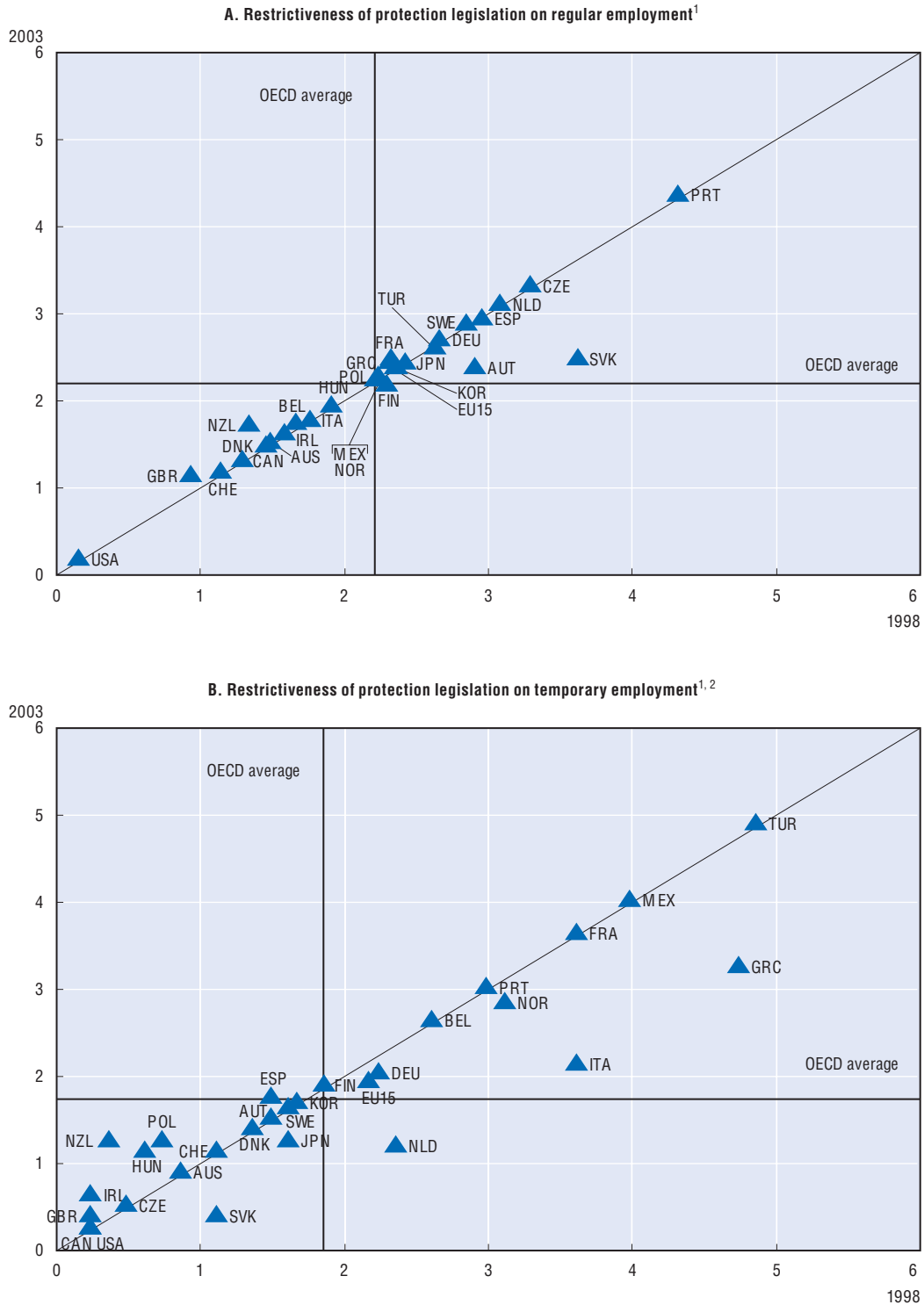
1. EU15, excluding Finland, Greece, Ireland and Luxembourg.
2. 1995 for Austria, Mexico and Poland.
3. The number for the United States may not be strictly comparable as it comes from a different source and refers to 2003.

Source: Chart A: OECD, *Transforming Disability into Ability*, 2003 and National Compensation Survey (for the United States; Chart B: OECD, *Employment Outlook*, 2004.

StatLink: *http://dx.doi.org/10.1787/866734675434*

Figure A.6. **Employment Protection Legislation (EPL)**

Index scale of 0-6 from least to most restrictive

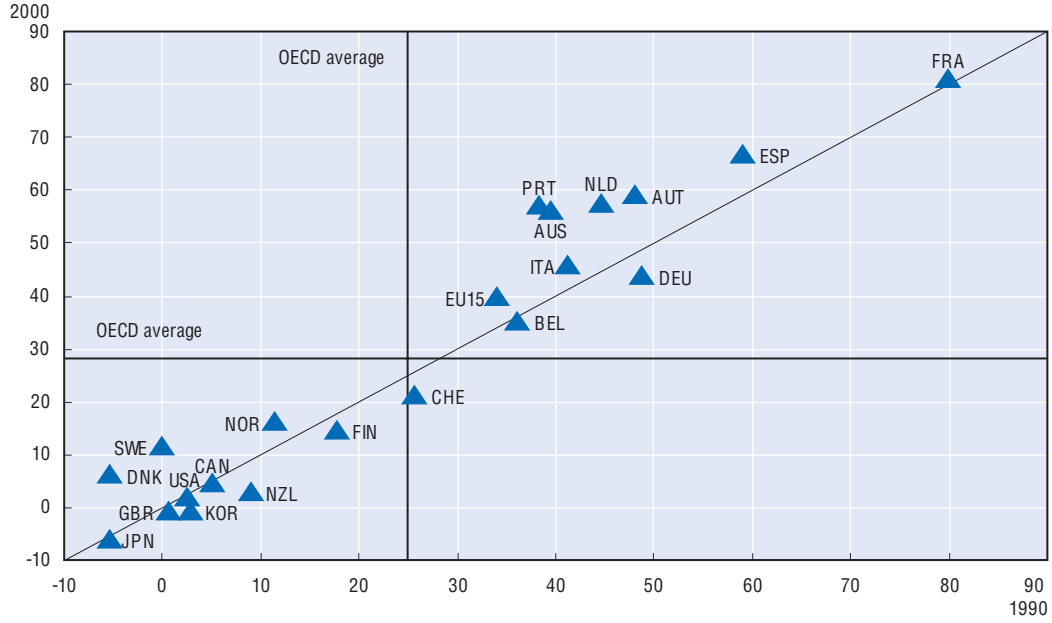


1. EU15, excluding Luxembourg.
2. The figure for Spain is different from the one reported in *Employment Outlook* (2004) due to a re-assessment of regulation in this area.

Source: OECD, *Employment Outlook*, 2004.

StatLink: *http://dx.doi.org/10.1787/866734675434*

Figure A.7. **Difference between coverage rates of collective bargaining agreements and trade union density rates**[1, 2]



1. The coverage rate is measured as the percentage of workers who are covered by collective bargaining agreements, regardless of whether or not they belong to a trade union. The union density rate is the percentage of workers belonging to a trade union. Each data point on the figure is calculated as the simple arithmetic difference between the two rates.
2. The 2000 data point for trade union density is 1998 for Spain and 2001 for Switzerland.

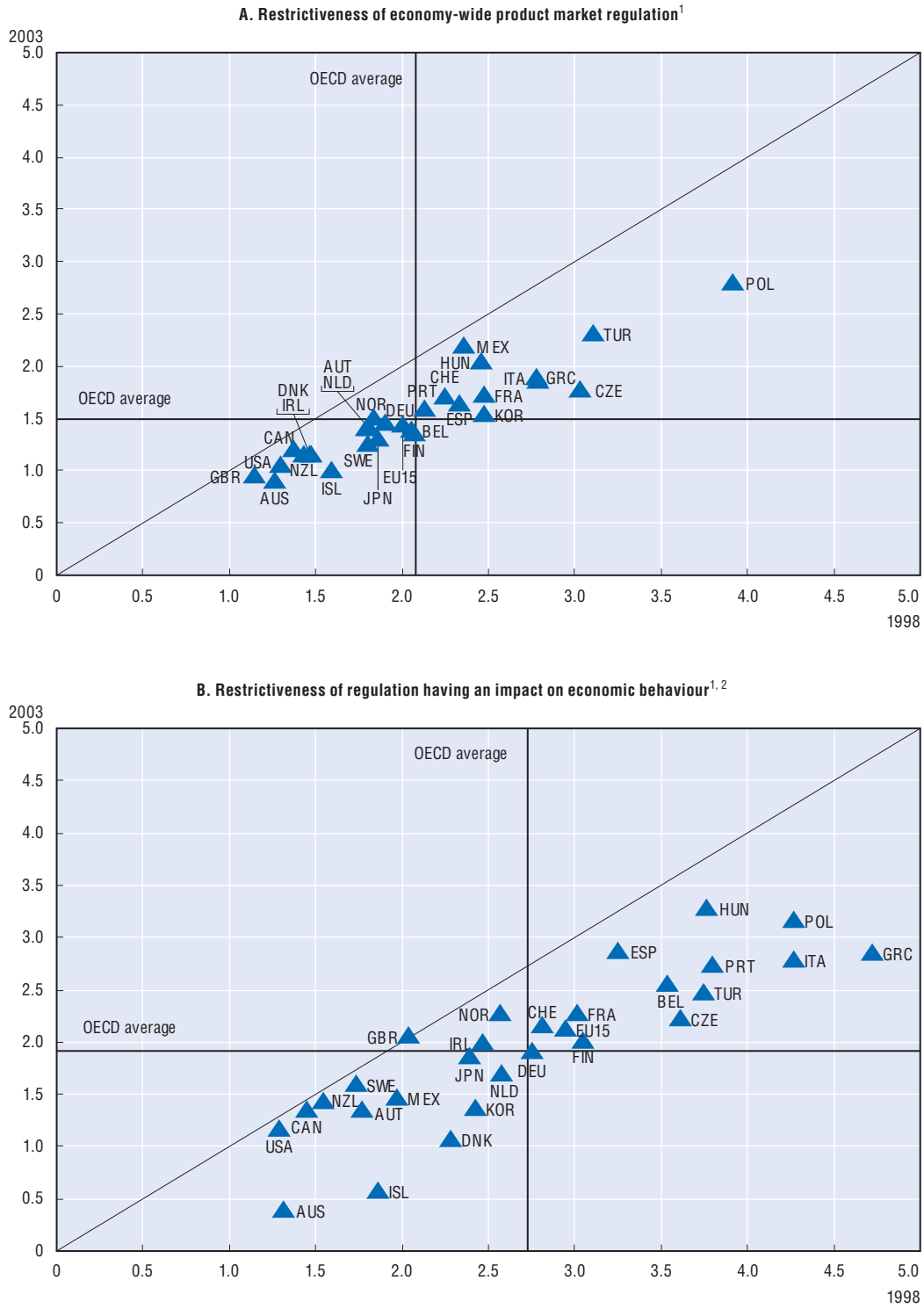
Source: OECD, *Employment Outlook*, 2004.

StatLink: *http://dx.doi.org/10.1787/866734675434*

ECONOMIC POLICY REFORMS: GOING FOR GROWTH – ISBN 92-64-03591-5 – © OECD 2006

Figure A.8. **Product market regulation**

Index scale of 0-6 from least to most restrictive



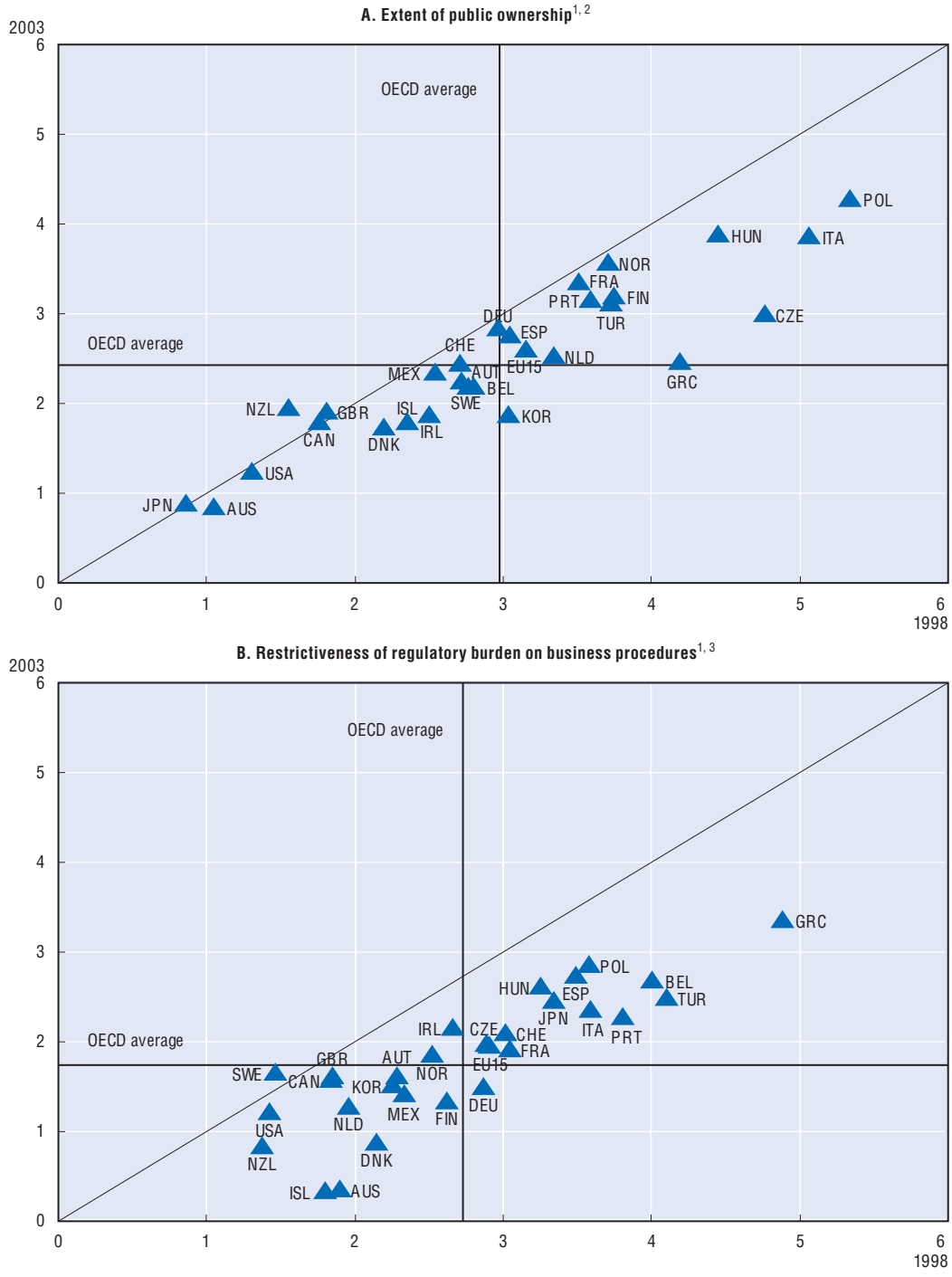
1. EU15, excluding Luxembourg.
2. Economic regulation includes all domestic regulatory provisions affecting private governance and product market competition such as state control and legal barriers to entry in competitive market.

Source: OECD, *Economic Policy Reforms: Going for Growth*, 2005.

StatLink: *http://dx.doi.org/10.1787/866734675434*

Figure A.9. **State control of business operations**

Index scale of 0-6 from least to most restrictive



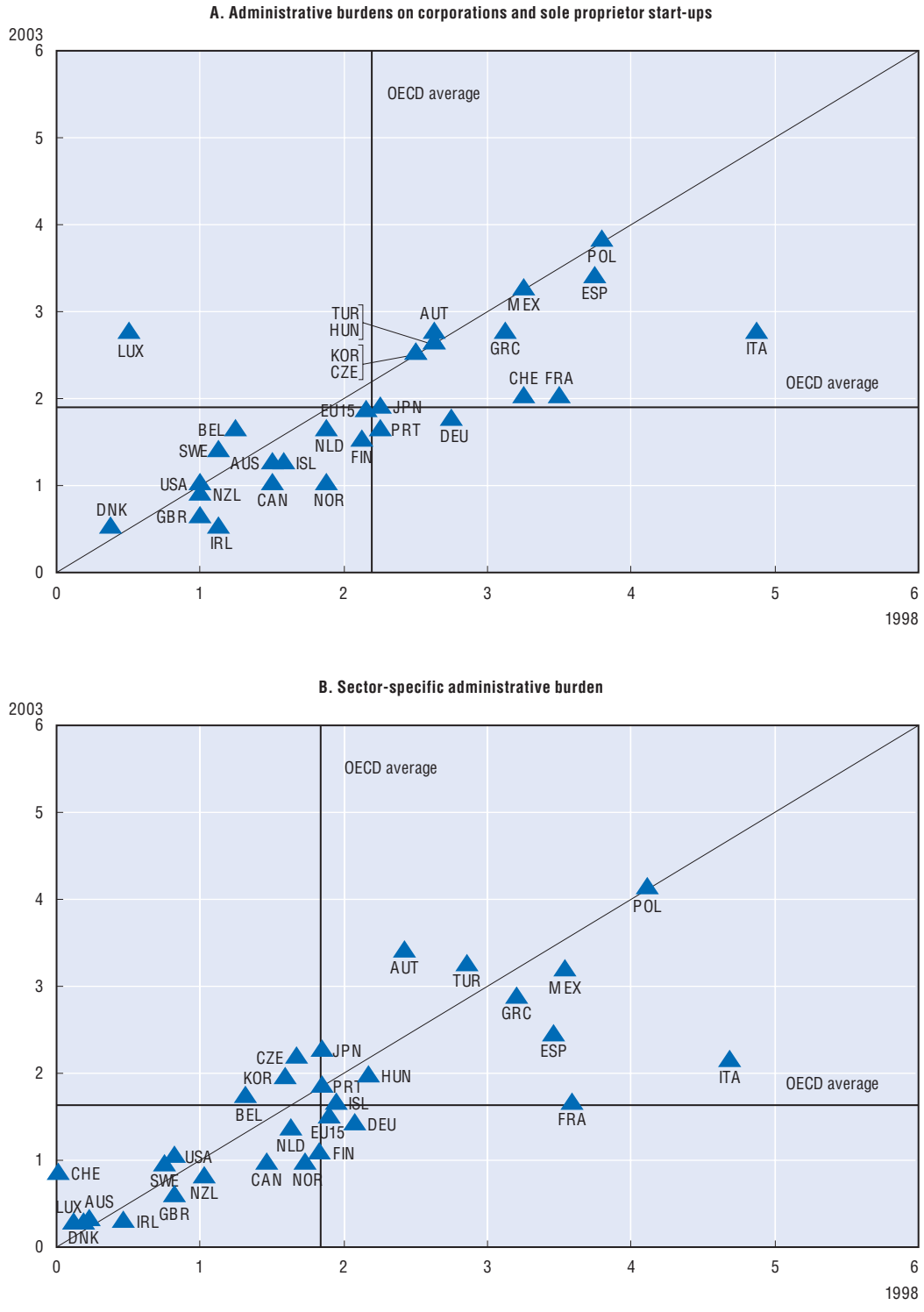
1. EU15, excluding Luxembourg.
2. Covers scope and size of public entreprise as well as the direct state control over business enterprise (via voting rights or legislative bodies). Even though a policy priority was selected for Slovak Republic on the basis of this indicator, it is missing from the chart due to lack of data for 1998. The value of the index for 2003 is 1.9.
3. Concerns the involvement of the state in business operations via price controls or the use of command and control regulation.

Source: OECD, *Economic Policy Reforms: Going for Growth*, 2005.

StatLink: *http://dx.doi.org/10.1787/866734675434*

Figure A.10. **Barriers to entrepreneurship**

Index scale of 0-6 from least to most restrictive

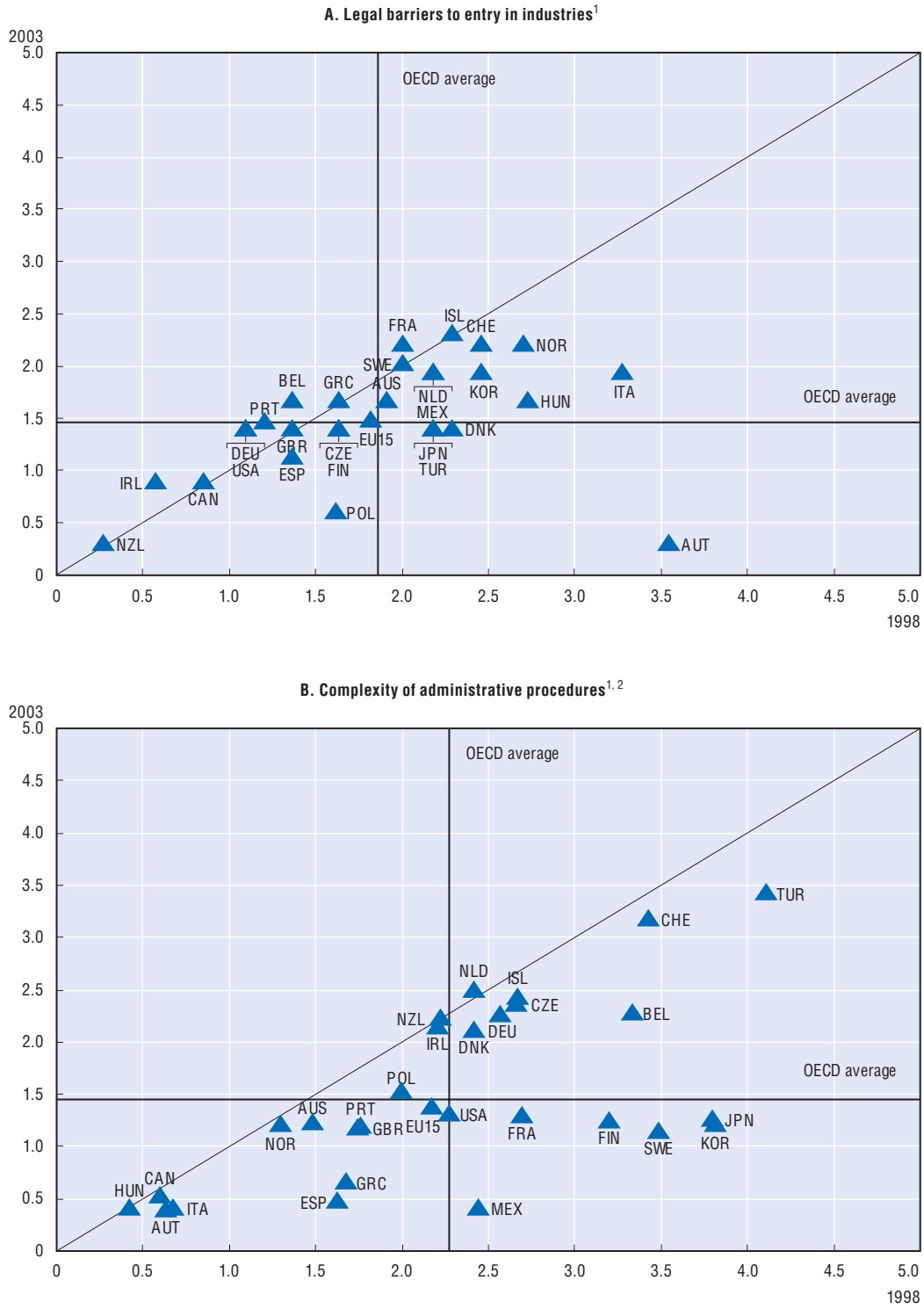


Source: OECD, *Economic Policy Reforms: Going for Growth*, 2005.

StatLink: *http://dx.doi.org/10.1787/866734675434*

Figure A.11. **Barriers to entry**

Index scale of 0-6 from least to most restrictive



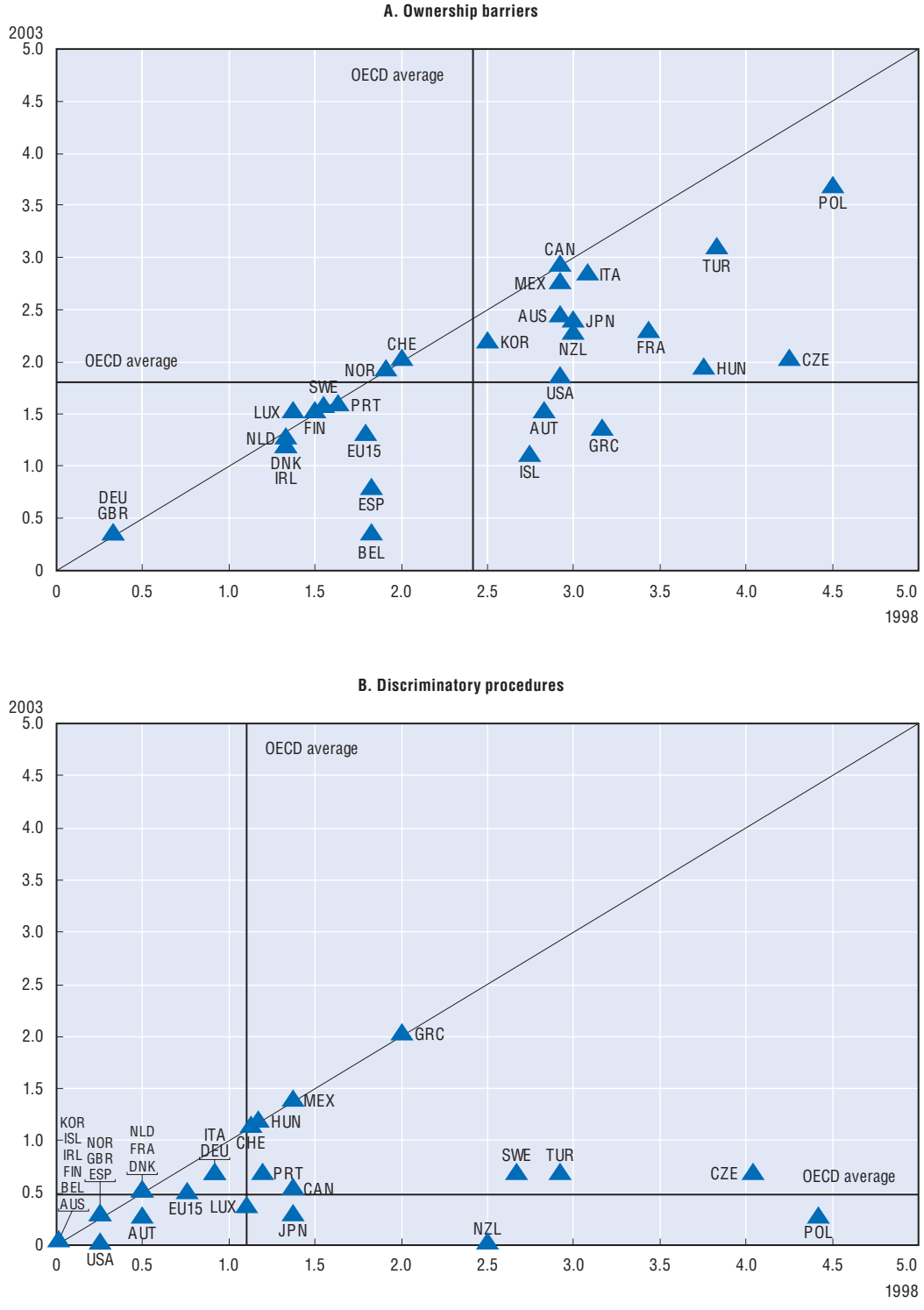
1. EU15, excluding Luxembourg.
2. Concerns complexity of government communication of rules and procedures as well as of licences and permit systems. Corresponds to the indicator of regulatory and administrative opacity.

Source: OECD, *Economic Policy Reforms: Going for Growth*, 2005.

StatLink: *http://dx.doi.org/10.1787/866734675434*

Figure A.12. **Barriers to foreign direct investment**

Index scale of 0-6 from least to most restrictive



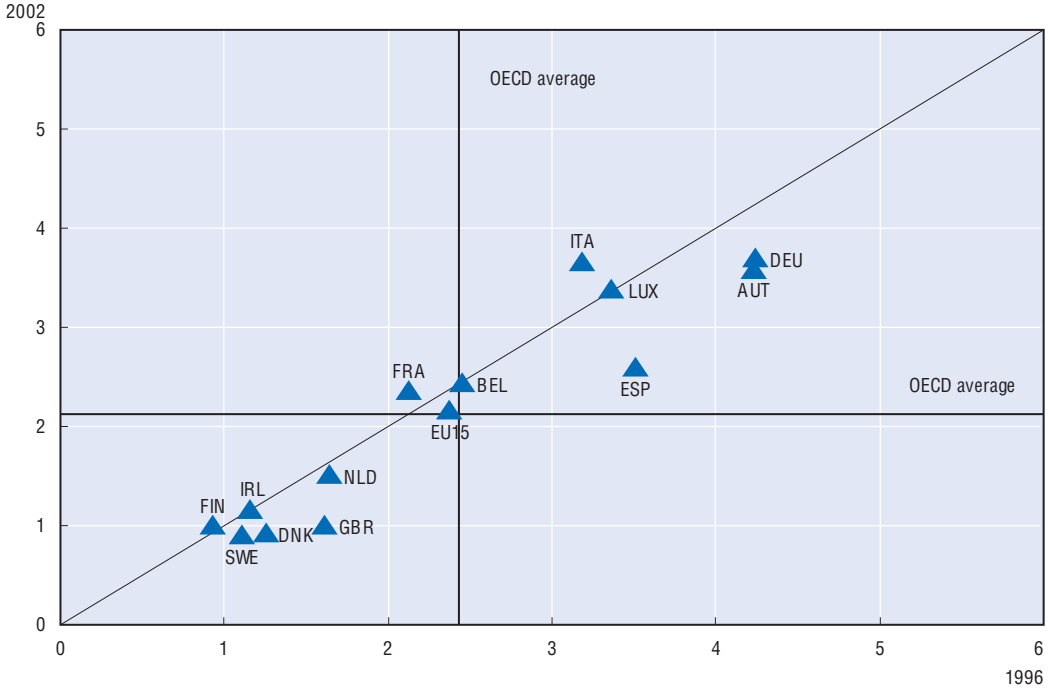
Source: OECD, *Economic Policy Reforms: Going for Growth*, 2005.

StatLink: *http://dx.doi.org/10.1787/866734675434*

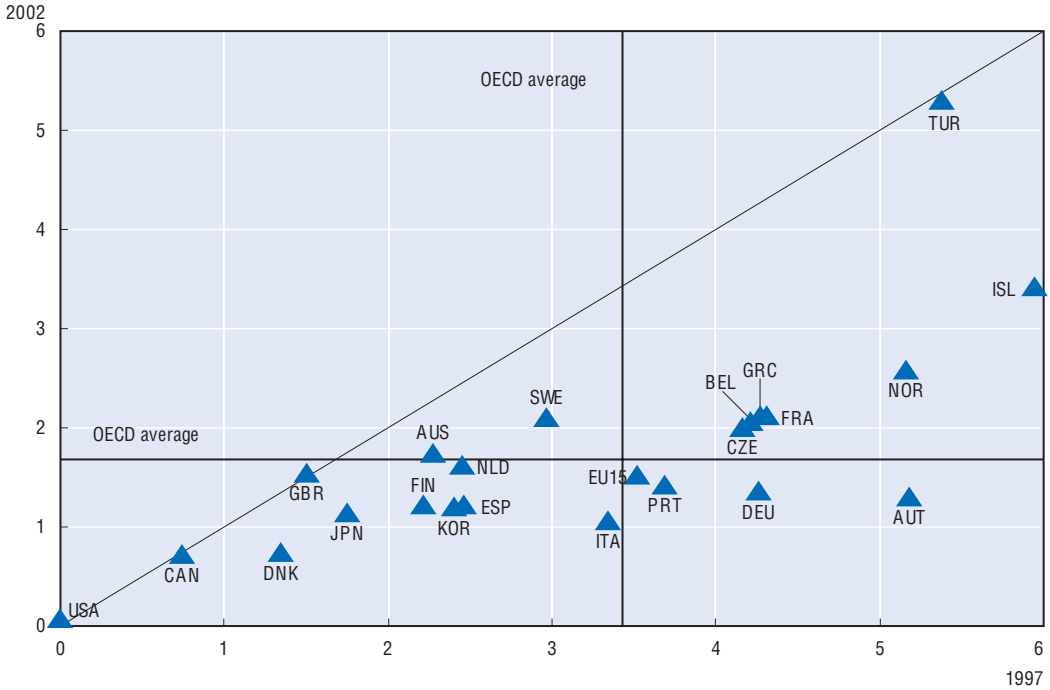
Figure A.13. **Sectoral regulation**

Index scale of 0-6 from least to most restrictive

A. Restrictiveness of regulation of professional services[1]



B. Restrictiveness of regulation of fixed and mobile telecommunications



1. Index of regulations in professional services (accounting, law, engineering and architecture). Even though a policy priority was selected for Canada and Japan on the basis of this indicator, they are missing from the chart due to lack of data for 2002. The value of the index for Canada and Japan for 1996 is 2.6 and 3.2 respectively.

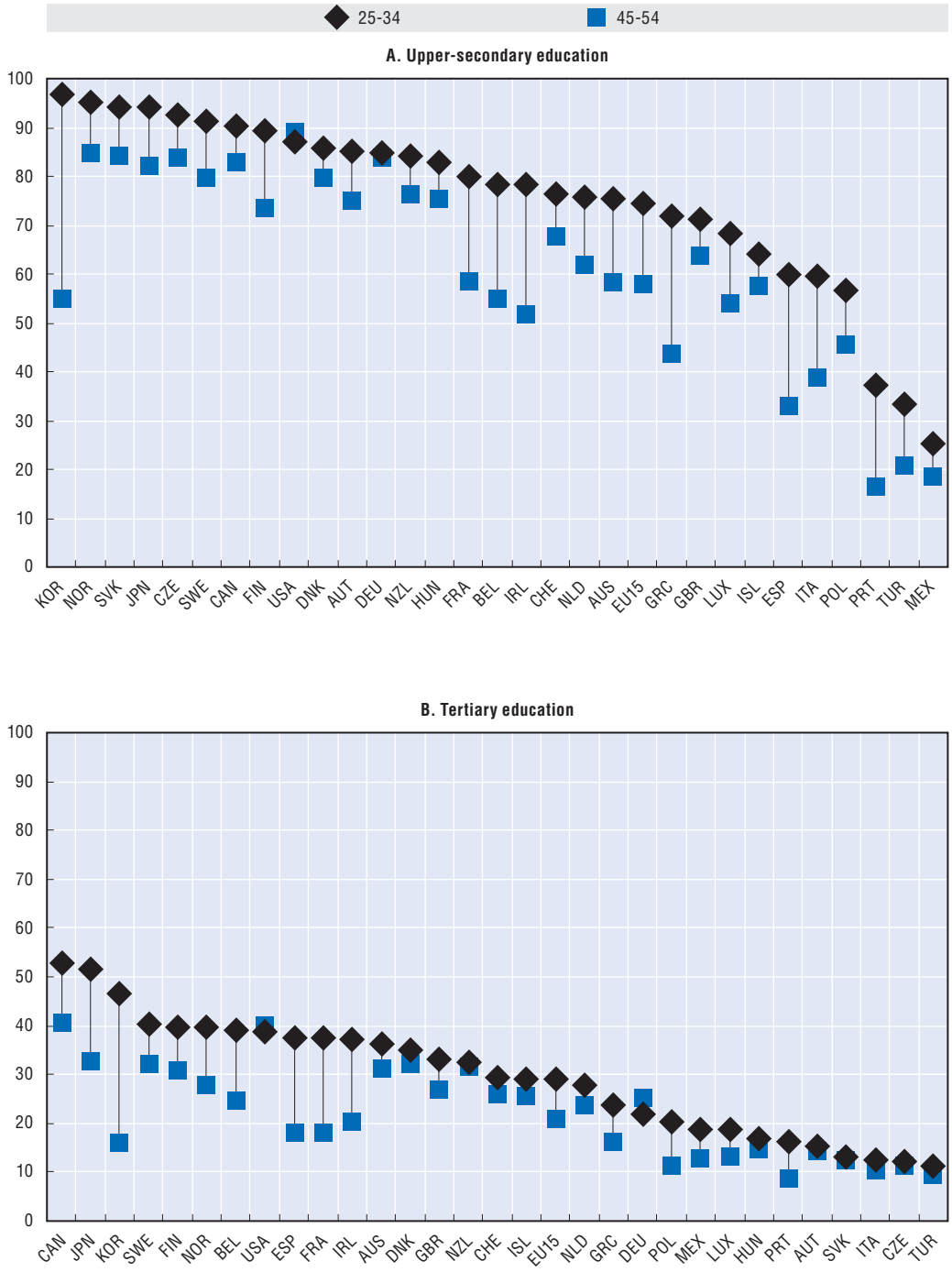
Source: European Commission and OECD.

StatLink: *http://dx.doi.org/10.1787/866734675434*

ECONOMIC POLICY REFORMS: GOING FOR GROWTH – ISBN 92-64-03591-5 – © OECD 2006

Figure A.14. **Educational attainment, 2003**

Percentage of population aged 25-34 and 45-54

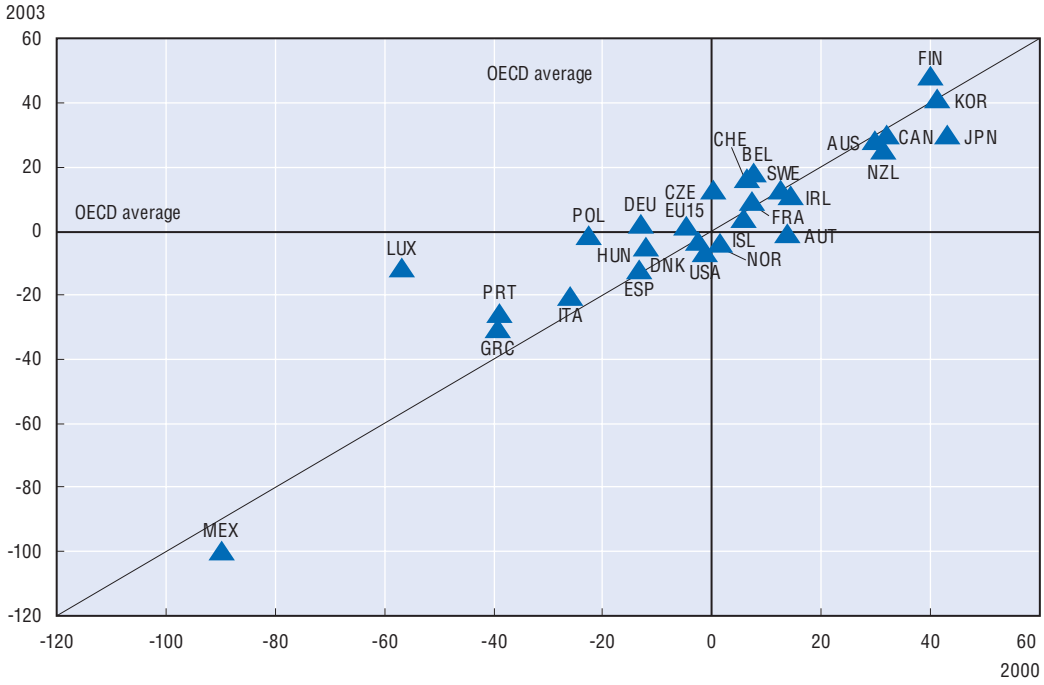


Source: OECD, *Education at a Glance*, 2005.

StatLink: *http://dx.doi.org/10.1787/866734675434*

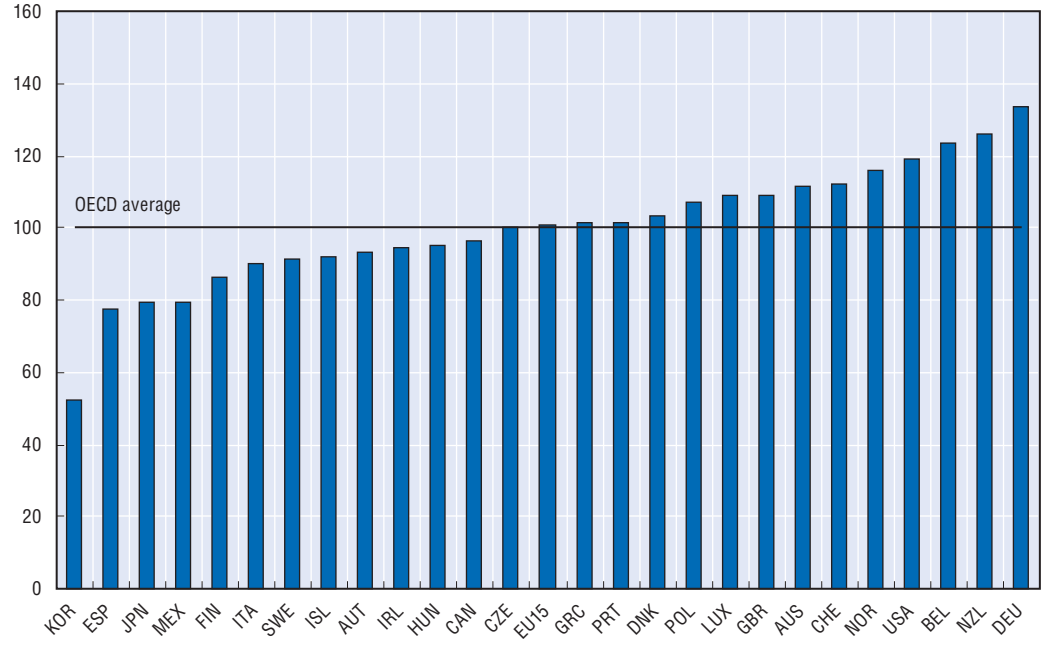
Figure A.15. **Educational achievement**

A. Average of PISA scores in reading, mathematics and science[1]



B. Variation in student performance, 2000

Percentage of average variation of student performance in OECD countries

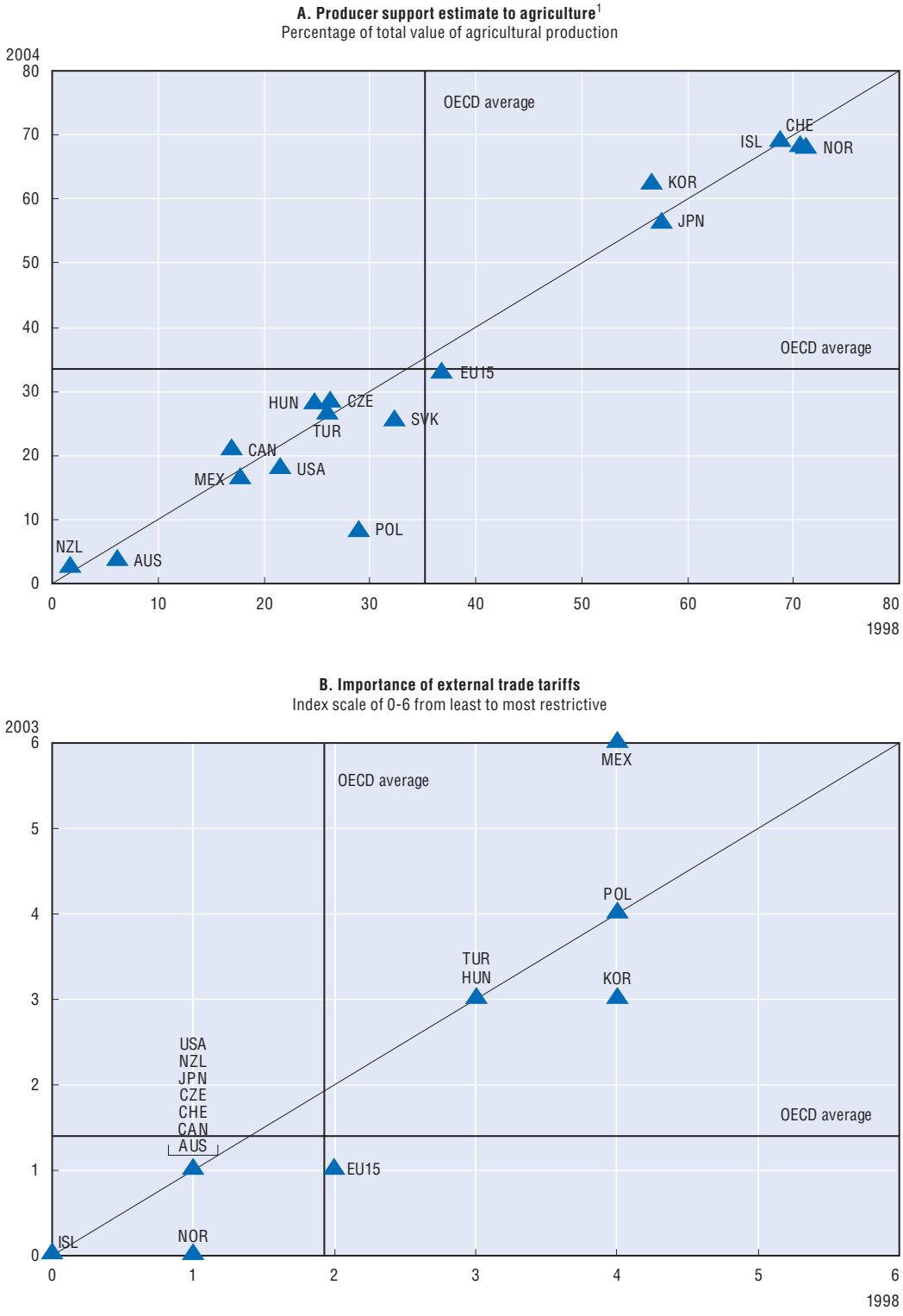


1. PISA stands for Programme for International Student Assessment.

Source: Chart A: OECD, *Learning for Tomorrow's World*, PISA 2003; Chart B: OECD, *Knowledge and Skills for Life*, PISA 2000.

StatLink: *http://dx.doi.org/10.1787/866734675434*

Figure A.16. **Barriers to external trade**



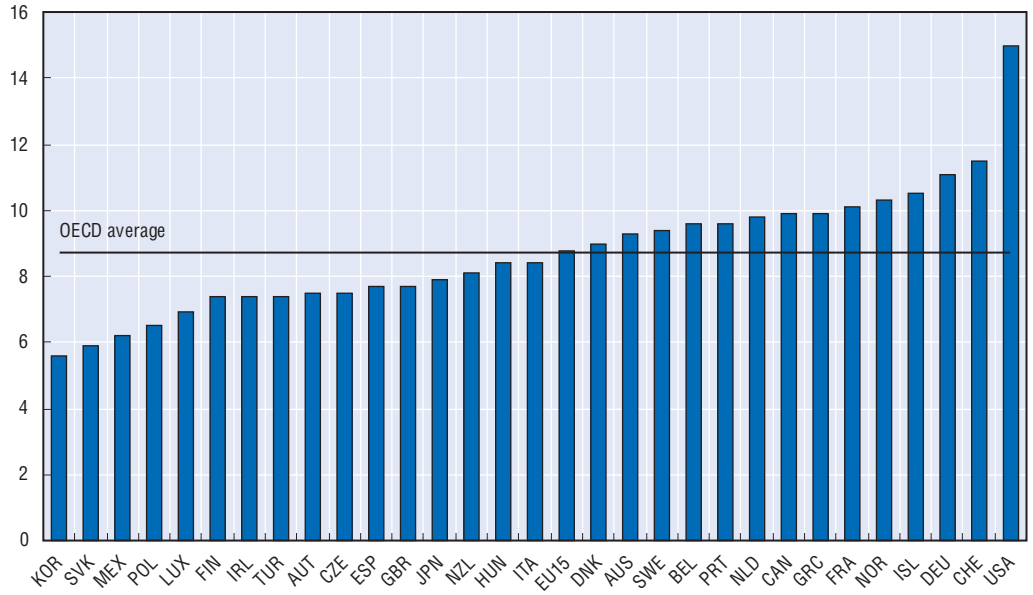
1. A single producer support estimate is calculated for EU countries.

Source: Chart A: OECD, Producer and consumer support estimates database; Chart B: OECD, *Economic Policy Reforms: Going for Growth*, 2005.

StatLink: *http://dx.doi.org/10.1787/866734675434*

Figure A.17. **Health expenditure, 2003**[1]

Percentage of GDP



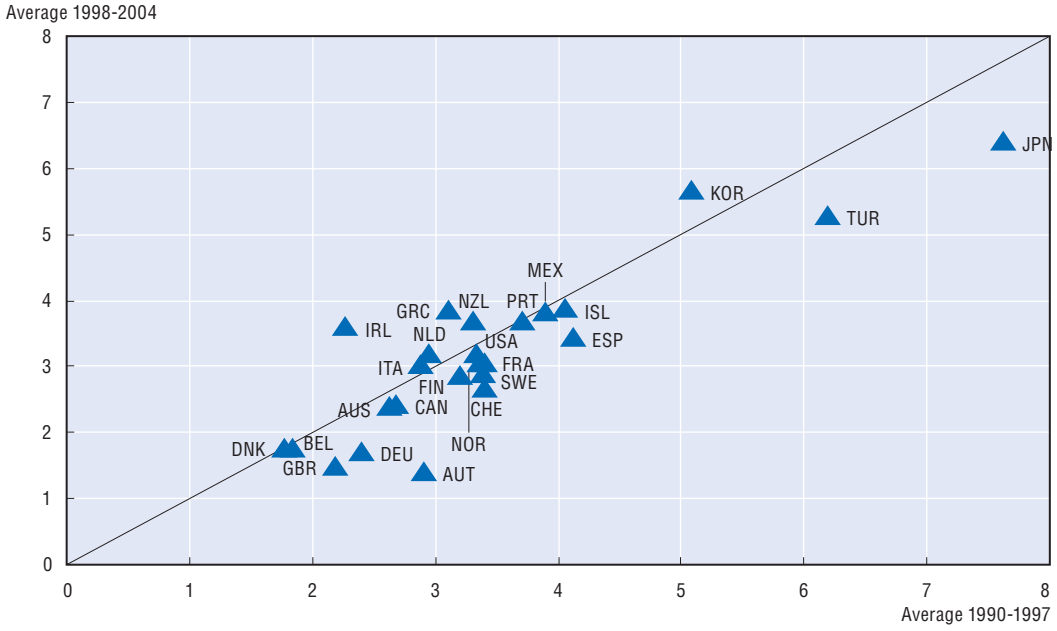
1. 2002 for Australia, Japan and United Kingdom.

Source: OECD, Health database.

StatLink: *http://dx.doi.org/10.1787/866734675434*

Figure A.18. **Public investment**

Percentage of GDP



Source: OECD, *Economic Outlook*, No. 78.

StatLink: *http://dx.doi.org/10.1787/866734675434*

ECONOMIC POLICY REFORMS: GOING FOR GROWTH – ISBN 92-64-03591-5 – © OECD 2006

OECD PUBLICATIONS, 2, rue André-Pascal, 75775 PARIS CEDEX 16
PRINTED IN FRANCE
(12 2006 01 1 P) ISBN 92-64-03591-5 – No. 54947 2006
ISSN 1813-2715

Economic Policy Reforms

Going for Growth 2006

Across the OECD, governments are seeking to undertake structural reforms to strengthen their economic growth. *Going for Growth 2006* takes stock of the progress made in implementing policy reforms to improve labour productivity and utilisation that were identified as priorities in the 2005 edition. It also provides comparative indicators covering structural policy areas such as labour markets, education and product market regulation. These indicators enable countries to see their economic performance and structural policies in comparison with others.

A special feature of *Going for Growth 2006* is the focus on innovation, which is a key driver of economic growth. It provides comparative indicators on performance and relevant policies in this area, and country-specific policy recommendations for each OECD country to improve innovation performance.

In addition, this issue contains two analytical chapters covering:
- Regulation of financial systems and economic growth
- Alternatives to GDP as a measure of well-being

This publication puts together the knowledge accumulated at the OECD in these various fields.

www.oecd.org

OECD

OECDPUBLISHING

ISSN 1813-2715
2006 SUBSCRIPTION

ISBN 92-64-03591-5
12 2006 01 1 P

9 789264 035911