Summary Indicators of Product Market Regulation with an Extension to Employment Protection Legislation

Giuseppe Nicoletti,

Stefano Scarpetta,

Olivier Boylaud

OECD

Organisation de Coopération et de Développement Economiques
Organisation for Economic Co-operation and Development

ECONOMICS DEPARTMENT

Cancels & replaces the same document:
distributed 11-Feb-2000

SUMMARY INDICATORS OF PRODUCT MARKET REGULATION WITH AN EXTENSION TO EMPLOYMENT PROTECTION LEGISLATION

ECONOMICS DEPARTMENT WORKING PAPERS NO. 226

by Giuseppe Nicoletti, Stefano Scarpetta and Olivier Boylaud

Most Economics Department Working Papers beginning with No. 144 are now available through OECD's Internet Web site at http://www.oecd.org/eco/eco.

89968

ABSTRACT/RÉSUMÉ

This paper presents a database on indicators of product market regulations and employment protection legislation for most of the OECD countries and illustrates a methodology for aggregating these detailed indicators into summary indicators of the strictness of regulations. The summary indicators are obtained by means of factor analysis, in which each component of the regulatory framework is weighted according to its contribution to the overall variance in the data. These indicators are used to assess the regulatory approaches across countries as well as the interrelations between various sets of regulatory provisions. While regulatory provisions can be classified and assessed from a variety of standpoints, this paper focuses exclusively on the relative friendliness of regulations to market mechanisms: there is no attempt to assess the overall quality of regulations or their aptness in achieving their stated public policy goals. The guiding principle inspiring the conception of the summary indicators of regulations is the likely influence of regulations on the choices and market opportunities of firms. The detailed indicators refer to: *economic regulation* concerning market access, the use of inputs, output choices, pricing and international trade and investment; *administrative regulation* (i.e. the interface between government agencies and economic agents) including means for communicating regulatory requirements to the public as well as compliance procedures; and *employment protection legislation* (EPL) for regular as well as temporary employment contracts.

A number of stylised facts emerge from the analysis. While the increasing degree of economic integration in the OECD area has levelled out differences in international trade and investment policies, the friendliness to product market competition of inward-oriented regulations still differ significantly across OECD countries. Economic regulations that restrict competition are generally matched by burdensome administrative environments and public ownership appears to be often associated with legal limitations to the number of competitors. Moreover, there is evidence of asymmetric liberalisation of EPL in a number of OECD countries: while regulation for regular contracts has remained largely unchanged, many countries (especially in Europe) have eased regulations for temporary contracts. Finally, the summary indicators of product market regulation and EPL suggest that, across countries, restrictive regulatory environments in the product market tend to be associated with restrictive employment protection policies

JEL codes: C81, K2, J38, L5
Keywords: data collection, product market regulation, employment protection legislation

*****

Ce document présente, pour la plupart des pays de l'OCDE, une compilation d'indicateurs des réglementations affectant les marchés de produits et la législation sur la protection de l'emploi. Il décrit une méthode pour regrouper ces indicateurs détaillés dans des indicateurs de synthèse qui mesurent la rigidité du cadre réglementaire. En s'appuyant sur les techniques de l'analyse factorielle, ces indicateurs de synthèse sont construits en pondérant chacune des composantes du cadre réglementaire par sa contribution à l'explication de la variance globale des données. Les indicateurs sont utilisés pour mettre en évidence les pratiques réglementaires des pays de l'OCDE ainsi que pour évaluer les relations transversales entre les différentes composantes de la réglementation. L'accent est mis uniquement sur l'innocuité relative de la réglementation vis à vis des mécanismes de marché. On ne tente pas d'évaluer les qualités globales des réglementations ou leurs aptitudes à atteindre les objectifs publics déclarés. Le fil directeur qui a guidé la conception de ces indicateurs est l'influence probable des réglementations sur les choix et les opportunités qui se présentent aux entreprises. Les indicateurs détaillés abordent trois grands domaines de réglementation: les *réglementations économiques*, qui concernent l'accès au marchés, l'utilisation des

intrants, les choix de production, la tarification et le commerce et l'investissement international; les *réglementations administratives* (interface entre les organismes gouvernementaux et les agents économiques), qui englobent les moyens de communiquer les prescriptions réglementaires au grand public ainsi que les procédures d'exécution; et la *législation sur la protection de l'emploi* touchant les travailleurs à contrats permanents ou temporaires.

Plusieurs caractéristiques émergent de l'analyse. L'intégration croissante dans la zone de l'OCDE a estompé les différences en matière de commerce et d'investissement international. En revanche les réglementations à vocation interne varient encore de façon significative selon les pays de l'OCDE quant à leur étendue et leur effet potentiel sur le degré de concurrence des marchés de produits. Les réglementations économiques qui limitent la concurrence vont souvent de pair avec un environnement administratif contraignant et l'étendue du secteur des entreprises contrôlées par les pouvoirs publics semble être souvent associée à des barrières de nature légale pour l'accès aux marchés. De plus, il apparaît que les pays de l'OCDE ont une approche asymétrique à la libéralisation dans le domaine de la législation sur la protection de l'emploi: alors que la régulation des contrats permanents est restée largement inchangée, de nombreux pays (spécialement en Europe) ont allégé la réglementation concernant les emplois temporaires. Enfin un examen simultané des indicateurs de synthèse concernant la réglementation des marchés de produits et la législation sur la protection de l'emploi suggère que des cadres réglementaires contraignants tendent à s'accompagner avec des politiques de protection de l'emploi restrictives.

Classification JEL : C81, K2, J38, L5
Mots-clés : collecte de données, réglementation dans les marchés de produits, législation sur la protection de l'emploi

TABLE OF CONTENTS

Tables

1.   Number of basic data points in the regulation database
2.   Example of hierarchical scoring: detailed indicator of special government rights in business enterprises
3.   Examples of categorical scoring
4.   Example of factor analysis results: state control domain: factor extraction
5.   Example of factor analysis results: state control domain
6.   Scoring countries according to estimated factors: state control domain
7.   Barriers to entrepreneurship: results of factor analysis
8.   Economic regulation: results of factor analysis

Figures

Annex tables

SUMMARY INDICATORS OF PRODUCT MARKET REGULATION WITH AN EXTENSION TO EMPLOYMENT PROTECTION LEGISLATION

Giuseppe Nicoletti, Stefano Scarpetta and Olivier Boylaud[1]

I.   INTRODUCTION

1.   By establishing the "rules of the game" in a number of different areas - such as market competition, business conduct, the labour market, consumer protection, public safety and health, and the environment - regulation is essentially aimed at improving the functioning of market economies. However, regulations may also become too intrusive and stifle market mechanisms, possibly affecting resource allocation and productive efficiency. In the past two decades, an increasing number of countries have been reforming their regulatory environments in both the labour and product markets. In many of them, this reform process was partly driven by comparisons with the policies implemented and the results obtained by other countries. Comparing regulations across countries can be extremely informative because it helps policy makers to situate their country across the range of possible regulatory regimes and infer the economic consequences of different regulatory choices. In addition, cross-country comparisons may make it possible to gauge to what extent regulatory arrangements and their economic implications are country-specific or can apply more generally.

2.   This paper is largely devoted to describe the effort made at the OECD to collect and format data on regulation in individual countries and summarise these data parsimoniously enough to be used in cross-country comparisons. This project involved (a) the construction of a database of internationally comparable data on certain economy-wide and industry-specific regulations; and (b) the estimation of indicators of regulation that summarise (at different levels of detail) the information on the regulatory environments characterising OECD countries. Although the database contains extensive information on most OECD countries, the construction and the discussion of the summary indicators of regulation concentrates on a core set of 21 countries, for which there were no gaps in the basic data included in the definition of the indicators. Indicators for the other countries are provided in the Annex.

3.   The paper provides information on the data and the techniques used to generate the summary indicators of regulation and describes, by means of these indicators, the variability of regulatory approaches across countries as well as the interrelations between various sets of regulatory provisions. It

---

also illustrates the relationship between the indicators and the specific regulatory features that they summarise, so that their values can be related to the details of each country's regulatory framework, which are contained in the OECD database. Although the database includes a lot of information on industry-specific regulations, the analysis in this paper concentrates on the construction of economy-wide indicators, which either summarise regulations that affect equally a large number of industries or use information concerning several industry-specific regulations to infer the general policy stance in a regulatory domain.

4.   Although the comparative economy-wide indicators are based on a large amount of data, their coverage is by no means exhaustive. Since regulation is one of the most pervasive forms of state intervention in economic activity, the focus had to be set on a limited number of regulatory domains and industries. The indicators include economic and administrative regulations that affect product markets, but ignore other important regulatory areas (such as environmental and health and safety regulations). Economic regulation includes a wide range of constraints and incentive mechanisms concerning market access, the use of inputs, output choices, pricing and international trade and investment. Administrative regulation (i.e. the interface between government agencies and economic agents) includes means for communicating regulatory requirements to the public as well as compliance procedures. The indicators of economic and administrative regulation do not include provisions concerning financial markets and land-use which are likely to be particularly relevant for the assessment of barriers to entrepreneurship (because they affect inter alia the access to venture capital and the flexibility in the use of inputs). In addition, the analysis deals only with formal regulations and, therefore, cannot account for enforcement issues. Taking into account these additional factors could have repercussions on the assessment of the policy stance in the different regulatory domains or could affect the overall assessment of the scope allowed for product market competition in individual countries.

5.   Similarly, while regulatory provisions can be classified and assessed from a variety of standpoints, this paper focuses exclusively on the relative friendliness of regulations to market mechanisms: there is no attempt to assess the overall quality of regulations or their aptness in achieving their stated public policy goals. The guiding principle inspiring the conception of the summary indicators of product market regulation is the likely influence of regulations on the intensity of product market competition. For this purpose, restrictions to competition were defined either as barriers to access in markets that are inherently competitive or as government interferences with market mechanisms (such as price controls or involvement in business operation) in areas in which there are no obvious reasons why mechanisms should not be operating freely.[2]

6.   It should be underscored that a market-oriented economic and administrative regulatory environment is only a necessary condition for enhancing product market competition, because in many markets competition could be stifled by anti-competitive behaviour of private businesses (e.g. cartels or abuses of dominant position). However, there is no attempt in the paper to compare competition policies (i.e. the characteristics and the enforcement of competition laws) or mechanisms for promoting competition in network industries across countries. Since the effectiveness of competition policies or different approaches to regulating network access and pricing (after basic entry liberalisation has been implemented) are not assessed, the analysis in this paper cannot tell whether competitive pressures operate fully in the economies under consideration.

7.   To illustrate its general applicability, the methodology for obtaining the summary indicators of the strictness of regulations in the product market is also extended to one key aspect of regulations in the labour market: the set of provisions that govern the hiring and firing of workers with different types of

---

2.   For instance, price controls were considered to restrict competition only in competitive industries, such as road freight or retail distribution.

employment contracts. The analysis is based on a detailed set of data on employment protection legislation (EPL) for regular as well as temporary employment contracts which was published in the 1999 OECD Employment Outlook (OECD 1999). The aggregation of the detailed indicators of EPL follows the same approach used for aggregating the indicators of product market regulations. This ensures a greater comparability of the summary indicators of regulations in the two fields and makes it possible to identify country clusters sharing common patterns of product market regulation and EPL.

8.   The rest of the paper is organised in five parts. Part II describes the data and the methodology used to construct the indicators. First, data sources, characteristics and measurement issues are dealt with; then methodologies to obtain the detailed indicators (to which aggregation procedures were applied) are explained; and finally aggregation procedures used in constructing the summary indicators are described. Part III discusses the resulting summary indicators of product market regulation, uses them to identify patterns of regulation across countries and explores the relationship between regulations in different domains. Part IV extends this analysis to indicators of EPL. Finally, Part V investigates the correlation between product market regulation and EPL. Although EPL is only one specific dimension of labour market regulations, the observed correlation patterns suggest that the interface between policy approaches in the two markets could be usefully explored.

II.   DATA AND METHODOLOGY

II.1   A multi-stage approach

9.   Comparing regulations across countries is arduous because information about single regulatory provisions is usually scarce and often qualitative in nature, and can hardly be analysed in isolation from the wider regulatory environment of the country where they apply. In order to ensure a reasonable level of international comparability, the regulatory environment was characterised with reference to a large set of individual regulatory provisions, trying to cover the most relevant aspects of each selected regulatory domain. Moreover, the methodology for collecting information on these provisions to construct indicators of regulations was uniform across countries: in the case of product market regulations this was ensured by relying as much as possible on a multiple-choice questionnaire filled in by Member country governments[3]; for EPL data the same objective was reached through an in-depth review of legislation, as reported in the OECD Employment Outlook 1999.[4] The resulting product market and job protection data were harmonised, eliminating as much as possible spurious cross-country differences. Finally, qualitative information was turned into a numerical format using a system of codes (e.g. the presence or the absence of a regulatory provision were assigned different codes). To construct the indicators of regulation, a metric was chosen to rank countries on each of the regulatory provisions according to a common and interpretable

---

3.   The multiple choice format shifts the burden of interpreting the answer on the countries themselves, reducing the scope for discretion by the analyst. However, it does not eliminate comparability problems because countries may interpret the questions in different ways

4.   The Employment Outlook also contains information on the specific requirements in case of collective dismissals in 1998. Since this paper makes an attempt to link regulations over time as well as across countries, these regulations were not included in the analysis.

scale, reflecting their restrictive effect on market mechanisms. In the end, the large set of provisions composing each of the regulatory domains and the overall regulatory environment was synthesised into a set of detailed and summary measures.

10.   As a result, the indicators have a pyramidal structure: at the top they summarise the main features of the overall regulatory environment; at the intermediate levels they summarise information about broad regulatory domains and sub-domains of regulatory interventions; at the lowest level (the detailed indicators) they coincide with more specific features of the regulatory regimes. The detailed indicators are often derived as combinations of the basic information on regulation obtained from the questionnaire or other sources. The main advantage of this pyramidal structure is that indicator values concerning broad regulatory domains can be traced with an increasing level of detail to the values taken by the more disaggregated indicators.

11.   The construction of the detailed and summary indicators of regulation involved the following steps (Figure 1):

－   collection and preparation of the basic data and classification of the data into regulatory domains (e.g. state control, barriers to entrepreneurship, employment protection legislation, etc.);[5]

－   definition of the detailed indicators (sometimes aggregating the basic data), which constitute the basis for subsequent estimations;

－   estimation of the summary indicators for each regulatory domain and sub-domain, which summarise the various dimensions of regulation described by the detailed indicators;

－   estimation of the overall indicators for product market regulation and employment protection legislation, which summarise the features of the various regulatory domains and provide the most synthetic measure of regulation.

12.   The completion of the first two steps entailed some subjective judgements, while the last two steps were based on multivariate analysis techniques. In the following, each of the steps of this multi-stage procedure is described for product market regulation, sometimes by means of examples relating to specific regulatory domains. The extension of this methodology to analyse data on employment protection legislation (EPL), for which both cross-country and time-series information is available, is described in section IV.

---

5.   As stressed above, the basic indicators of employment protection legislation were obtained from the 1999 Employment Outlook.
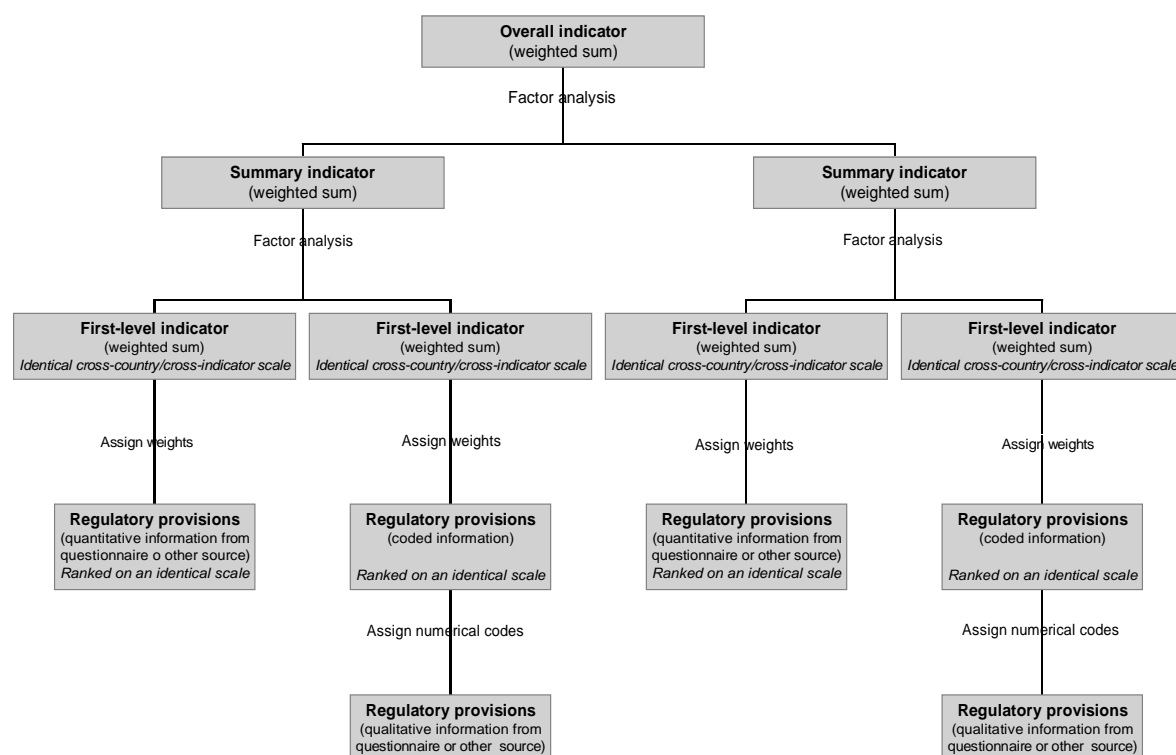
Figure 1. Construction of overall and summary indicators of regulation

II.2 Data sources and preparation

13.   Comparative data on product market regulations is scarce. Attempts to collect such data have been usually confined to small sets of countries, to single regulatory domains (e.g. regulation of utilities) and/or to a limited number of indicators.[6] In this paper, the basic data used to construct the indicators of product market regulation consist of two main elements:

− the responses of Member countries to an ad hoc questionnaire (The OECD Regulatory Indicators Questionnaire); and

− data on economy-wide and industry-specific regulations drawn from publications of the OECD or other institutions.

14.   The survey data, which represents around 90 per cent of the information summarised by the indicators, was collected in the context of a wider project on regulatory reform and involved intensive

---

6. For instance, the World Bank has reviewed regulation in the infrastructure sector for a small set of OECD and non-OECD countries (World Bank, 1996); the European Commission has reviewed regulations of network industries in the EU (EC, 1999); and private research institutions have focused on a limited set of regulatory indicators (see, for instance, Gwartney and Lawson, 1997). Past OECD work has dealt extensively with specific sectors or aspects of the regulatory environment (see, for instance, OECD, 1996, 1999 and 1997).

consultation with Member countries.[7] The questionnaire was distributed to Member countries and the European Union in 1998 and asked for information on around 1300 different regulatory provisions concerning economy-wide and industry-specific laws, regulations and administrative procedures. The questionnaire contained eight sections spanning the most important aspects of general and industry-specific regulatory policies as well as some aspects of industry market structure and performance (Table 1). The sectors covered included retail distribution, transportation (road freight, air passenger transport and rail transport) and telecommunications. The data collected by means of the questionnaire consist of both qualitative information (such as binary yes/no answers, multiple choice answers or answers providing more detailed information about regulatory provisions) and quantitative information (questions calling for numerical data, such as number of licences, market shares or industry performance) and generally reports the situation in (or around) 1998.[8]

Table 1. **Number of basic data points in the regulation database**
(by type of data and source)

Type of data	Number of data points	Source
General policies	65	Questionnaire (section 1)
Government capacity	176	Questionnaire (section 2)
Competition policies	473	Questionnaire (section 3)
Market openness	324	Questionnaire (section 4)
Telecommunications	71	Questionnaire (section 5)
Transportation (road freight, railways, passenger air travel)	136	Questionnaire (section 6)
Retail distribution	91	Questionnaire (section 7)
Public procurement	39	Questionnaire (section 8)
Miscellaneous	32	External
Total	1407	
of which : Regulation	1301	
Market structure	70	
Performance	36	

15.   Responses to the questionnaire were supplemented with data drawn from published or unpublished sources. These external data represent around 10 per cent of the basic data points used in the construction of the regulatory indicators. The main external sources concerned:

---

7. In May 1997, Ministers of OECD countries asked the OECD to conduct reviews of regulatory reform in Member countries beginning in 1998, based in part on self-assessment. As part of these reviews, the OECD developed a questionnaire designed to provide essential information on the regulatory frameworks and on industry-specific regulations in Member countries.

8. In principle, the data should capture the situation in 1998, but in practice the precise reference period may change slightly depending on the indicator and the country concerned. As a general rule, regulatory reforms implemented after 1998 are not reflected in the analysis contained in this chapter.

− data on tariff and non-tariff barriers to trade, which are compiled by the OECD[9];

− data on administrative burdens on the creation of corporate and sole proprietor businesses, which were drawn from a study prepared for the European Commission and a study of the Australian Ministry of Industry[10];

− data on the size of the public enterprise sector, which were drawn from studies by the OECD and two private research institutes[11];

16.   Using the responses to the questionnaire as well as the other sources, an international regulation database was established. The database provides a "snapshot" of regulatory environments in (or around) 1998. In some cases, when data for 1998 were not available, this snapshot was supplemented with "dynamic" elements, to account for recent reform tendencies, such as privatisation policies, administrative simplification programs and improvements in the flexibility of certain regulations (e.g. shop opening hours).

17.   The response rate to the OECD Regulatory Indicators Questionnaire was high, with over three quarters of the countries having replied (fully or partially) to all the sections contained in the questionnaire, and the data collected were extensively checked by OECD and government experts. Despite this high response rate and the additional recourse to other data sources, the basic information on regulatory environments still contains a fair amount of missing observations, either because countries have not always replied to all questions within each section of the questionnaire or because alternative data sources did not cover all OECD countries. At the same time, and despite considerable checking, replies to the questionnaire may at times have been affected by idiosyncratic interpretations of the individual questions. On the whole, eliminating missing data and replies showing no cross-country consistency, only approximately 70 per cent of the answers to the questionnaire proved to be "usable" for empirical analysis. Therefore, the construction of the regulatory indicators was sometimes constrained by the need to include only the basic data for which a complete and consistent cross-country coverage existed. Where it was not possible to eliminate the gaps in the basic data, either the data were excluded from the information sets summarised by the indicators or they were estimated, when the missing information concerned issues deemed of secondary importance. Estimations generally consisted of inferences made on the basis of the responses to connected questions or, for some trade-related issues concerning European countries, inferences made based on the answers provided by the European Commission under the assumption that the countries for which values were missing conform to EC policies.

18.   The preparation of the basic data involved the classification of the information obtained from the questionnaire or other sources according to three criteria:

− *Scope*. Regulations can be economy-wide or industry-specific. Economy-wide regulations were defined as regulations that affect all or most sectors of the economy equally (such as administrative burdens), while industry-specific regulations concern only particular activities or markets (such as price controls or limitations on the number of competitors in air travel).

− *Type of restriction*. Regulations can imply state control over business firms, raise barriers to entrepreneurial activity or raise barriers to international trade and investment. These

---

9.   OECD (1997).

10. Logotech, S.A. (1997); Bureau of Industry Economics (1996).

11. OECD (1999); Centre Européen des Entreprises a Participation Publique, CEEP (1997); Gwartney and Lawson (1997).

"thematic" domains have been defined in order to identify, in a parsimonious way, the main channels through which regulation may restrict market mechanisms.

− *Function*. Regulations can be economic or administrative. Administrative regulation includes reporting, information and application procedures and burdens on start-ups, implied by both economy-wide and industry-specific requirements; economic regulation includes all other provisions (such as state control, legal barriers to competition and barriers to trade and investment).

19. Each of the basic data points (coming from answers to the questionnaire or other sources) have been mapped into one (and only one) of the three "thematic" domains, while a different mapping of the same information has been implemented to separate "functionally" economic from administrative regulations. It should be stressed that, although the focus of the analysis is on the friendliness of regulation to market mechanisms economy-wide, a large amount of industry-specific information was collected to infer this stance in areas such as state ownership or control of business enterprises, legal limitations on the number of competitors allowed in business activities, price controls or the use of command and control regulations. In so doing, a particular emphasis was put on the analysis of service activities since they have been traditionally highly regulated, many of them have remained relatively sheltered from international competition and are frequently undergoing significant liberalisation.

20. The precise data content of each of the regulatory domains depends on whether economy-wide or industry-specific regulations are considered and on the country coverage and comparability of the basic data. Overall, only a subset of the responses to the questionnaire (representing an estimated 25 per cent of the available information) is actually summarised by the indicators, either because of limited country coverage or because the data lacked relevance for the purposes of assessing the restrictiveness of regulations for market mechanisms.

II.3 The detailed indicators

21. The information contained in the basic data was exploited to construct the detailed indicators of product market regulation (and EPL, see section IV). These are cardinal measures that are increasing with the degree of restrictions they impose on market mechanisms. The detailed indicators either summarise or coincide with the information on specific regulatory features contained in the basic data. The often qualitative nature of this data and the need to aggregate different regulatory provisions involved a certain amount of discretion in the construction of the detailed indicators.

22. The methodology for constructing the detailed indicators followed several steps. First, the raw information obtained from the questionnaire or other sources was transformed. The qualitative information was coded by assigning a numerical value to each of its possible modalities (e.g. ranging from a negative to an affirmative answer) while the quantitative information (such as data on ownership shares or notice periods for individual dismissals)was subdivided into classes. Second, the resulting coded information was normalised by ranking it on a common 0-6 scale, reflecting the increasing restrictiveness of the regulatory provisions[12]. Third, in some cases, several of the normalised rankings corresponding to the various regulatory provisions were aggregated into a single measure.

23. The scoring procedure responded to three main criteria. First, it was assumed that the country sample represented the entire population of reference, that is to say, the least restrictive and the most restrictive provision in the country sample were assigned the values 0 and 6, respectively. Moreover, the

---

12. The results are not affected by the choice of scale, which is necessarily arbitrary.

scoring along the common scale was determined in order to mimic as much as possible the dispersion of the basic data (*variance-preserving scoring*).[13]   Second, the scores on individual provisions were sometimes aggregated in order to turn categorical data (e.g. binary 0-1 values), which can hardly be used in factor analysis, into cardinal scores (*categorical scoring*), for instance by combining several provisions using arbitrary weights or summarising industry-specific scores into an economy-wide measure. Third, a ranking was sometimes created aggregating the scores on individual provisions to reflect the hierarchy between regulations, for instance combining the existence of a restriction with its scope or depth (*hierarchical scoring*). The Annex provides a full description of the composition of the detailed indicators (Tables A2.1.1-A2.1.16).

24.   Variance-preserving scoring concerned only a small amount of the data, which were originally cast in quantitative classes.[14] These data were converted into detailed indicators taking 0-6 values by transformations that attempted to reproduce the cross-country variance present in the original data. The choice of the cut-off points for the different values of the scores is obviously arbitrary but was chosen for all indicators so as to maintain observed cross-country patterns (as measured by, for instance, coefficients of variation).

25.   Tables 2-3 show examples of hierarchical and categorical scorings used in the construction of three detailed indicators of product market regulation: an indicator of government special rights in business enterprises; an indicator of the scope of the public enterprise sector; and an indicator of the transparency of the licensing and permit system. The indicator of special rights was based on three kinds of regulatory provisions drawn from answers to the questionnaire: the presence of legal or constitutional constraints to the sale of shares in publicly-controlled firms, the presence of special voting rights in private business enterprises and the scope of these special rights (i.e. whether the rights apply to mergers, changes in the controlling coalition, acquisition of equity by foreign investors, choice of management or strategic management decisions). As regards their impact on market mechanisms, the presence of special voting rights in private enterprises was given a larger weight than the existence of legal constraints concerning state-controlled enterprises (the impact of the size and scope of the public enterprise sector being accounted for by other indicators), while the scope of these special rights was treated as a subordinate issue (Table 2). This suggested a hierarchical ordering assigning the worst scores to countries in which both special rights and legal constraints exist; intermediate scores to countries having special rights but no legal constraints; and the best scores to countries having neither legal constraints nor special rights. The information on the scope of special rights was used to refine country rankings within these broad country groupings. The indicator of the scope of the public enterprise sector was constructed aggregating the categorical information provided by countries as to the presence of state-controlled companies in 24 manufacturing and service industries (Table 3, Panel A).[15] The indicator of the transparency of the licensing and permit system combined categorical information on three different provisions: the application of the "silent is consent" rule by government agencies; the existence of single contact points for gathering information on administrative procedures; and the existence of "one-stop shops" for submitting applications and issuing licenses and permits. Aggregation assumed equal weights on these provisions (Table 3, Panel B).

---

13. In the case of the EPL indicators, the variance-preserving scoring also took into account the dispersion of regulatory provisions in the late 1980s.

14. The clearest examples of this kind of data transformation concerns the information that was used in constructing indicators for EPL (see Section IV).

15. The aggregator was defined as the percentage of industries in which state-controlled companies are present. Weighing the industry-specific replies by value-added shares was impossible, due to lack of value-added data at the three or four digits level.

Table 2. Example of hierarchical scoring: Detailed indicator of special government rights in business enterprises

Categorical data on presence of:			Country scores
primary provision	*secondary provision*	*ancillary provision*	
National, state or provincial governments have special voting rights in a firm within the business sector	There are legal or constitutional constraints to the sale of stakes held by the state in publicly-controlled firms	Special voting rights can be exercised in at least one instance	
Yes	Yes	Yes	6
Yes	Yes	No answer	5.5
Yes	Yes	No	5
Yes	No	Yes	4
Yes	No	No answer	3.5
Yes	No	No	3
No	Yes	-	2
No	No	-	0

Table 3. Examples of categorical scoring

Panel A. Aggregation of industry-specific provisions: Detailed indicator of scope of public enterprise sector

Categorical data on presence of state-controlled enterprises				Affirmative answers (%)	Country scores
National, state or provincial governments control at least one firm in:					
Industry 1	*Industry 2*	*Industry 3*	*Industry 4*		
No	No	No	No	0	0
Yes	No	No	No	25	1.5
Yes	Yes	No	No	50	3
Yes	Yes	Yes	No	75	4.5
Yes	Yes	Yes	Yes	100	6

Panel B. Aggregation of different provisions: Detailed indicator of licences and permit system

	Categorical data on[1] :			Country scores
	The "silence is consent" rule is used in assigning licenses and permits	There are single contact points for getting information on licenses and notifications	There are single contact points for issuing or accepting licenses and notifications	
Weights	1	1	1	
Countries				
1	Yes	Yes	Yes	0
2	No	Yes	Yes	2
3	Yes	Yes	No	2
4	Yes	No	Yes	2
5	No	Yes	No	4
6	Yes	No	No	4
7	No	No	No	6

1. Answers indicating a restrictive approach (No) are coded as "6", answers indicating a flexible approach (Yes) are coded "0"

26.   Although the methodology for collecting, coding, normalising and aggregating the basic information has the advantage of providing a consistent cardinal value of the regulatory provisions summarised in the detailed indicators, it should be stressed that the scoring procedure often involved some subjective judgement, which may have led to measurement error. For example, errors may have been made in replying and interpreting the responses to the OECD questionnaire. Since the replies depend to some extent on the personal judgement and interpretation of the respondent and of its reviewers at various levels of the national administrations, in general there is no guarantee that responses to the same question from different countries are fully comparable. In addition, errors may be due to the personal interpretation of the

compilers of the data: even though the questionnaire was expressly designed to minimise the need for the OECD Secretariat to interpret the answers, a certain degree of interpretation was still necessary in some cases. Errors may also be involved in the construction of the detailed indicators: no matter how sophisticated are the methodologies adopted, a certain amount of "expert judgement" is always needed when qualitative data are turned into quantitative indicators. While these measurement errors and mistaken subjective judgements may have an influence on the ranking of countries in the individual regulatory provisions, as long as they are not systematic it is unlikely that they can affect significantly the values of the summary and overall indicators of regulation, due to the large number of provisions included in the analysis.

27.   Overall, seventeen detailed indicators of regulation were constructed to describe the regulatory environment in the product market (see Tables A2.2.1-A2.2.3 in the Annex). These indicators summarise information on 156 economy-wide or industry-specific regulatory provisions. The detailed indicators were classified in the following three broad regulatory domains:

– *State control over business enterprises*: this domain includes detailed indicators of (a) the overall size of the public enterprise sector; (b) the scope of the public enterprise sector (in 24 manufacturing and service industries); (c) the existence and extent of special rights over business enterprises; (d) legislative control over public enterprises; (e) the existence of price controls in competitive industries; and (f) the use of command and control regulations, both economy-wide and at the industry level.

– *Barriers to entrepreneurship*: this domain includes detailed indicators of (a) the features of the licensing and permit system; (b) the communication and simplification of rules and procedures; (c) economy-wide administrative burdens on start-ups of corporate firms; (d) economy-wide administrative burdens on the start-up of sole-proprietor firms; (e) industry-specific administrative burdens on start-ups of retail distribution and road freight companies; (f) the scope of legal barriers to entry (in 24 manufacturing and service industries); and (g) the existence of antitrust exemptions for public enterprises or government-mandated behaviour.

– *Barriers to international trade and investment*: this domain includes detailed indicators of (a) barriers to share-ownership for non-resident operators (economy-wide and in the telecommunications and air travel industries); (b) discriminatory procedures in international trade and competition policies; (c) regulatory barriers to trade; and (d) average (production-weighted) tariffs.[16]

28.   In addition, indicators belonging to the first two domains were classified into the following alternative broad areas:

– *Administrative regulations*: this area includes detailed indicators on (a) economy-wide administrative burdens on start-ups of corporate and sole-proprietor firms; (b) industry-specific administrative burdens on start-ups of retail distribution and road freight companies; (c) the features of the licensing and permit system; and (d) the communication and simplification of rules and procedures.

---

16. Indicators of the frequency of non-tariff barriers were excluded from the analysis because they showed very little correlation with the other indicators and proved to be ineffective to discriminate among the countries' regulatory approaches. Moreover, information about non-tariff barriers is partly contained in the indicators of discriminatory procedures and regulatory barriers.

- *Economic regulation*: this area includes the detailed indicators of state control over business enterprises as well as the detailed indicators of the scope of legal barriers to entry and the existence of antitrust exemptions for public enterprises or government-mandated behaviour.

II.4   Aggregation procedures

29.   The detailed indicators of regulation were further aggregated into (a) several summary indicators of regulation (by regulatory domain or sub-domain); and (b) the overall indicators of product market regulation and employment protection legislation. Different aggregation procedures have been proposed in the literature. Grubb and Wells (1993), with respect to the EPL indicators, and Koedijk and Kremers (1996), with respect to product market regulation, proposed the ranking-of-ranking approach, whereby countries are first ranked according to each of the basic indicators, and then the individual ranking positions are averaged so as to produce a final country ranking. By contrast, the OECD Employment Outlook (1999), used a subjective weighting scheme based on an expert assessment of the importance of the different provisions composing the EPL system.

30.   This paper uses a statistical approach based on factor analysis, in which each component of the regulatory framework is weighted according to its contribution to the overall variance in the data. A similar approach to the analysis of economic data was used by Berlage and Terweduwe (1988). Factor analysis was applied to the subsets of detailed indicators belonging to the same regulatory domains or areas. The same procedure (applied to the summary indicators) was used to estimate the overall indicator of product market regulation.

31.   Factor analysis reveals, within each regulatory domain, families of detailed indicators which are most associated with different underlying (unobserved) factors. Within each of these factors, the single indicators are weighted according to the proportion of their cross-country variance which is explained by the factor. The factors identify regulatory sub-domains, which usually have a straightforward economic interpretation. As a result, countries can be "scored" on each of the factors using the estimated weights. These factor-specific scores are used as intermediate inputs in the construction of the summary indicators by domain. Each factor generally contributes to a different extent to the explanation of the overall cross-country variance of the data and it is usually sufficient to focus only on a few factors whose combined contributions explain a significant proportion of this variance. The relative contributions of each of the retained factors to the explanation of their overall variance are used as weights in further aggregating the country scores in each regulatory sub-domain (i.e. the factor-specific scores) into the summary indicators of regulation by domain.

32.   Factor analysis is appealing because the aggregation of the detailed indicators is data-based and ensures that the resulting summary indicators by regulatory domain account for a large part of the cross-country variance of the detailed indicators. In addition, factor analysis assigns the largest weights to the indicators that have the largest variation across countries, quite independently of prior views on their relative economic importance. These properties are particularly desirable for cross-country comparisons of regulatory structures and analyses of the effects of differences in regulation on performance. Indeed, the focus is set only on those dimensions of regulation that are potentially useful for explaining the cross-country variation in regulatory environments (regulations that are similar across countries are of little interest and cannot possibly explain differences in economic performance) and the summary indicators are constructed without pre-empting the conclusions of the analysis, since the weights do not depend on the analyst beliefs as to the likely impact of regulations on performance.

33.   There are also downside aspects of data-based methodologies, some of which are specific to the factor analysis approach. A general problem with these methodologies is that they are sensitive to

modifications in the basic data. Data revisions and updates, possibly implying additional observations (such as the inclusion of new countries), may change the set of weights (i.e. the estimated loadings) that are used to compute the summary indicators. The results are also likely to be sensitive to the presence of outliers, which may introduce a spurious variability in the data, and may as well suffer from small-sample problems, which are particularly relevant when the focus is on a limited set of countries. Finally, data limitations may imply difficulties in the statistical identification and the economic interpretation of the unobserved factors. Some of these shortcomings were addressed in the analysis. Notably, the robustness of the results was extensively checked by sensitivity analysis and a few outlier countries were excluded from the estimation of the aggregation weights.[17]

34. Factor analysis involves several steps:

  − For the factor analysis to yield meaningful results, the variables in the data set have to be related to each other: if the correlations between variables are small, it is unlikely that they share common factors. This paper relies on the Bartlett's test of sphericity to test the correlation of the basic indicators.[18]

  − The second step involves factor extraction, i.e. the identification of the number of factors necessary to represent the data and the method for calculating them. Each factor is defined as a set of coefficients (so-called loadings), each measuring the correlation between the individual indicators and the latent factor. Principal component analysis was used to extract the factors. In principal component analysis, linear combinations of the basic indicators are formed as follows: the first principal component is the combination that accounts for the largest amount of variability in the sample. The second principal component accounts for the next largest amount of variance and is uncorrelated with the first. Successive components explain smaller and smaller portions of the sample variance and are all uncorrelated with each other.

  − The third step involves the rotation of factors.[19] The rotation attempts to minimise the number of basic indicators that have a high loading (so-called salient loadings) on the same factor. It is a transformation of factorial axes which makes it possible to approximate a "simple structure" of the factors, in which each indicator is "loaded" exclusively on one of the retained factors. This enhances the interpretability of these factors.

  − The final step involves the construction of the weights used to construct the summary indicators. The approach followed in this paper was to weight each detailed indicator according to the proportion of its variance that is explained by the factor it is associated to (i.e. the normalised squared loading), while each factor was weighted according to its contribution to the portion of the explained variance in the dataset (i.e. the normalised sum of squared loadings).

---

17. Moreover, the extraction of factors was based on principal components methods, which are mainly descriptive and do not rely on assumptions as to the data generating process.

18. The Bartlett's test of sphericity has the null hypothesis that the correlation matrix is an identity matrix, that is to say, all diagonal terms are 1 and all off-diagonal terms are 0. The statistic is based on a chi-squared transformation of the determinant of the correlation matrix.

19. Rotation is a standard step in factor analysis. It provides a criterion for eliminating the indeterminacy implicit in factor analysis results (see for instance Kline, 1994). The rotation changes the factor loadings and consequently the interpretation of the factors, but the different factor analytical solutions are mathematically equivalent in that they explain the same portion of the sample variance. Factor rotation was obtained using the varimax method, which attempts to minimise the number of variables that have high loadings on a factor.

II.4.1   An example: the summary indicator of state control

35.   The use of factor analysis can be exemplified by the construction of the summary indicator of state control. As suggested by the Bartlett statistic (Table 4), the six detailed indicators belonging to this domain (see above) show a strong pattern of correlation. In keeping with standard practice, the focus was restricted to factors that:

−   are associated with eigenvalues larger than unity;

−   individually contribute to the explanation of the overall variance of the data by more than 10 per cent;

−   and cumulatively contribute to the explanation of the total variance of the data by more than 60 per cent.

According to these criteria, the six indicators are correlated with two main factors (shaded in grey), which account for 62 per cent of the total variance. This finding is corroborated by the so-called "scree plot", plotting the eigenvalues against their number, which shows a change in slope in correspondence to the second eigenvalue (Figure 2).[20]

Table 4. Example of factor analysis results[1] : State control domain
Factor extraction

Factors	Eigenvalues	Variance explained (%)	Cumulative variance explained (%)
1	2.54	42.40	42.40
2	1.17	19.56	61.95
3	0.88	14.65	76.60
4	0.77	12.83	89.43
5	0.34	5.74	95.17
6	0.29	4.83	100.00
Bartlett test:			
$X^2(15)$	27.5		

1. Extraction method: principal component analysis

---

20.   Eigenvalues express the proportion of the total variance in the data explained by each factor. When this proportion falls, the slope of the "scree plot" becomes flatter, suggesting a criterion for determining the optimal number of factors.

Figure 2. Example of factor analysis results: state control domain

Scree plot
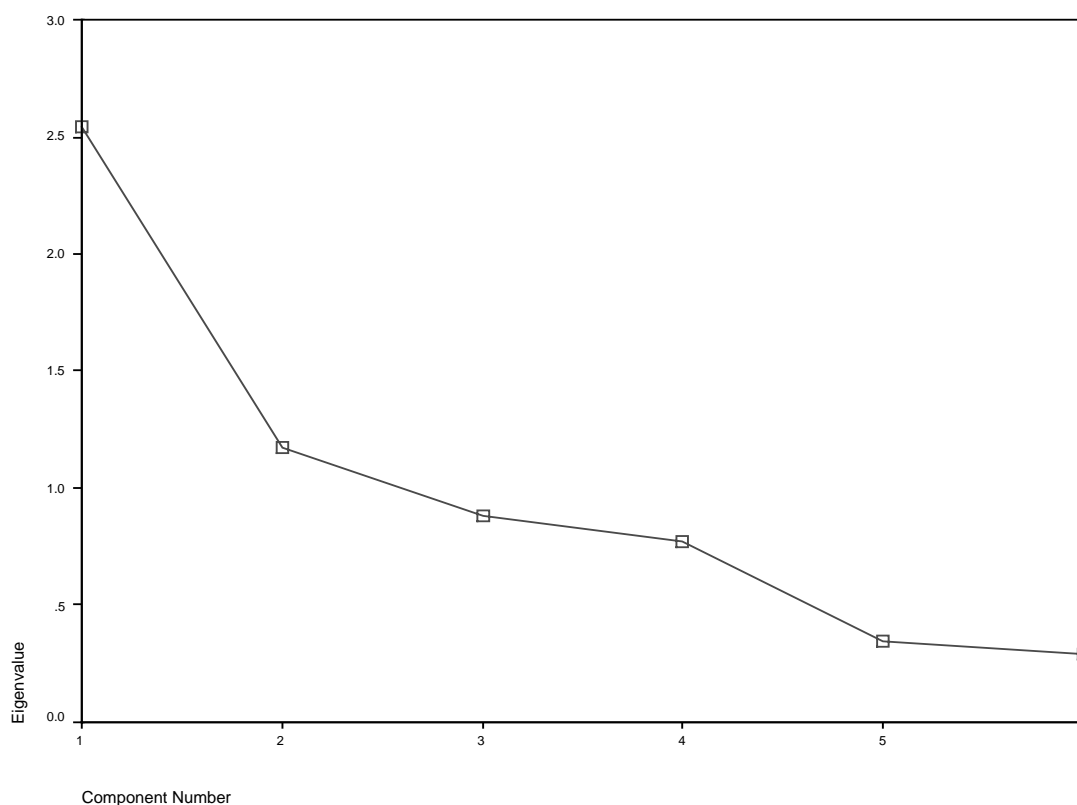
36.   The estimates of the rotated factor loadings provide the key for aggregating the detailed indicators into factor-specific scores (Table 5). The first factor, has salient loadings on the first three indicators (size and scope of public enterprise sector, and control of public enterprises by legislative bodies). It may be interpreted as representing the degree of public ownership and control over business enterprises (shaded in grey). The second factor has salient loadings on the last two indicators (use of command and control regulations and price controls) and may be interpreted as the degree of government involvement in the operation of private businesses. Despite the rotation of factors, the indicator of special government rights has sizeable loadings in both factors. This is not surprising, since special rights are at the same time an instrument for maintaining public control over (formerly) state-owned enterprises and a way to interfere in the activities of private businesses. For illustrative purposes government special rights were associated with the first factor in Table 5 (because this is were they are most loaded), but their variance is explained equally well by both retained factors and this is reflected in the construction of the indicator (see below).

Table 5. Example of factor analysis results: state control domain (1)

Interpretation	Factor 1 Public ownership		Factor 2 Involvement in business operation	
	Factor loadings	Weights of variables in factor (2)	Factor loadings	Weights of variables in factor (2)
Size of public enterprise sector	0.79	0.30	-0.01	0.00
Scope of public enterprise sector	0.77	0.28	0.28	0.05
Control of public entreprises by legislative bodies	0.76	0.27	0.05	0.00
Special voting rights	0.52	0.13	0.48	0.14
Use of command & control regulation	0.18	0.01	0.84	0.43
Price controls	-0.01	0.00	0.78	0.38
Weight of factors in summary indicator (3)	0.56		0.44	

Selection criteria :			
Eigenvalues	2.54		1.17
Total variance explained by factors		62.0	
Test-statistics			
Bartlett's test of sphericity	Chi-2	27.5	
	Df	15	

(1) Based on rotated component matrix
(2) Normalised squared factor loadings
(3) Normalised sum of squared factor loadings

37.   Summary indicators of the sub-domains unveiled by factor analysis (public ownership and government involvement in business operation) can be obtained by aggregating the detailed indicators using the weights estimated by means of factor analysis (Table 6). The interpretation of these weights, which are obtained by squaring and normalising the estimated factor loadings, is straightforward since the squared factor loadings represent the proportion of the total unit variance of the indicator which is explained by the factor. Broadly in accordance with intuition, scoring countries on the basis of the summary indicator of public ownership involves roughly equal weights on the detailed indicators of the size and scope of the public enterprise sector (0.30 and 0.28, respectively) as well as of legislative control over public enterprises (0.27), while scoring them on the basis of the summary indicator of government involvement in business operation involves roughly equal weights on the use of command and control regulations (0.43) and price controls (0.38). At the same time, the weight of special rights is lower and is shared by both summary indicators (0.13 and 0.14, respectively). The resulting scores by sub-domain (i.e. factor-specific) can be aggregated into the summary indicator of state control by weighting each factor according to its relative contribution to the explanation of the overall variance of the two factors: the first explains 56 per cent of this variance, while the second factor explains 44 per cent of it. Therefore, in the summary indicator of state control, direct ownership and control of business enterprises is given a slightly

larger weight than the indirect involvement of the government in private business operation, while the smallest overall weight (0.11) is assigned to special government rights.

Table 6 : **Scoring countries according to estimated factors: state control domain (1)**

	Summary indicators		
	Domain	*Sub-domains*	
	State control	Public ownership	Involvement in business operation
Australia	1.26	0.81	1.83
Austria	2.11	2.36	1.77
Belgium	2.78	2.01	3.78
Canada	1.29	1.19	1.42
Germany	1.76	1.22	2.46
Denmark	2.46	2.28	2.70
Finland	2.68	3.28	1.90
France	2.63	2.30	3.04
Greece	3.87	3.39	4.50
Irlande	0.94	1.32	0.46
Italy	3.92	4.44	3.26
Japan	1.29	0.70	2.05
Netherlands	2.28	2.57	1.90
Norway	3.19	3.72	2.51
New Zealand	1.66	1.58	1.77
Portugal	2.83	2.69	3.02
Spain	2.59	1.95	3.42
Sweden	1.51	2.25	0.55
Switzerland	2.08	2.34	1.75
United Kingdom	0.55	0.03	1.22
United States	0.85	0.84	0.87
Czech Rep,	3.30	4.08	2.31
Hungary	2.94	3.62	2.06
Korea	2.33	2.47	2.16
Mexico	1.71	1.70	1.72
Poland	4.25	5.07	3.20
Turkey	3.30	3.55	2.99

(1) Computed using weights in Table 5. Due to data problems, the weights were estimated based on the detailed indicators for countries above the line.

III.   RESULTS AND ANALYSIS

38.   Three types of summary indicators of product market regulation were obtained using the methodology outlined above: the indicators by sub-domain of regulation, which score countries along the factors identified through factor analysis within each regulatory domain; the indicators by regulatory domain, which result from the aggregation of the sub-domain indicators; and the overall indicators, which result from the aggregation of the indicators by domain. This approach conferred a pyramidal structure to the indicators of both product market regulation. It is important to stress that the resulting taxonomies of regulations by sub-domain are data-based, while regulatory domains were determined *a priori*.

39.   The statistical analysis was performed on a subset of 21 OECD countries, excluding the new central and eastern European members, Korea, Mexico and Turkey. There were two main reasons for restricting the sample. First, data on several important regulatory provisions were missing for many of the new members.[21] Second, some of these countries introduced excessive heterogeneity in the data being outliers in several of the detailed indicators used in the statistical analysis. The discussion below focuses on in-sample countries only. However, point and interval estimates of the summary indicators are shown in the Annex for all OECD countries. Point estimates of the product market indicators for the out-of-sample countries were obtained using the weights estimated on the core set of countries and replacing missing values of one or more detailed indicators by the average of the values taken by the other indicators in the same domain. Interval estimates were obtained by assigning extreme values to the missing data.[22]

III.1   The summary indicators

40.   In the product market, the aggregation procedure yielded the pyramid of indicators shown in Figure 3. At each level of the pyramid, the summary indicators described in the figure aggregate the lower-level (more detailed) indicators using weights estimated from factor analysis.

41.   Regulatory provisions were classified as inward-oriented or outward-oriented, depending on whether they are directed at domestic or foreign operators. Inward-oriented policies were subdivided according to two different criteria. The first criterion, which may be called "thematic", maps the detailed indicators into measures aimed at establishing various forms of state control on economic activities (state control domain); and provisions resulting in impediments to entrepreneurial activity (barriers to entrepreneurship domain). The second criterion, which may be called "functional", maps the detailed indicators into administrative and economic regulations.

---

21.   The lack of secondary information has left a small margin of uncertainty also for some of the countries included in the analysis (Canada, Ireland and Portugal), which however is unlikely to change the individual country rankings in any significant way.

22.   For instance, a country may have failed to respond to a yes/no question included in the definition of a detailed indicator. In this case, the detailed indicator and the corresponding summary and overall indicators were computed twice, assuming a yes answer and a no answer, respectively. This provided lower and upper bounds for each of the indicators.

42.　　　Looking first at the "thematic" criterion for classifying inward-oriented policies, exploratory factor analysis was used to identify sub-domains of regulation within the state control and barriers to entrepreneurship domains and to extract the weights used to construct the summary indicators of inward policies. The resulting structure of the state control domain was described in detail in the previous section. The analysis made it possible to identify two sub-domains: public ownership of business enterprises; and the involvement of the state in the operation of private businesses.

Figure 3. **Taxonomy of regulations**
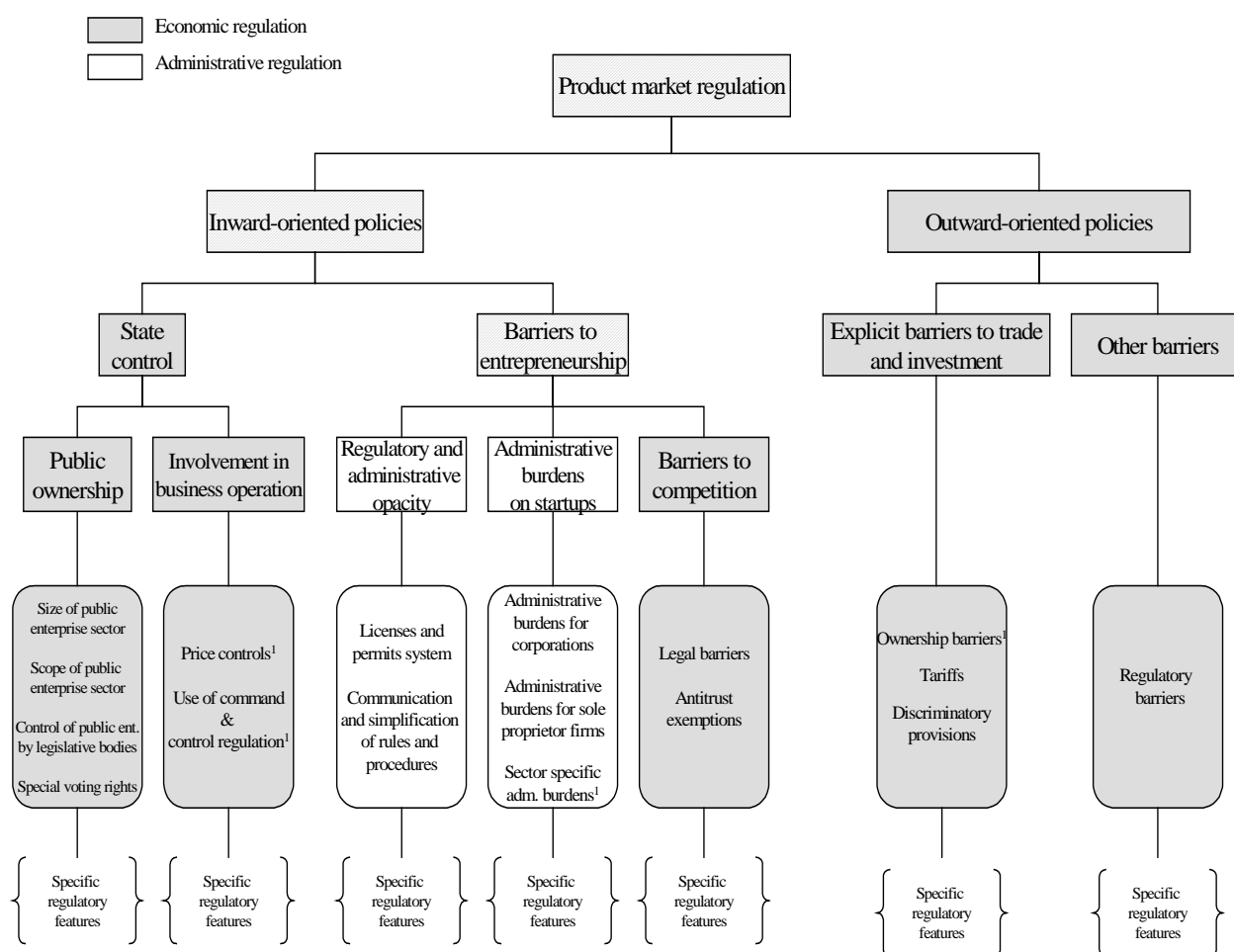
1. Includes sector specific information on road freight, air transport, retail distribution and some telecommunications services.

43.　　　The barriers to entrepreneurship domain comprised seven detailed indicators. These showed strong correlation patterns and identified three underlying factors, which account for almost 75 per cent of the overall cross-country variance in the detailed indicators (Table 7). The corresponding sub-domains of regulation were interpreted as (i) administrative burdens on start-ups (including burdens at both the economy-wide and sectoral levels); (ii) regulatory and administrative opacities (including the features of the licenses and permits system and the communication and simplification of rules and procedures); and (iii) barriers to competition (including legal limitations on the number of competitors and exemptions to antitrust provisions for public enterprises or state-mandated actions). In contrast with the analysis of state control, after the rotation of factors all the detailed indicators could be unequivocally attributed to one (and

only one) of the sub-domains of regulation identified by the estimated factor loadings. While the detailed indicators enter the first two factors with roughly equal weights, the weight attributed to antitrust exemptions in the third factor is larger than the weight of legal limitations on the number of competitors, reflecting its larger variance across the countries included in the sample. Similarly, the relatively small weight attributed to barriers to competition (0.21) in the summary indicator of barriers to entrepreneurship can be explained by the relatively small cross-country variance of the subset of detailed indicators included in the three sub-domains.[23]

Table 7. Barriers to entrepreneurship: results of factor analysis (1)

	Factor 1		Factor 2		Factor 3	
Interpretation	Administrative burdens on startups		Regulatory and administrative opacity		Barriers to competition	
	Factor loadings	Weights of variables in factor (2)	Factor loadings	Weights of variables in factor (2)	Factor loadings	Weights of variables in factor (2)
Administrative burdens for corporation	0.91	0.33	-0.15	0.01	-0.02	0.00
Sector specific administrative burdens	0.89	0.32	-0.03	0.00	0.10	0.01
Administrative burdens for sole proprietor firms	0.84	0.28	0.24	0.04	0.09	0.01
Licence and permits system	-0.16	0.01	0.89	0.50	-0.14	0.02
Communication and simplification of rules and procedures	0.18	0.01	0.80	0.41	0.22	0.04
Antitrust exemptions (3)	-0.11	0.00	0.18	0.02	0.85	0.65
Legal barriers	0.36	0.05	-0.18	0.02	0.55	0.27

Weight of factors in summary indicator (3)		0.48		0.30		0.21

Selection criteria :
Eigenvalues		2.59		1.61		1.01
Total variance explained			74.28			

Test-statistics
Bartlett's test of sphericity

	Chi-2	43.77
	Df	21

(1) Based on rotated component matrix
(2) Normalised squared factor loadings
(3) Normalised sum of squared factor loadings

44.   Turning to the mapping based on the "functional" criterion, factor analysis was used to identify sub-domains and extract weights relevant for, respectively, the economic and administrative regulations. The domain of economic regulations included eight detailed indicators (the state control ones and the indicators of legal barriers to entry and antitrust exemptions). Indicators in this set are strongly correlated

---

23.   The standard deviation of country scores in the barriers to competition sub-domain is roughly half the size of the standard deviation in the other two sub-domains (see Annex, Table A3.2).

and identified three main underlying factors explaining 65 per cent of the total cross-country variance in the data (Table 8). The corresponding sub-domains could be interpreted as (i) the regulation of economic structure (including the size and scope of public ownership, legal barriers to entry and control of public enterprises by the legislature); (ii) the regulation of firm behaviour (including command and control regulations and special voting rights); and (iii) the regulation of competition (including antitrust exemptions and price controls). The largest weight in aggregating these sub-domains into the summary indicator of economic regulation were attributed to the regulation of economic structure and, within this sub-domain, the largest weights were assigned to public ownership and legal barriers.

Table 8. Economic regulation: results of factor analysis (1)

	Factor 1		Factor 2		Factor 3	
Interpretation	Regulation of economic structure		Regulation of economic behaviour		Regulation of competition	
	Factor loadings	Weights of variables in factor (2)	Factor loadings	Weights of variables in factor (2)	Factor loadings	Weights of variables in factor (2)
Legal barriers	0.83	0.32	-0.13	0.01	-0.27	0.06
Scope of public enterprise sector	0.79	0.29	0.35	0.07	0.14	0.02
Size of public enterprise sector	0.61	0.17	0.22	0.03	0.28	0.06
Control of public entreprises by legislative bodies	0.58	0.16	0.30	0.05	0.17	0.02
Use of command & control regulation	0.14	0.01	0.79	0.35	-0.12	0.01
Special voting rights	0.20	0.02	0.76	0.33	0.14	0.02
Antitrust exemptions (3)	0.20	0.02	0.11	0.01	0.80	0.50
Price controls	0.13	0.01	0.54	0.16	-0.64	0.32
Weight of factors in summary indicator (3)	0.41		0.34		0.25	

Selection criteria :			
Eigenvalues	2.82	1.40	0.99
Total variance explained		65.08	
Test-statistics			
Bartlett's test of sphericity	Chi-2	39.12	
	Df	28.00	

(1) Based on rotated component matrix
(2) Normalised squared factor loadings
(3) Normalised sum of squared factor loadings

45.   The five detailed indicators belonging to the administrative domain were associated to two underlying factors (explaining almost 80 per cent of the overall variance): administrative burdens on business start-ups (including economy-wide and sector-specific burdens) and regulatory and administrative opacity (including the features of the license and permit system and the communication and simplification of rules and procedures) (Table 9). The first factor was found to explain the bulk of the variance in the data and, therefore, was assigned a much larger weight in the construction of the summary indicator of

administrative regulation, while within each sub-domain the indicators were loaded in a roughly similar way.

Table 9. Administrative regulation: results of factor analysis (1)

Interpretation	Factor 1 Administrative burdens of startups		Factor 2 Regulatory and administrative opacity	
	Factor loadings	Weights of variables in factor (2)	Factor loadings	Weights of variables in factor (2)
Sector specific administrative burdens	0.90	0.34	-0.06	0.00
Administrative burdens for corporation	0.90	0.34	-0.15	0.01
Administrative burdens for sole proprietor firms	0.84	0.29	0.24	0.04
Licence and permits system	-0.18	0.01	0.87	0.49
Communication and simplification of rules and procedures	0.18	0.01	0.84	0.46
Weight of factors in summary indicator (3)	0.61			0.39
Selection criteria :				
Eigenvalues	2.44			1.55
Total variance explained			79.70	
Test-statistics				
Bartlett's test of sphericity Chi-2			37.97	
Df			10.00	

(1) Based on rotated component matrix

(2) Normalised squared factor loadings

(3) Normalised sum of squared factor loadings

46.   The analysis of the four detailed indicators describing outward policies was somewhat less satisfactory (Table 10). Due to the limited country coverage of some of the basic data, the focus had to be restricted on a few dimensions of outward-oriented regulations, not necessarily fully representative of the countries' trade and investment policies. In addition, the cross-country variance of the detailed indicators was much smaller than in the other domains of regulation (see below). As a result, little correlation was found among the indicators (the Bartlett test could not reject the null that the correlation matrix is an identity matrix) and the identification of the underlying factors proved to be more difficult than in the other two domains. Two factors were extracted, explaining around 70 per cent of the variance in the data. The first factor, interpreted as explicit barriers, has salient loadings on average tariffs, discriminatory procedures and restrictions to foreign participations in domestic companies, which also has the largest weight. The second factor, generically interpreted as other barriers, has a salient loading only on the detailed indicator of regulatory barriers, reflecting its relatively low correlation with the other detailed indicators. However, tariffs and discriminatory procedures also have sizeable loadings in this factor,

reflecting difficulties in reaching a simple structure even after rotation on the basis of the available data. The contribution of the two sub-domains to the summary indicator of barriers to trade and investment is roughly similar, with a slightly larger weight attributed to explicit barriers.

Table 10. Barriers to trade and investment: results of factor analysis (1)

	Factor 1		Factor 2	
Interpretation	Explicit barriers		Other barriers	
	Factor loadings	Weights of variables in factor (2)	Factor loadings	Weights of variables in factor (2)
Ownership barriers	0.84	0.45	0.27	0.06
Tariffs	0.69	0.31	-0.35	0.10
Discriminatory procedures	0.61	0.24	-0.44	0.16
Regulatory barriers	-0.03	0.00	0.90	0.68
Weight of factors in summary indicator (3)		0.56		0.44
Selection criteria :				
Eigenvalues		1.73		1.02
Total variance explained			68.70	
Test-statistics				
Bartlett's test of sphericity	Chi-2		6.63	
	Df		6.00	

(1) Based on rotated component matrix
(2) Normalised squared factor loadings
(3) Normalised sum of squared factor loadings

III.2   Cross-country comparison

47.   Using the set of weights extracted by means of factor analysis OECD countries were scored along each domain and sub-domain of regulation. For reasons of brevity, the following discussion is restricted to the scoring by domain, but the interested reader will find the detailed scores by sub-domain in the Annex (Tables A3.1-A3.8). By examining the country scores at various levels of aggregation (e.g. domain, sub-domains and detailed indicators), it is generally possible to understand the position of each country along the summary indicators.

48.   Figure 4 shows the values of the summary indicators of inward-oriented policies classified according to both the "thematic" criterion (Panel A) and the "functional" criterion (Panel B). Note first that the range of values taken by the indicators across countries is narrower than the initial 0-6 scale on which individual regulatory provisions were ranked. Although this is partly due to aggregation effects, whereby countries are ranked differently on different individual provisions, the important policy implication is that

relative to a worst case scenario, in which regulation would effectively stifle market competition, the subset of OECD countries considered in the figure appears to be comfortably placed.[24]

49.   Countries differ much more in the degree of state control than in the extent of barriers to entrepreneurship, partly reflecting differences in the timing and scope of privatisation and in the extent to which past regulatory reform has been successful in shifting from "command and control" to "incentive-based" regulations.[25] Australia, Ireland and especially the United Kingdom are reported as having both relatively low state control and few barriers to entrepreneurship. Also the United States have very low scores on these indicators, though barriers to entrepreneurship appear to be slightly higher than in the latter countries, due to some complexities in administrative procedures (such as the lack of one-stop shops for obtaining licenses and permits) and antitrust exemptions (e.g. for state-mandated action and public enterprises). [26] New Zealand appears to have few barriers to entrepreneurship but a somewhat higher degree of state control, mainly reflecting the existence of special voting rights in privatised enterprises and legal constraints to the sale of remaining public enterprises. At the other end, Italy is assessed as having both the tightest state control and the highest level of barriers to entrepreneurship: despite extensive privatisation and recent regulatory reforms, state-controlled enterprises are still numerous and recourse to "command and control" regulations and price controls in competitive industries (such as road freight and, to a lesser extent, retail distribution) is frequent relative to other countries; access to a large number of industries is also restricted by laws and regulations that limit the number of competitors, and administrative burdens on start-ups remain significant. Similarly, Greece has a high degree of state intervention in business sector activities related to a particularly strong recourse to command and control regulations and price controls; and France has relatively high barriers to entrepreneurship mainly caused by the complexity of administrative procedures and relatively heavy administrative burdens on business start-ups.

---

24. This conclusion would be magnified by the inclusion in the sample of some of the new members, whose regulatory environments are often more restrictive than in the countries included in the sample (see Annex, Table A3.7).

25. The public ownership indicator covers privatisations implemented by 1998. In some countries, such as France, Italy and Greece, important sales of public assets have been carried out in 1999.

26. The omission of financial and land-use regulations might bias the indicator of barriers to entrepreneurship upwards in the United States, relative to other countries.

Figure 4. **Inward-oriented regulations[1]**

A. Thematic

State control

Barriers to entrepreneurship

B. Functional

Economic regulation
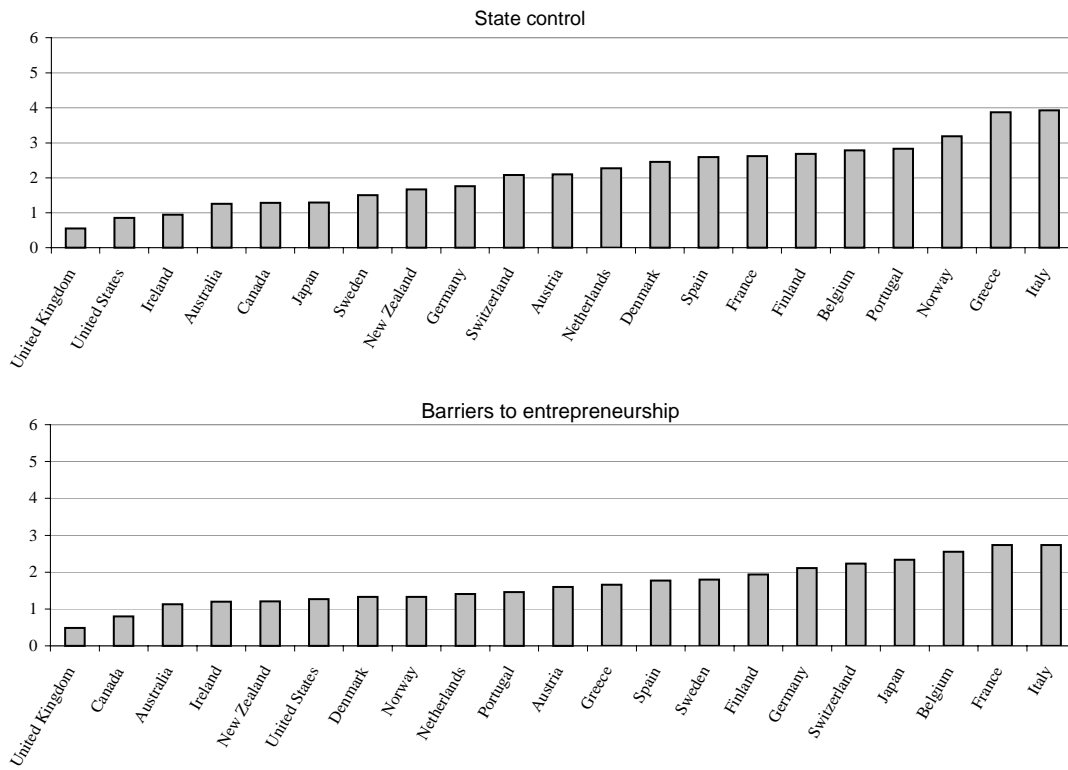
Administrative regulation
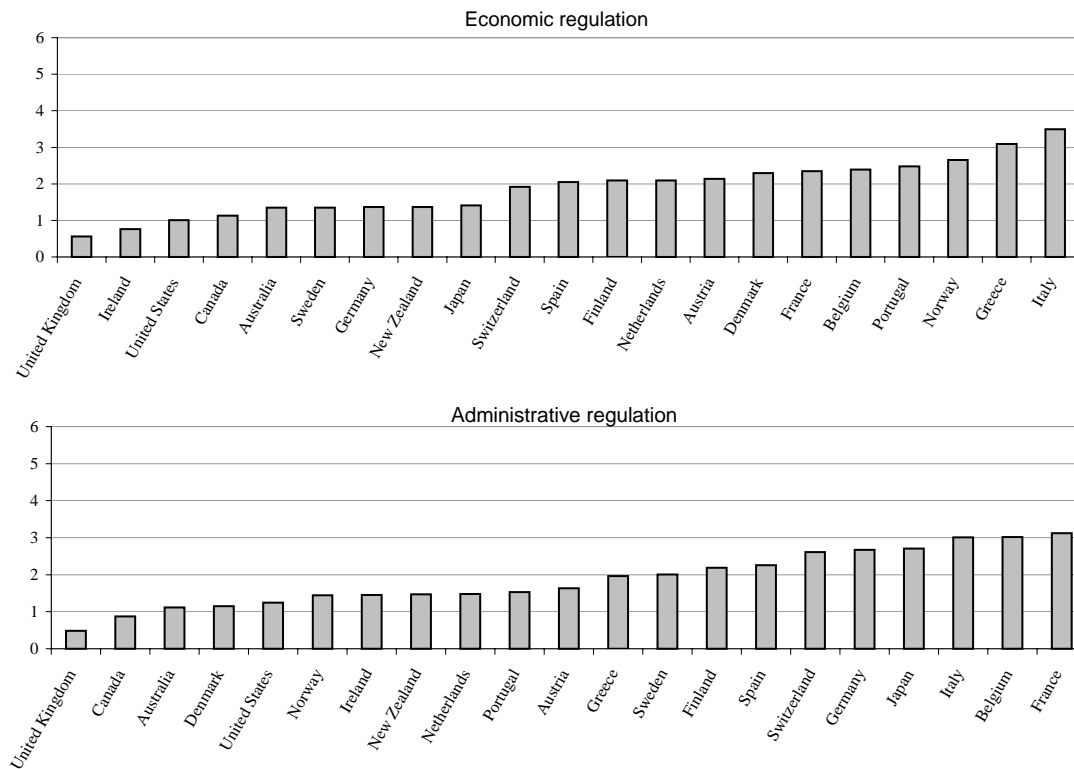
1. The scale of indicators is 0-6 from least to most restrictive.

50.   The respective roles of economic and administrative regulations in shaping the inward-oriented regulatory environments are illustrated in Panel B of Figure 4. As mentioned above, this alternative breakdown is based on the same principles as the previous one, but is based on a different aggregation of the detailed regulatory indicators included in the domain of inward-oriented regulations. The United Kingdom remains the least restrictive country on both counts, but economic and administrative regulations appear to be rather low also in other countries such as Ireland, the United States, Canada and Australia. The heaviest administrative regulations are found in France, Belgium, Italy and, to a lesser extent, Japan and Germany. Interestingly, there are groups of countries in which the assessment of the overall impact on competition of economic regulation is broadly similar (e.g. in Australia, Sweden, Germany, New Zealand and Japan as well as in some other continental European countries). However, the scores of these countries in the factor-specific and detailed indicators of regulation sometimes differ significantly, suggesting the presence of offsetting regulatory approaches within a same country. For instance, differences in the degree of state control may sometimes be offset by differences in the extent of legal barriers to competition (see below).

51.   The country scores obtained using the "thematic" mapping of the detailed indicators were used to estimate an overall indicator of product market regulation (Table 11). Unsurprisingly, the factor analysis performed on the summary indicators of state control, barriers to entrepreneurship and barriers to trade and investment separated out inward from outward-oriented policies, confirming the *a priori* classification of regulatory domains, and suggested that the three summary indicators ought to have roughly equal weights in assessing the overall friendliness to competition of product market regulation.

Table 11. Product market regulation: results of factor analysis (1)

	Factor 1		Factor 2	
Interpretation	Inward-oriented policies		Outward-oriented policies	
	Factor loadings	Weights of variables in factor (2)	Factor loadings	Weights of variables in factor (2)
Barriers to entrepreneurship	0.88	0.51	-0.22	0.05
State control	0.87	0.49	0.26	0.06
Barriers to trade and investment	0.01	0.00	0.98	0.89
Weight of factors in summary indicator (3)		0.59		0.41
Selection criteria :				
Eigenvalues		1.53		1.07
Total variance explained			86.7	
Test-statistics				
Bartlett's test of sphericity	Chi-2		7.73	
	Df		3.00	

(1) Based on rotated component matrix
(2) Normalised squared factor loadings
(3) Normalised sum of squared factor loadings

52.	Figure 5 shows the resulting overall indicator of product market regulation as well as its two constituent parts: the summary indicator for inward-oriented policies, obtained as (close to) the simple average of the indicators of state control and barriers to entrepreneurship (i.e. applying the weights in Table 11), and the summary indicator of barriers to international trade and investment. Although all countries are placed well below the theoretical top value of the scale, the indicators suggest that the friendliness of regulatory environments to product market competition still varies substantially across countries, in particular for inward-oriented regulations. This is unsurprising since outward-oriented ones are increasingly determined by multilateral agreements and supranational institutions. The United Kingdom, Ireland, Australia, the United States and New Zealand are estimated to have the least restrictive overall regulatory environments. However, while the first three countries have the most liberal regulatory stance both at home and *vis à vis* their commercial partners, the United States and New Zealand are assessed as having a slightly tighter outward orientation, due to the presence of restrictions to foreign ownership and discriminatory procedures, respectively. By contrast, the regulatory environment appears to be less friendly to competition in Italy, Greece and Norway. In Greece and especially Italy this largely reflects a restrictive domestic environment, while in Norway outward-oriented policies appear to be more restrictive than in most other countries included in the analysis. With the exception of France and Belgium, in which the domestic environment is also relatively restrictive, and Canada, which is estimated to have outward-oriented policies as restrictive as Norway, the remaining countries tend to pursue broadly similar regulatory stances in each of the two broad policy areas, though with a tendency for some Northern and Central European countries (the Netherlands, Austria, Denmark and Germany) to have a relatively liberal regulatory approach in both.

Figure 5. **Overall regulatory approaches**[1]

Product market regulation

Inward-oriented policies

Outward-oriented policies
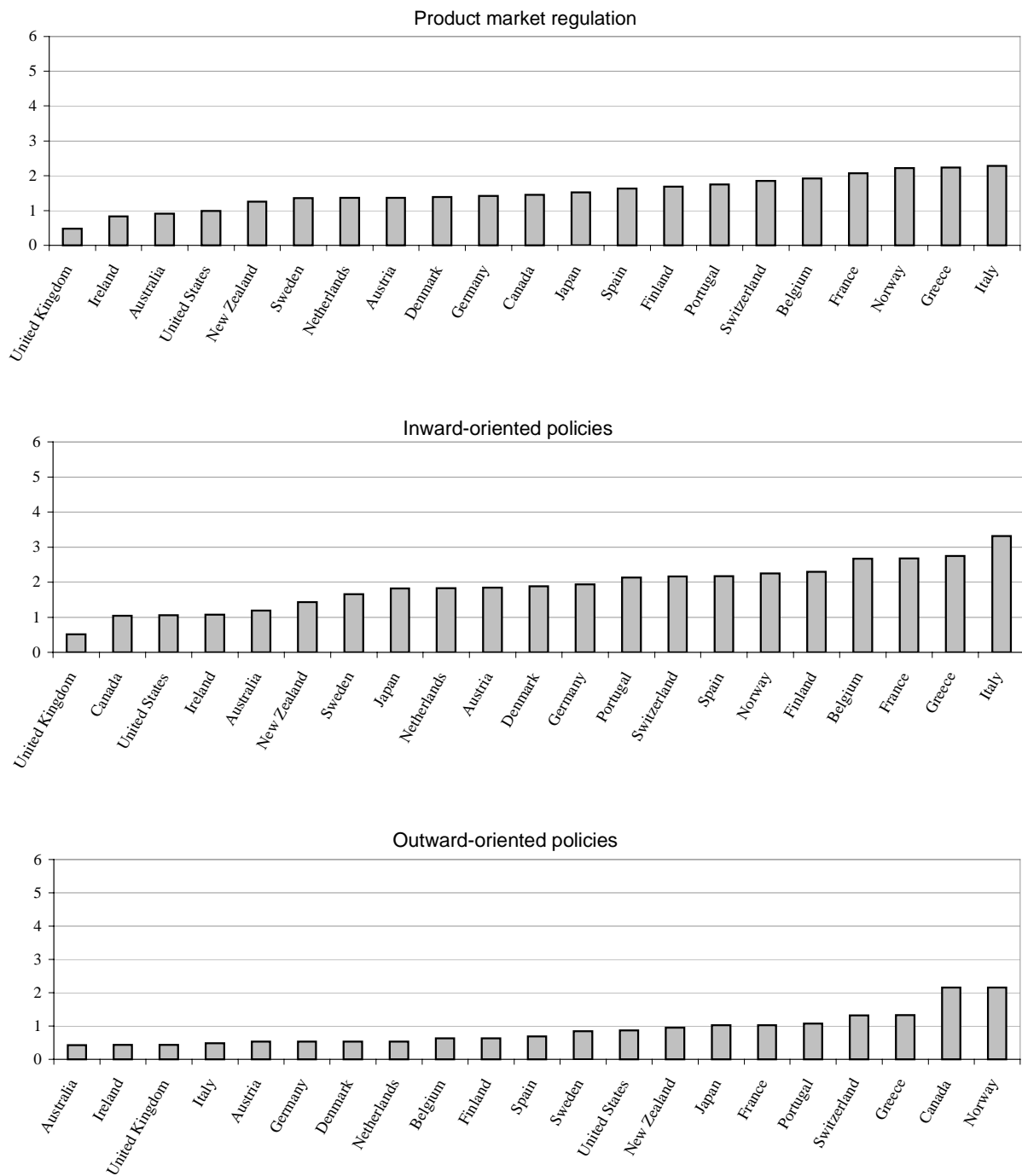
1. The scale of indicators is 0-6 from least to most restrictive.

53.   Analysing the summary indicators of inward and outward-oriented policies by means of cluster analysis, three patterns of overall product market regulation can be established (Figure 6) [27]: an English-

---

27. The figure presents the dendrogram resulting from the cluster analysis. The dendrogram is a graphical representation of all the possible groups of similar observations that can be obtained from cluster analysis. The graph is tree-structured and should be read from left to right (roots to top). In the beginning, the number of

speaking group (comprising the United Kingdom, Ireland, Australia, the United States and New Zealand) characterised by a combination of relatively liberal inward and outward-oriented regulatory policies; a group including most continental European countries and Japan, characterised by relatively liberal outward-oriented policies and a range of more interventionist and restrictive inward-oriented policies; and an idiosyncratic group composed of countries that have either widely different inward- and outward-oriented policies, such as Italy (inward-restrictive, outward-liberal) and Canada (inward-liberal and outward-restrictive), or a relatively restrictive approach in both (such as, with different characteristics, Greece and Norway).

Figure 6. **Country clusters based on the summary indicators of product market regulations [1]**
(dendrogram)[2]
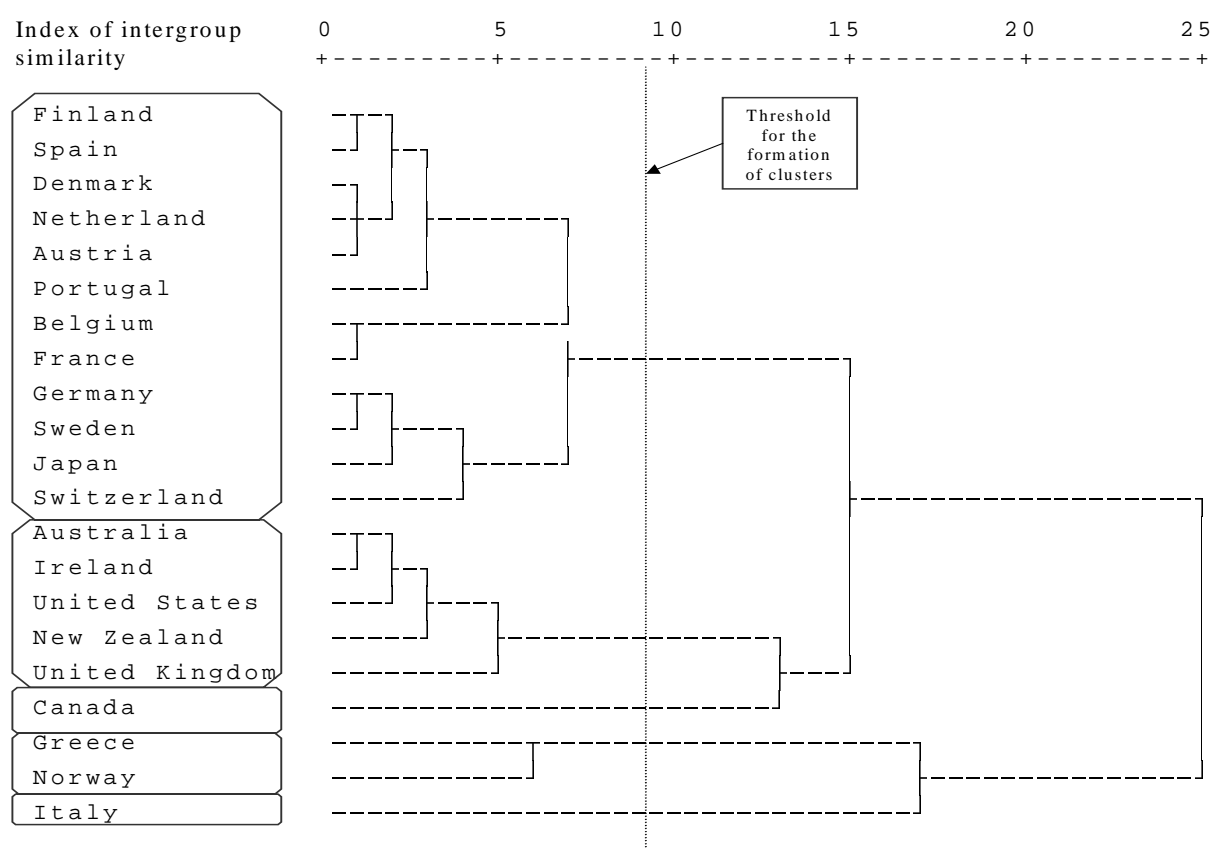
1. Clustering based on the indicators of state control, barriers to entrepreneurship, barriers to trade and investment.
2. Figure should be read left to right. The top index measures the similarity between countries belonging to the same cluster (from most to least similar).

groups is equal to the number (N) of observations (the roots). Then the country pair with the lowest distance forms the first group. In the following steps, pairwise comparisons between all remaining countries and between these and the first group are performed and new groups are formed. The points at which two countries (or groups of countries) join are called knots and are numbered progressively from N to (N + K), where (N + K) is the total number of groups and the (N + K)th knot corresponds to the group containing all observations (the top of the tree). As hierarchical clustering unfolds, an index of inter-group similarity is calculated at each juncture. The higher the index the more dissimilar are the observations contained in the groups being joined. Since eventually all countries are grouped together, at some knot rather disparate groups will be forced to join, implying a large jump in the index. The optimal number of groups is often situated at such junctures.

III.3 Patterns of regulation

54. Are the approaches taken by OECD countries in different regulatory areas interrelated? This question is relevant to the extent that the restrictive impact on product market competition of one set of regulations can be reinforced by the presence of restrictive regulations in another policy area - or vice versa. At the same time, the consequences of different sets of regulations on the degree of product market competition may be parallel, so that reforming only one set may not have much effect on the behaviour of private agents. Figures 7 and 8 provide some information on the relationships between inward and outward-oriented policies, economic and administrative regulations within the category of inward-oriented policies, and (at a yet more detailed level) the scope of state control and legal barriers to competition.

55. Regulatory policies that restrict competition at home are not necessarily matched by relatively closed attitudes towards international trade and investment (Figure 7, top panel). The absence of a relation between inward and outward-oriented regulatory policies partly reflects economic integration in the OECD area. All countries participate in multilateral agreements and/or supranational institutions that impose on signatories and members high standards of openness to trade and international investment. However, many domestic regulations are outside the reach of these agreements and institutions. For instance, despite the role played by European institutions in seeking to reduce national obstacles to internal European trade, there are a number of areas (such as legal barriers to entry in certain service activities, regulations constraining the provision of business and personal services and administrative regulations) that remain largely under the realm of domestic policies that are often unfriendly to competition. The tension between market-oriented outward policies and relatively restrictive inward policies is particularly striking in some European countries, such as Belgium and especially Italy.

Figure 7. **Regulatory approaches across countries[1]**

Inward and outward oriented policies
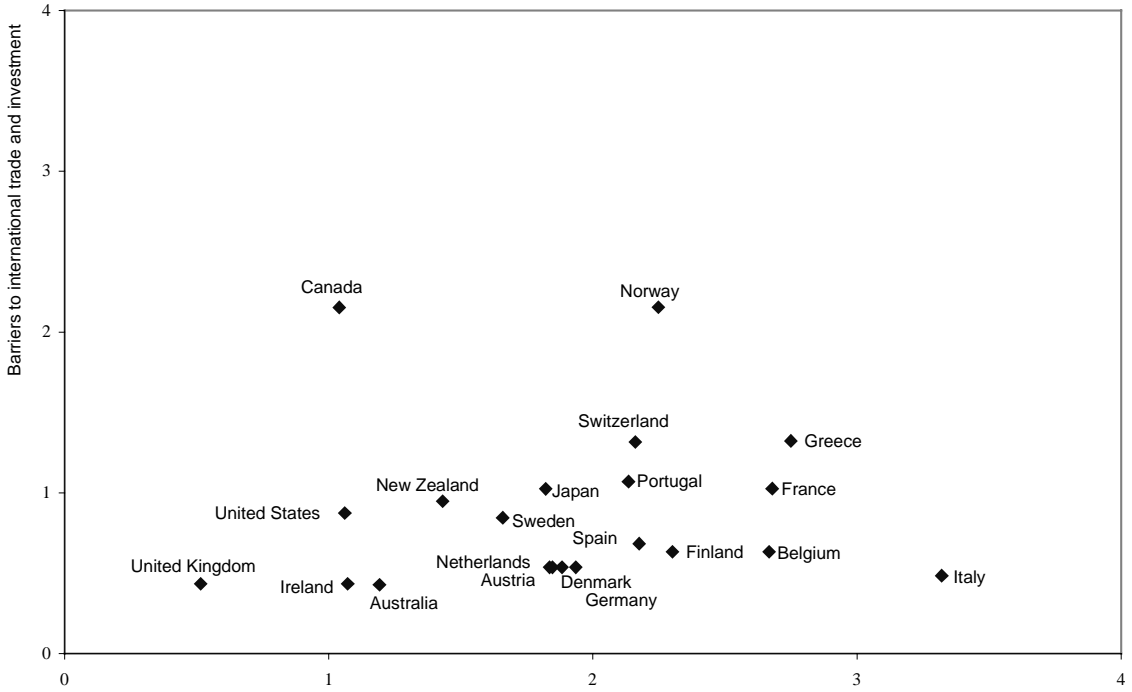
Correlation coefficient 0.06
t-statistic 0.26

Inward-oriented policies

Economic and administrative regulation
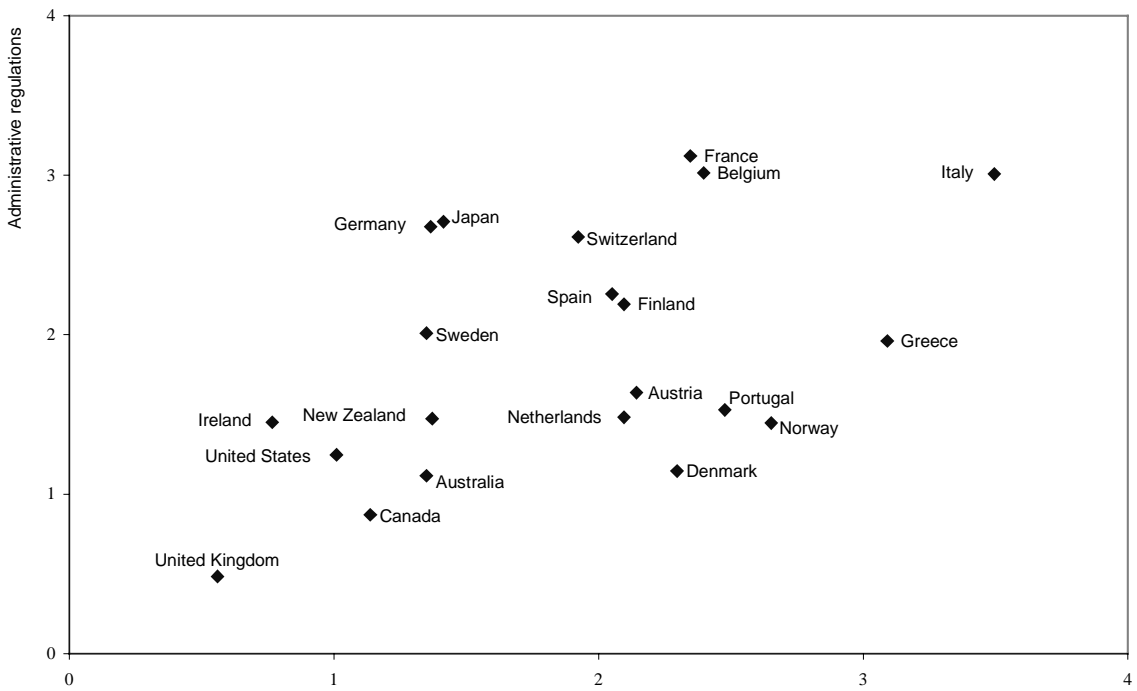
Correlation coefficient 0.48
t-statistic 2.42

Economic regulations

1. The scale of indicators is 0-6 from least to most restrictive.

56.   Countries that have tight inward-oriented economic regulations also tend to impose burdensome administrative procedures on business enterprises (Figure 7, bottom panel). Heavy reliance on command and control regulation and mandated market structure increases the complexity of the regulatory and administrative framework that businesses have to face. This suggests that reforms which make market access easier and rely increasingly on market-based mechanisms instead of coercive rules may also bring about a simplification of administrative procedures and a reduction in administrative burdens, thus enhancing their positive effects on product market competition.

57.   Another interesting question is whether a high degree of state control in a business sector tends to be associated with laws and regulations that create barriers to competition. Figure 8 explores this issue by looking at the cross-country frequencies of public ownership and legal barriers to competition in selected business industries. Except for financial institutions, where public ownership is frequent but legal barriers to entry are not, industries in which the state is involved as an owner also tend to have market access restricted by laws and regulations (top panel). In several industries legal barriers to entry go hand in hand with large state-controlled incumbents, not only in the presence of clear natural monopoly components (such as in railways and electricity) but also where natural monopoly characteristics are either less evident (*e.g.* communications - including broadcasting) or lacking (*e.g.* air transport). The domination of an (otherwise) competitive industry by state-controlled enterprises often creates barriers for new entrants that may have the same effect on product market competition as explicit legal limitations on the number of competitors, especially when public enterprises are exempted from antitrust provisions. Thus, the simultaneous presence of state-controlled enterprises and legal barriers to competition in an inherently competitive industry might reinforce the effects of the two types of interventions on competition.

Figure 8. **State control and legal barriers to competition**

Scope of public entreprise sector and legal barriers to entry by industry in the OECD area

Correlation coefficient 0.74
t-statistic 5.09
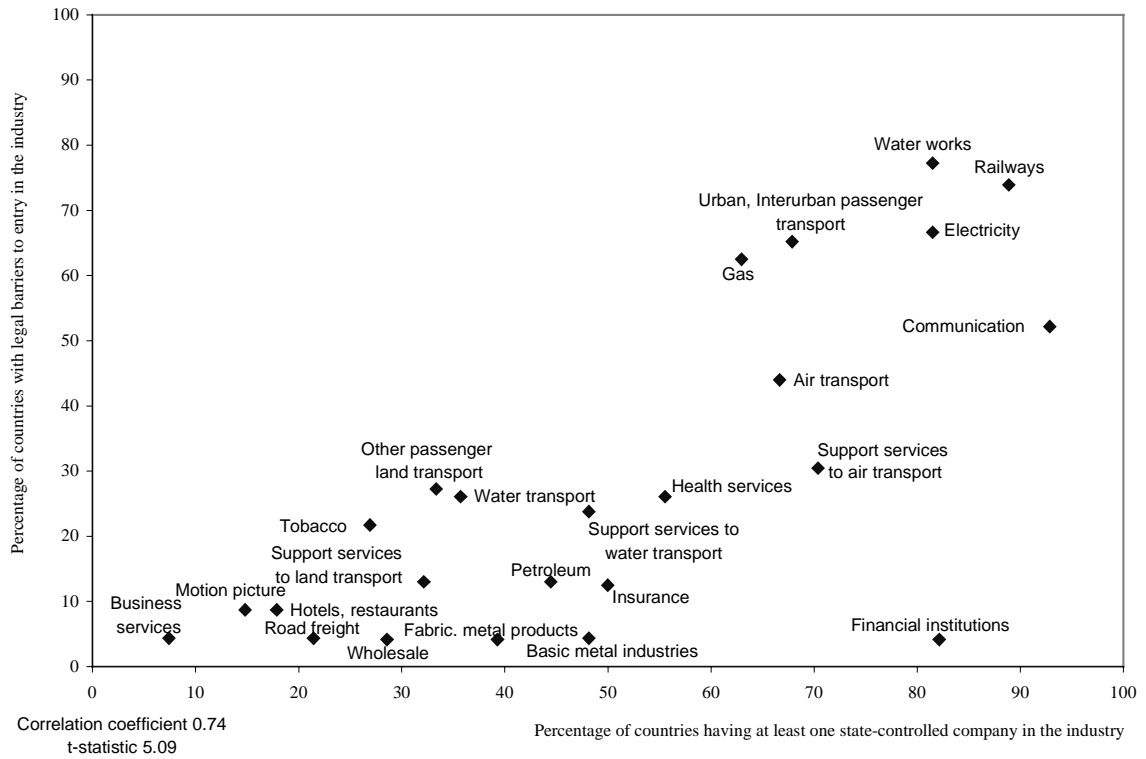
Scope of public entreprise sector and legal barriers to entry by country[1]

Correlation coefficient 0.54
t-statistic 2.83
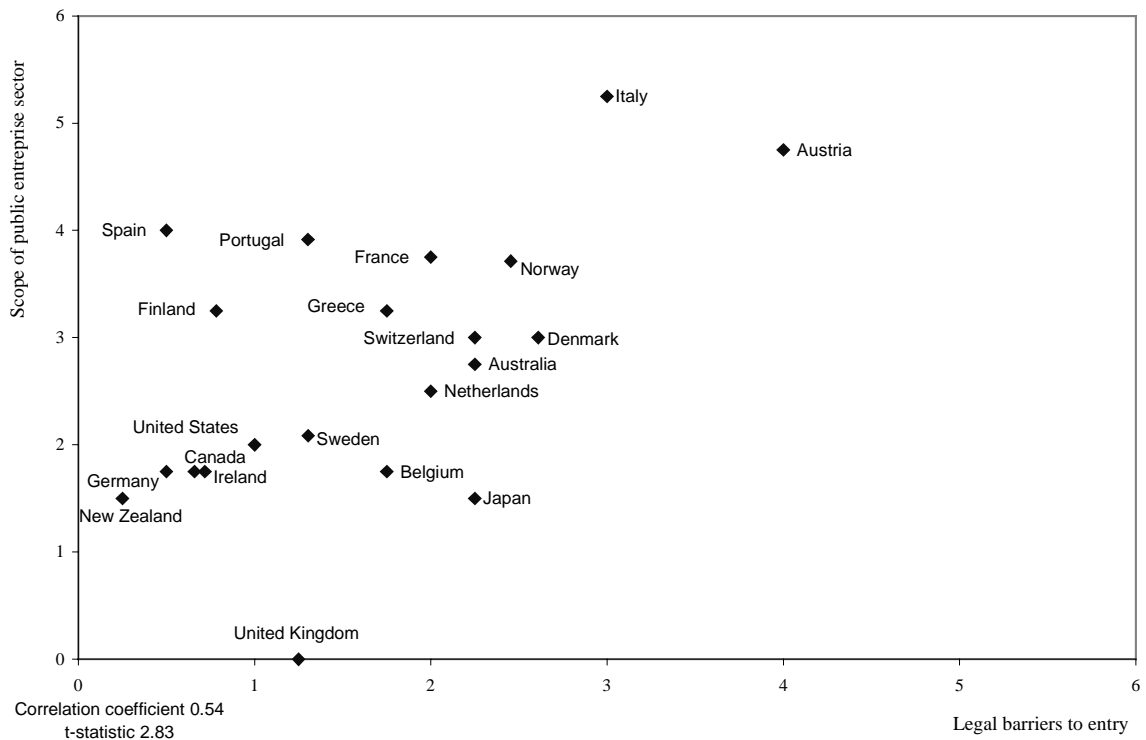
1. The scale of indicators is 0-6 from least to most restrictive.

58.   At the country level (bottom panel), the evidence of an association between public ownership and legal barriers to entry is weaker. The two indicators plotted in the figure summarise in each country the range of the industries covered in this study in which the government controls at least one company and in which laws or regulations limit the number of competitors. While some countries make frequent use of both kinds of regulatory interventions (notably Italy, Austria and Norway), other countries rely on either one or the other: Spain and Portugal have significant public ownership but few barriers, while Japan has low public ownership and relatively more widespread barriers. Economies where both public ownership and barriers to competition are widespread (even when not in the same industries) are likely to be characterised by a less competitive overall product market environment.

IV.   AN EXTENSION TO EMPLOYMENT PROTECTION LEGISLATION

59.   The technique used to construct summary indicators of product market regulations can be extended to analyse labour market regulation. This is, however, beyond the scope of this paper. For illustrative purposes, one specific aspect of labour market regulations -- the employment protection legislation (EPL) -- is considered.

IV.1   The detailed indicators of employment protection legislation

60.   Different indicators have been used in the literature to assess the strictness of employment protection legislation provisions. Perhaps the best-known measure is from Lazear (1990): the statutory entitlement (in months of pay) in case of no-fault individual dismissal for economic reasons.[28] Grubb and Wells (1993) sought to widen the definition of employment protection legislation against dismissal by identifying three elements of the EPL system: 1) restrictions on dismissals of workers with regular contracts; 2) restrictions on the use of temporary forms of employment contracts; and 3) restrictions on working hours. Their summary indicators of the strictness of EPL regulations focused on EC countries in the late 1980s, but the country coverage was subsequently extended to the former EFTA countries and other non-European countries in the OECD Jobs Study (1994). Formal regulations on hiring and firing may not fully account for the difficulty of dismissal if they are not properly enforced.[29] For this reason, other researchers have exploited indexes based on surveys of employers. One such index, based on surveys conducted by the International Organisation of Employers (1985), classifies regulatory constraints as insignificant, minor, serious or fundamental for both regular and fixed-term contracts.

61.   In this paper we use raw data published in the OECD Employment Outlook 1999 (see OECD, 1999): these data cover the first two aspects of the Grubb and Wells (1993) classification (i.e. regulations affecting regular and temporary workers); they are available for most OECD countries and refer to the situation in the late 1980s as well as in 1998. While the data on regulations in the product market were partly based on self-assessment by member countries, the EPL basic indicators were constructed on the

---

28. Lazear's original dataset included 20 countries for the 1956-84 period. Addison and Grosso (1996) have corrected this original database for errors and omissions.

29. Blanchard and Portugal (1998) discuss the case of Portugal where very tight regulations do not seem to affect significantly employment turnover.

basis of an in-depth review of existing regulations and laws affecting the hiring and firing of workers along the two dimensions of regular and temporary contracts.[30] However, in contrast with the procedure followed by Grubb and Wells (1993), the first assessment by the OECD was sent to the national administrations for checking and the final indicators reflect corrections or revisions suggested by them.

62.   The 15 detailed indicators of the strictness of employment protection legislation were grouped in two broad domains, one referring to provisions for workers with regular contracts and one referring to provisions affecting workers with fixed-term contracts or contracts with temporary work agencies (TWAs).

63.   Regulations on permanent employment cover:

-   *Procedural requirements* refer to the process that has to be followed from the decision to lay off a worker to the actual termination of the contract. They include: the delay before the notice of dismissal can start (for example, because there has to be a series of previous warnings); whether a written statement of the reasons for dismissal must be supplied; whether a third party (such as a works council or the competent labour authority) must be notified or consulted; and whether dismissal cannot proceed without the approval of a third party.

-   *Notice and severance pay* refer to three tenure periods beyond any trial period, dismissed on grounds of poor performance or individual dismissal, without fault. The tenure periods are: nine months; four years; and 20 years.[31]

-   *Prevailing standards of and penalties for "unfair" dismissals* includes the conditions that identify an unfair dismissal: when employers cannot demonstrate appropriate previous efforts to avoid the dismissal, or when social, age or job tenure factors have not been considered. It also includes the length of the trial period, because during this period a dismissal cannot be contested for its unfairness: the shorter the trial period the stricter is the regulation on unfair dismissal. Finally, account is taken of the fact that, in some cases, labour courts may require employers to reinstate a worker affected by an unfair dismissal, or award high compensation payments in excess of regular severance pay.

64.   Indicators of the stringency of EPL for temporary contracts focus on regulations for fixed-term contracts and for contracts under temporary work agencies. For both contracts, the following elements were considered:

-   "Objective" reasons under which a fixed-term (or a TWA) contracts could be offered.

-   The maximum number of successive renewals.

-   The maximum cumulated duration of the contract.

---

30. As stressed by Grubb and Wells (1993), the documentation on employment protection regulations is multidimensional and not always easy to discern. Statutory legislation is sometimes not clear or difficult to compare with that of other countries. Administrative extension of sectoral (industry-wide) collective agreements may imply that certain provisions (e.g. notice period in case of no-fault dismissal) negotiated between employers and employees in a given sector are automatically be made legally binding on employers who were not involved in the negotiation. Moreover, regulations sometimes leave the courts the responsibility for deciding important matters.

31. Notice and severance pay often differ for blue-collar and white-collar workers. In general both notice and severance payments tend to be higher for white-collar workers and for redundancies than for blue-collar workers. In this study we consider an average of regulations affecting the two categories of workers.

65.   Most English-speaking countries have always allowed the use of temporary contracts without any significant restrictions. Currently, some countries continue to list specific situations that may, however, go beyond "objective", time-limited tasks (e.g. business start-ups or workers in search of their first job). There are also significant differences on the maximum duration of fixed-term contracts. While in Canada, Ireland, the United Kingdom and the United States there are no limitations on the number of renewals, in a number of other countries this is only the case if separate valid "objective" reasons can be given for each new contract. In these cases, after successive renewals labour courts may be asked to examine the validity of the request for a further contract. In this respect, a number of countries have established rule of the game as concerns fixed-term contracts by setting by law the maximum number of renewals (e.g. Belgium, France, Germany and the Netherlands).

66.   The Annex presents the basic data and the detailed indicators of regulations for both permanent and temporary workers (Tables A1.1-A1.2 and A2.2.4-A2.2.5)[32]. For some countries, however, adjustments had to be made when the Employment Outlook offered only partial information with reference to the regulatory stance in the late 1980s. In some cases, information about significant reforms in the 1990-98 period was used to assess whether the 1998 indicators would also be appropriate for describing the situation in the late-1980s.

IV.2   The summary indicators of employment protection legislation

67.   Figure 9 presents the aggregation procedure for the indicators of employment protection legislation. The smaller number of basic indicators with respect to the broader set of indicators of product market regulations explains the simpler structure of the pyramid. Two separate families of regulations were considered: those referring to regular contracts and those referring to fixed-term contracts or contracts under temporary work agencies. Factor analysis was used to aggregate the detailed indicators of each domain into summary indicators of the strictness of regulation by domain, while the overall index of stringency of EPL was obtained by simply averaging the two summary indicators for regular and temporary contracts. The factor analysis was conducted on the 1998 regulatory indicators for 21 OECD countries for which most information was available. The weights obtained by the factor analysis were then used to construct summary indicators for 1998 as well as for the late 1980s. The economic interpretation of sub-domains identified in the two factor analyses is discussed below.

---

32. Tables A2.1.17-A2.1.18 provide the keys of conversion of the basic data into the detailed indicators of EPL.

Figure 9. Taxonomy of EPL regulations and pyramid of indicators
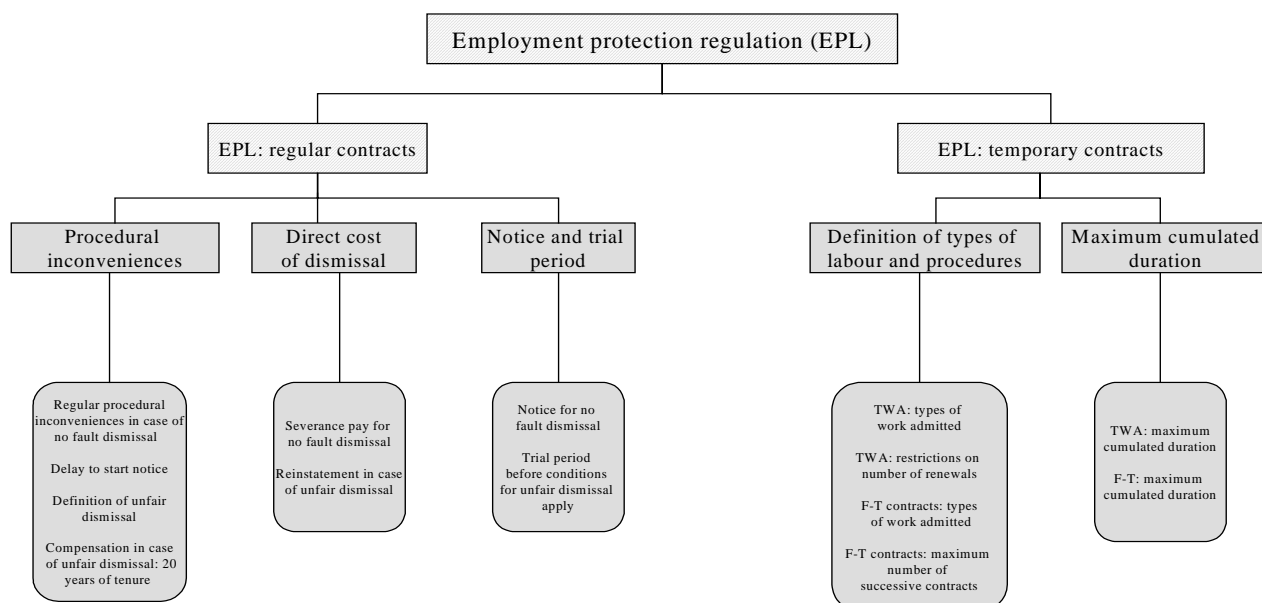
68.　　　Table 12 presents the results of factor analysis for regulation affecting regular contracts. Bartlett's test of sphericity suggests a strong correlation between the different detailed indicators, supporting the application of factor analysis to summarise their information.　Three main factors could be identified which explain more than 70% of total variance in the detailed indicators.　Moreover, the factors' rotation allocates quite well each detailed indicator to one main factor.　The first factor includes different aspects of procedural inconveniences in case of dismissal, but also the compensation in case of unfair dismissal for a worker with 20 years of tenure.　However, this latter factor has also a strong loading in the second factor that, indeed, refers more specifically to the direct costs of dismissal, including severance payments in case of no-fault dismissal and the costs of reinstatement in case of unjustified dismissal.　The third factor refers to the time involved in the dismissal procedure along two different dimensions: the notice period required for a no-fault dismissal, but also the trial period allowed before the standard rules of dismissal apply.

Table 12. EPL for regular contracts: results of factor analysis (1)

Interpretation	Factor 1 Procedural inconveniences		Factor 2 Direct cost of dismissals		Factor 3 Notice and trial period	
	Factor loadings	Weights of variables in factor (2)	Factor loadings	Weights of variables in factor (2)	Factor loadings	Weights of variables in factor (2)
Regular procedural inconveniences : Procedures	0.89	0.30	0.20	0.02	0.19	0.02
Regular procedural inconveniences : Delay to start the notice	0.85	0.28	-0.04	0.00	0.02	0.00
Difficulty of dismissal : Definition of unfair dismissal	0.80	0.25	0.13	0.01	0.27	0.05
Difficulty of dismissal : At 20 y	0.57	0.13	0.44	0.11	0.35	0.08
Severance pay for no fault individual dismissals	0.01	0.00	0.85	0.41	0.13	0.01
Difficulty of dismissal : Reinstatement	0.20	0.02	0.81	0.37	-0.07	0.00
Notice for no fault individual dismissals	0.24	0.02	-0.21	0.02	0.83	0.44
Difficulty of dismissal : Trial period	0.12	0.01	0.33	0.06	0.78	0.40
Weight of factors in summary indicator (3)	0.44		0.30		0.26	
Selection criteria : Eigenvalues	3.35		1.44		1.04	
Total variance explained	74.0					
Bartlett's test of sphericity Chi-2	53.8					
Df	28.00					

(1) Based on rotated component matrix
(2) Normalised squared factor loadings
(3) Normalised sum of squared factor loadings.

69.   Table 13 presents the factor analysis for regulations affecting temporary workers. Also in this case the test of sphericity suggests a strong correlation between the different detailed indicators. More than three-quarters of total variance in the sample is explained by two main factors.   The economic interpretation of the two factors is somewhat less clear-cut than in the case of regular contracts. The first factor includes the definition of the types of work that can be offered on a fixed-term basis or by temporary work agencies (TWA), as well as restrictions on the maximum number of renewals, under both types of contracts. The second factor focuses exclusively on the maximum cumulated duration of both fixed-term and TWA contracts. This second factor alone accounts for about one-third of the total variance in the sample, suggesting the importance of maximum cumulative duration in explaining cross-country differences in the evolution of temporary contracts.

Table 13. EPL for temporary contracts: results of factor analysis (1)

Interpretation	Factor 1 Procedures		Factor 2 Maximum duration	
	Factor loadings	Weights of variables in factor (2)	Factor loadings	Weights of variables in factor (2)
Temporary work agency (TWA) employment : Type of work for which TWA is legal	0.81	0.24	0.42	0.10
Fixed term contracts : Valid cases other than the usual objective	0.80	0.24	0.34	0.06
Fixed term contracts : Maximum number of successive contracts	0.78	0.22	-0.48	0.12
Temporary work agency (TWA) employment : Restrictions on number of renewals	0.77	0.22	0.37	0.08
Fixed term contracts : Maximum cumulated duration	0.10	0.00	0.80	0.35
Temporary work agency (TWA) employment : Maximum cumulated duration	0.44	0.07	0.73	0.29
Weight of factors in summary indicator (3)		0.60		0.40
Selection criteria :				
Eigenvalues		3.31		1.24
Total variance explained		75.8		
Bartlett's test of sphericity Chi-2		54.3		
Df		15		

(1) Based on rotated component matrix
(2) Normalised squared factor loadings
(3) Normalised sum of squared factor loadings.

70.   Figure 10 presents the summary indicator of EPL for OECD countries in 1998. The full set of results for the late 1980s and 1998 are shown in Annex Tables A3.9-A3.11. As stressed above, this summary indicator is the simple average of the summary indicators for regular and temporary contracts based on factor analysis. The English-speaking countries (the United States, United Kingdom, Canada, New Zealand, Ireland, Australia) are at the one side of the spectrum, with relatively lax employment protection legislation systems. At the other end, one finds the Mediterranean countries (Spain, Italy, Greece and Portugal) with very tight regulations. Continental European countries and Japan have an intermediate level of stringency of the employment protection legislation system.

Figure 10. Summary indicators of EPL, 1998

(from least to most restrictive EPL)
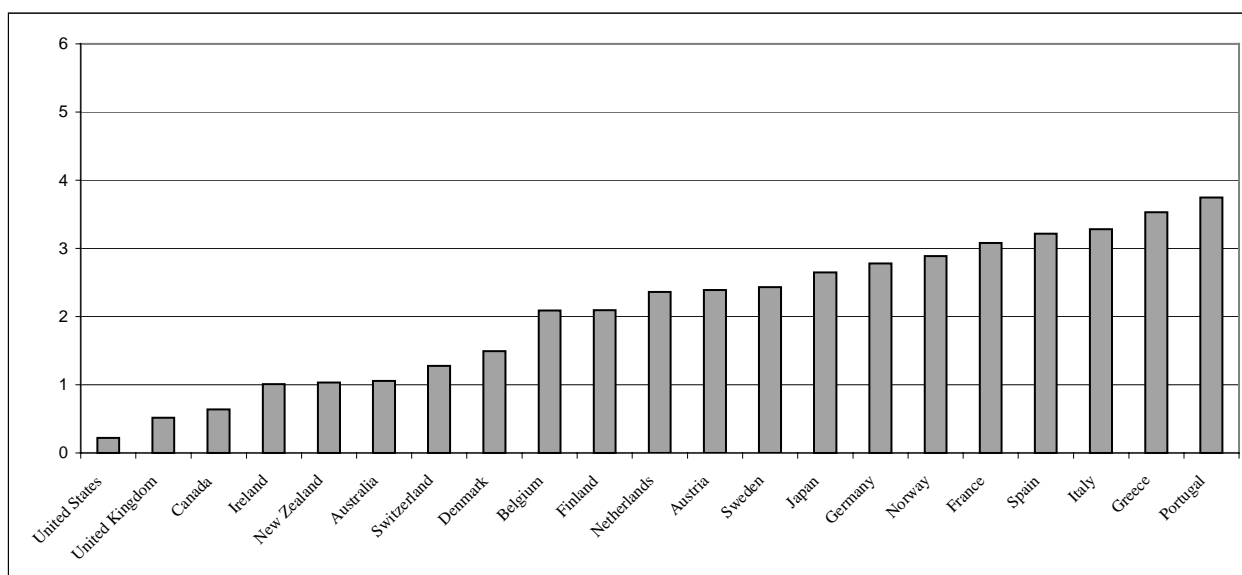
71.   Factor analysis reveals different regulatory frameworks within these three broad groups. In particular, two aspects of the EPL system seem to somewhat substitute for each other. Especially in countries with an intermediate degree of stringency of EPL, regulations either require to follow complex administrative procedures prior to dismissal (e.g. Netherlands, Sweden) or to provide long advance notice periods (e.g. Belgium, Denmark, France). Severance payments generally conform to the overall stance of the EPL regulatory system, i.e. they tend to be very generous in countries with tighter overall EPL system and vice versa. In the case of regulations for temporary employment, no clear-cut cross-country distinction can be observed in the structure of regulations, i.e. between procedures and maximum cumulative duration. In this case, procedures are largely concentrated in limiting the types of jobs that could be offered under on a temporary basis, while the maximum duration is the key economic variable determining their attractiveness for employers.

IV.2.1   *Patterns of EPL over the 1990s*

72.   In the case of EPL, the data also allow to look at the evolution of the regulatory stance over the 1990s. The summary indicators for the late 1980s were constructed using the same weights (from factor analysis) used for the construction of the 1998 summary indicators.[33] Figure 11 plots the summary indicators of EPL for permanent and temporary workers for the late 1980s and for 1998, while Figures 12 and 13 plot the changes in the different components of EPL for regular and temporary workers. In the three figures, countries along the diagonal experienced no change in the EPL indicators over the past decade, while for those above (below) the diagonal regulations became tighter (less stringent).

---

33. Factor analysis was not performed on the basis of the *late 1980s* detailed indicators for two main reasons: i) the coverage of detailed indicators for the late 1980s is somewhat weaker than that for 1998; ii) the use of the same weights for the two periods implies that observed differences in the summary indicators are entirely due to changes in regulations and not in the aggregation process.

Figure 11 Summary indicators of the strictness of employment protection legislation, late 1980s and 1998

Panel A. **Regular and temporary contracts**

Strictness of EPL in 1998

Strictness of EPL in late 1980s
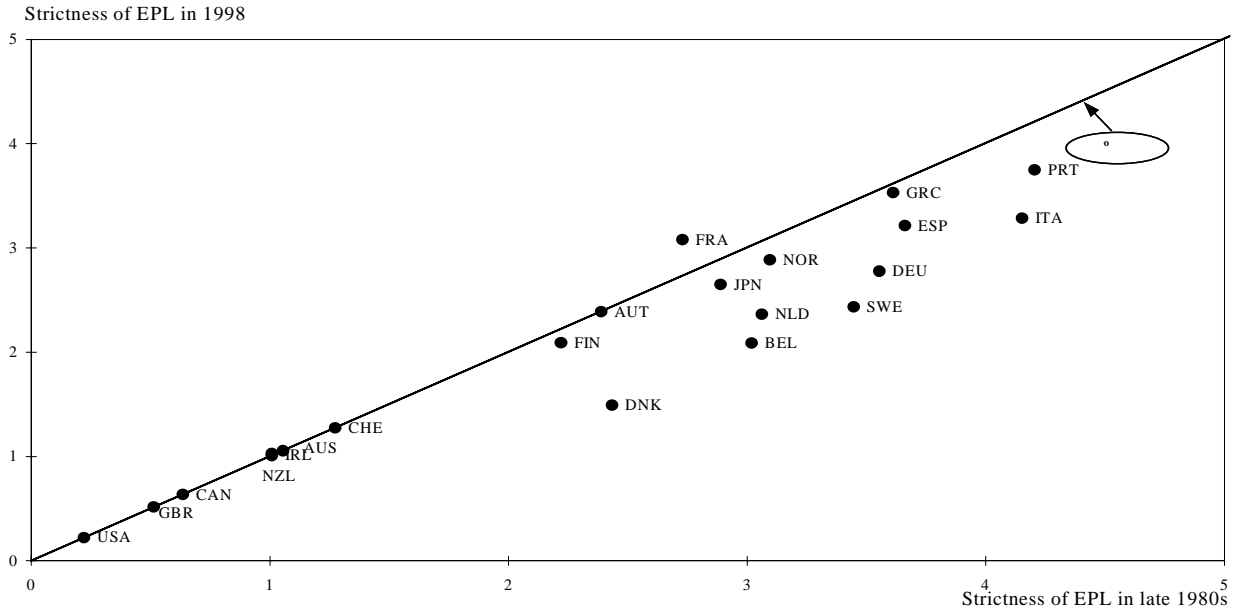
Panel B. **Regular contracts**
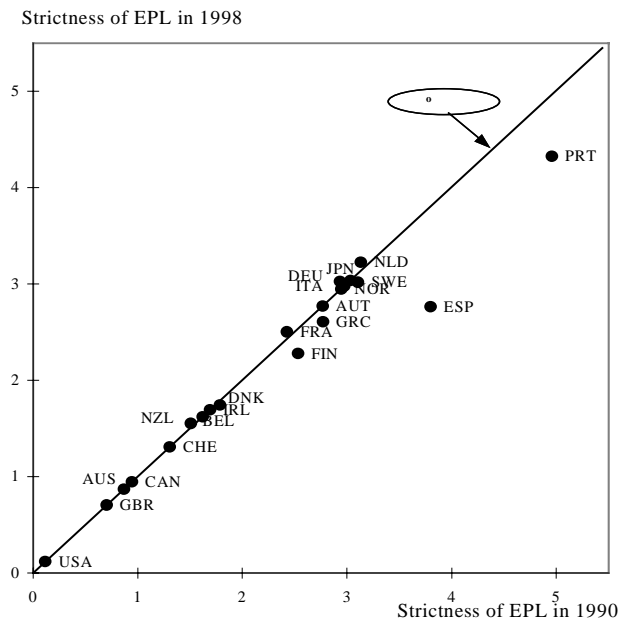
Panel C. **Temporary contracts**

Strictness of EPL in 1998

Strictness of EPL in 1990

Strictness of EPL in 1998

Strictness of EPL in 1990
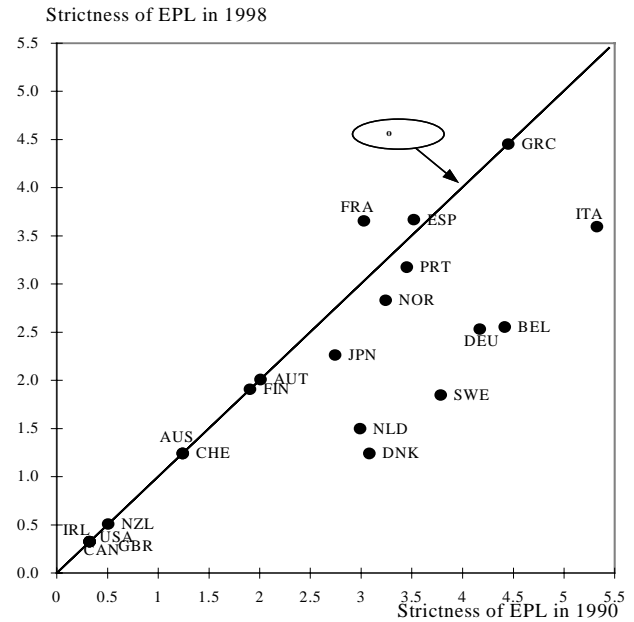
Figure 12 The evolution of different aspects of EPL for regular contracts

Panel A. **Notice and trial period**
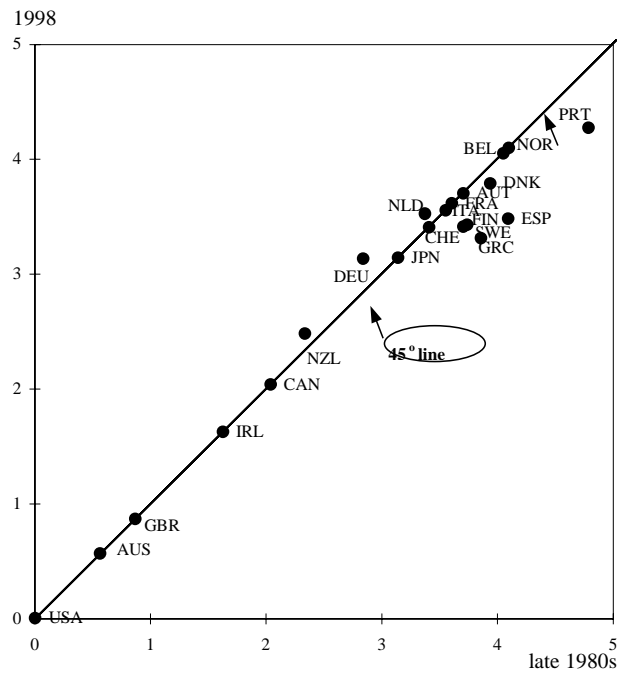
Panel B. **Procedures**
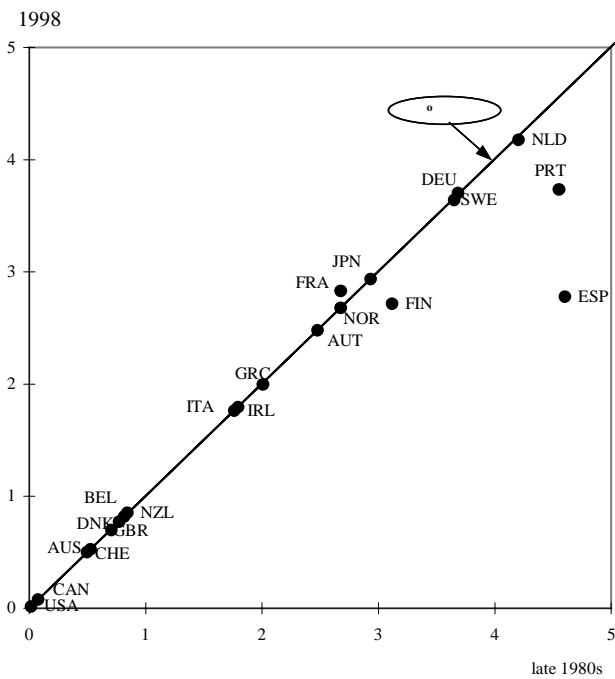
Panel C. **Direct cost of dismissal**
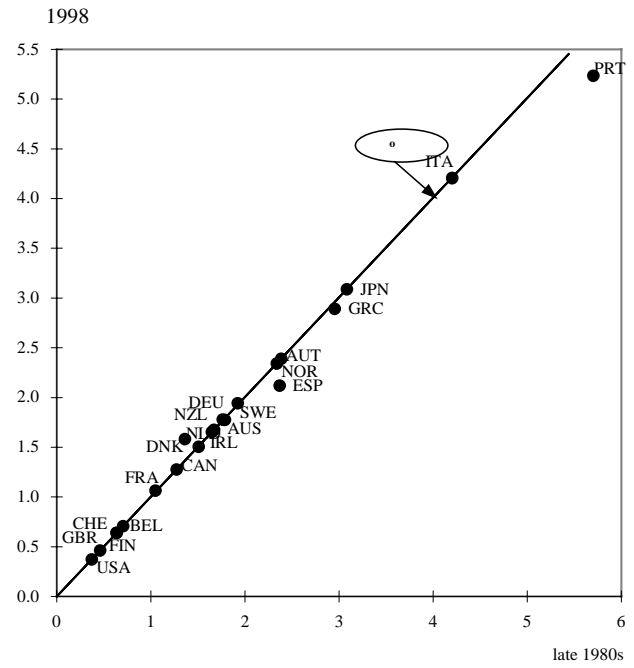
Figure 13   The evolution of different aspects of EPL for temporary workers

Panel A. **Procedures**
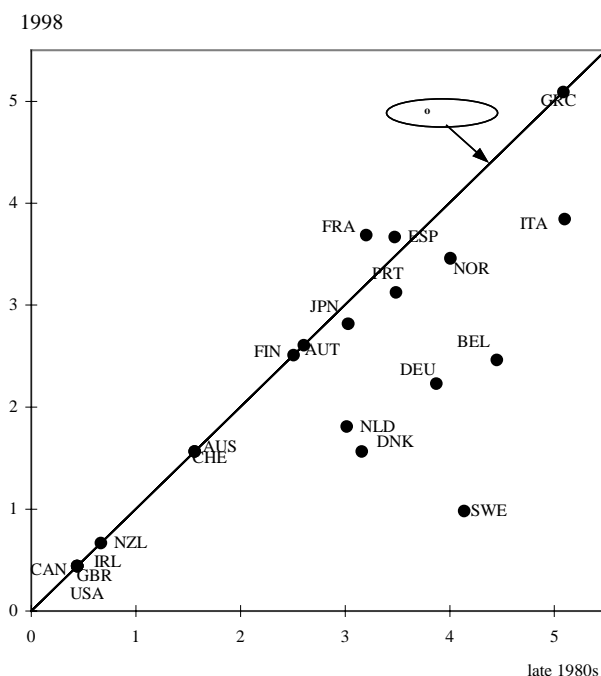
Panel B. **Maximum duration**
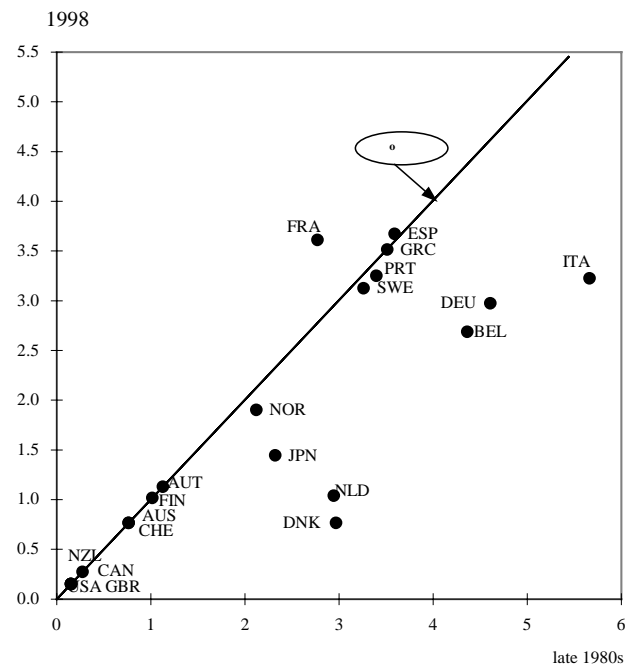
73.   Broadly speaking, there has been a tendency for a significant deregulation of temporary contracts, while only modest changes have been recorded for permanent contracts. Only Spain, Portugal and Finland have significantly eased regulation for permanent workers. In Finland both the delay to the start of notice and the notice period itself were reduced, and procedures somewhat simplified. Portugal eased somewhat the definition of unfair dismissal, extended the trial period and reduced the costs in case of reinstatement. In Spain new regular contracts were introduced with lower provisions in all three aspects (procedures, notice period and severance payments) of regulations for regular workers. Amongst the countries with little overall change in the stance of EPL for regular contracts, the Netherlands eased restrictions on dismissals, widening exemptions from general dismissal law but increased the minimum notice period and decreased the maximum periods.   In the process of harmonising notice periods for blue-collar and white-collar workers, Germany increased the length of notice for long-tenure workers. By contrast, mandated notice periods seem to have decreased somewhat in Denmark (for long tenure, while they have increased for short tenures), Greece and Sweden.

74.   In a number of countries (e.g. Belgium, Denmark, Germany, Italy, Netherlands, Norway, Sweden) either or both fixed-term contracts and contracts under TWAs can now be used in a wider range of situations than at the beginning of the 1990s. In Denmark and Sweden, all restrictions on the types of work for which TWA employment is legal have been removed, and in Italy and Spain TWAs have become legal for certain types of work while having previously been illegal in all circumstances. France has somewhat restricted the types of jobs that could be offered by TWAs and reduced the maximum number of successive fixed-term contracts, while in Spain, fixed-term contracts were liberalised in the late 1980s, and, following the dramatic increases in their use, some restrictions have been re-imposed recently. At the same time, restrictions on the maximum duration of fixed-term contracts or TWA jobs have been eased in

several countries. In Denmark restrictions on the number of renewals have been removed; and the maximum duration of successive contracts has been increased in Germany, Belgium, Denmark Japan, Italy, and the Netherlands. Other countries took limited or no action to reform this kind of labour market regulations.

IV.2.2   Comparison of the EPL country ranking based on factor analysis with those of other studies

75.   One of the advantages of using EPL as an illustrative example of applying the methodology for summary indicators to labour market regulations is that it allows comparison with a number of already existing country rankings, which is not the case with product market regulations. The comparison of country rankings according to different procedures gives the opportunity of assessing the robustness of the summary indicators of EPL for empirical analysis. Table 14 presents country rankings in ascending order, from the least regulated to the most regulated, according to different summary indicators of EPL. In particular, the summary indicator based on factor analysis for the late 1980s and 1998 is compared with: i) the summary indicator proposed in 1999 OECD *Employment Outlook* (based on subjective weights); ii) the corresponding summary indicator based on uniform weights; and iii) the summary indicator based on the extension of the Grubb and Wells (1993) ranking-of-ranking approach extended to cover the non-EC and non-former EFTA countries (see the OECD *Jobs Study*). The summary indicators based on factor analysis and the subjective weighting proposed in the Employment Outlook are broadly similar: while countries at the two extremes of tight and lax regulations are largely the same in the two rankings, there are some differences amongst those in the middle of the spectrum, where generally differences in the summary indicators are small. The uniform weighting approach produces a ranking that is somewhat closer to the subjective weighting of the Employment Outlook (for the late 1980s). There are more significant differences between the country ranking of the Jobs Study and those proposed by the three alternative procedures for the late 1980s. This is likely to be due to the incomplete information used in the Jobs Study to compute the summary EPL indicators for the non-EC and non-former EFTA countries

76.   To sum up, there appears to be only some differences in the ranking of countries according to the stringency of employment protection legislation as one moves from a uniform weighting scheme, to a subjective weighting and, finally, to a statistically-defined weighting scheme. However, these small differences may have some impact in analytical studies of the impact of EPL on economic performance, to the extent the rank position (as opposed to the actual summary values) of countries are used.

Table 14. Country rankings according to different summary indicators of the EPL

(countries are in ascending order in terms of the stringency of EPL)

	1998		late 1980s			
rank	*FA weights*	*Employment Outlook*[b]	*Jobs Study*[a]	*un-weighted*	*Employment Outlook*[b]	*FA weights*
1	United States	United States	United States	United States	United States	United States
2	United Kingdom	United Kingdom	Canada	United Kingdom	United Kingdom	United Kingdom
3	Canada	Canada	Switzerland	Canada	Canada	Canada
4	Australia	Ireland	United Kingdom	Australia	Australia	Ireland
5	Ireland	Australia	Ireland	Ireland	Ireland	Australia
6	Switzerland	Switzerland	Denmark	Switzerland	Switzerland	Switzerland
7	Denmark	Denmark	Australia	Finland	Denmark	Finland
8	Finland	Belgium	Japan	Denmark	Austria	Austria
9	Belgium	Finland	Netherlands	Austria	Finland	Denmark
10	Austria	Netherlands	Sweden	France	France	Japan
11	Netherlands	Austria	Austria	Japan	Japan	France
12	Sweden	Sweden	France	Netherlands	Netherlands	Belgium
13	Japan	Japan	Norway	Belgium	Norway	Netherlands
14	Germany	Germany	Belgium	Norway	Belgium	Norway
15	Norway	Norway	Finland	Germany	Germany	Sweden
16	France	France	Greece	Sweden	Sweden	Germany
17	Italy	Spain	Spain	Greece	Greece	Greece
18	Spain	Italy	Germany	Italy	Spain	Spain
19	Greece	Greece	Portugal	Spain	Italy	Italy
20	Portugal	Portugal	Italy	Portugal	Portugal	Portugal
Spearman rank correlation[c]		0.99	0.79	0.96	0.94	

FA weights are indicators based on weights derived from the factor analysis developed in this paper.
a. See OECD Jobs Study (1994).
b. See OECD Employment Outlook - 1999.
c. For 1998, spearman rank correlation between FA and Employment outlook rankings; for the late 1980s, correlations are with respect to the FA ranknig.

V. THE RELATIONSHIP BETWEEN PRODUCT MARKET REGULATION AND EMPLOYMENT PROTECTION LEGISLATION

77. The extension of the methodology for obtaining summary indicators to employment protection legislation also allows comparison with the regulatory stance in the product market. This can be considered as a first step to shed light on possible interactions and complementarities of regulations in the product and labour markets, even though employment protection legislation is only one aspect of the wide range of regulatory interventions in the labour market.

78. The summary indicators of regulation suggest that, across countries, restrictive regulatory environments in the product market tend to be associated with restrictive employment protection policies (Figure 14). The indicators presented in this paper are closely related, with a statistical correlation of 0.73 (significant at the 1% level). In other words, restrictive product market regulations are matched by analogous EPL restrictions to generate a tight overall regulatory environment for firms in their product market as well as in the allocation of labour inputs. The strong correlation between regulatory regimes in the product market and EPL also suggests that their influence may have compounded effects on labour market outcomes, making regulatory reform in only one market less effective than simultaneous reform in the two markets.

Figure **14 . Product market regulation and employment protection legislation**

Employment protection legislation

Correlation 0.73
t-statistic 4.72

Product market regulation
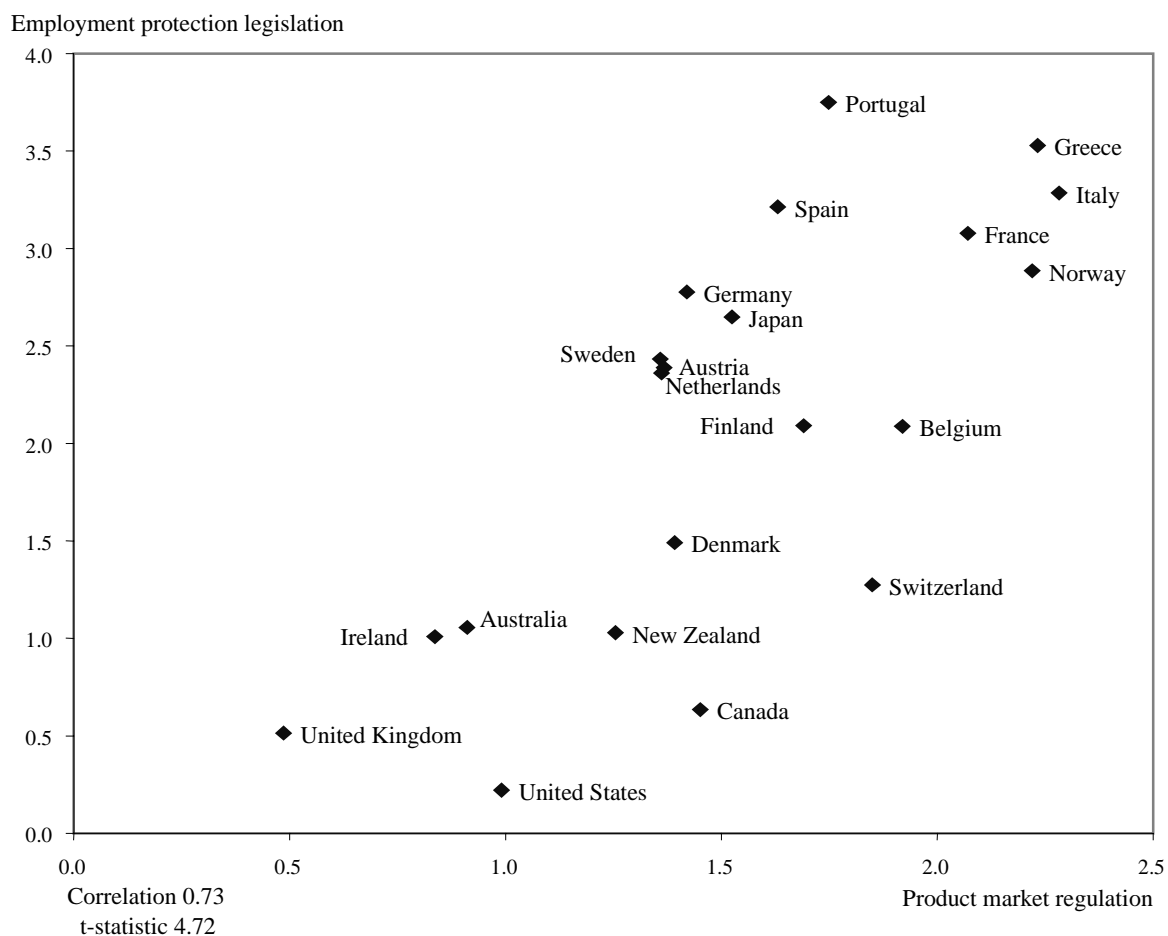
79.   To shed further light on the relationship between product market regulations and EPL, a *cluster analysis* technique was used to construct groups of countries that share common patterns across the two sets of regulations. The analysis was performed using as basic data the summary indicators of product market regulations and EPL by domain. For product market regulations, three summary indicators were considered: (i) state control; (ii) barriers to entrepreneurial activity; and (iii) barriers to international trade and investment. These were considered together with the two EPL summary indicators for regular and for temporary employment.

80.   The dendrogram in Figure 15 identifies patterns of behaviour among the OECD countries. Four clusters can be identified:

-      The first group includes common-law countries, which are characterised by a relatively liberal approach in both the labour and product markets (the United States, the United Kingdom, Canada, Ireland, Australia and New Zealand.

-      The second includes continental European countries, which share relatively restrictive product market regulations. However, this group could be further split in two sub-groups according to the EPL stance: Denmark, Switzerland, Belgium and Finland being less restrictive than Germany, Japan, Austria, the Netherlands and Sweden;

–   The third group includes the Mediterranean countries (France, Greece, Italy, Portugal and Spain) as well as Norway which combine restrictive EPL and product market regulatory regimes.

Figure 15. Country clusters based on the summary indicators of product market regulations and EPL[1]
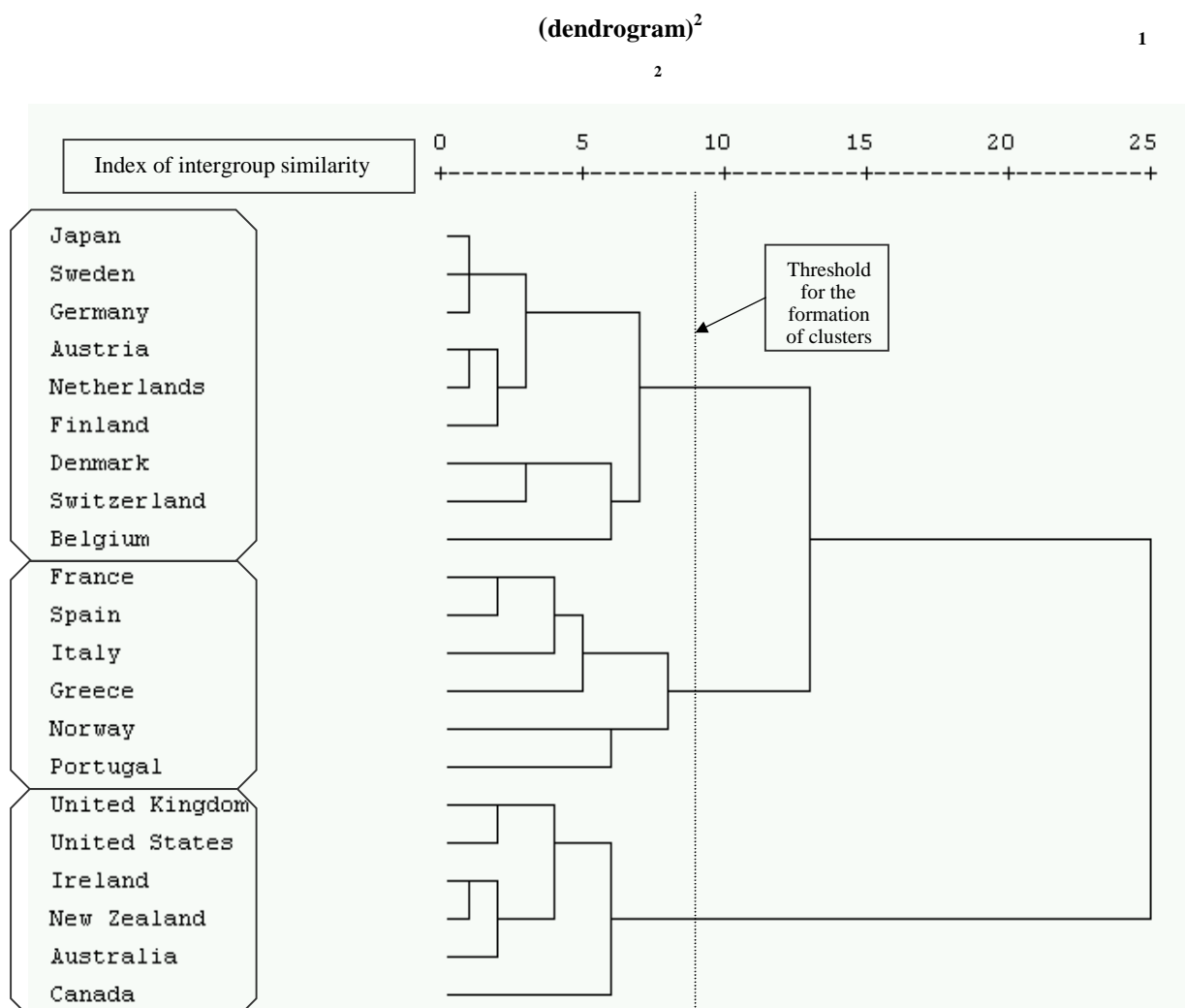
(dendrogram)[2]

[2]

[1]

1. Clustering based on the indicators of state control, barriers to entrepreneurship, barriers to trade and
   investment, EPL for temporary and regular workers.
2. Figure should be read left to right. The top index measures the similarity between countries belonging to
   the same cluster (from most to least similar).

81.   The strong correlation between product market regulations and EPL raises questions in two areas: i) the political economy reasons for the observed relationship; and ii) the economic effects as product market regulations and EPL interact.[34]   In firms sheltered from competitive pressures (either by legal,

_____

34. Empirical evidence on the relationship between labour and product market regulations across countries and on their effects on labour market outcomes is, to date, lacking. For a somewhat crude attempt to study the combined effects of labour and product market regulations on economic growth in European countries, see Koedjik and Kremers (1996) and Nicoletti et al. (forthcoming).

administrative and trade restrictions or public ownership) the insider power of workers may be higher, leading to greater protection from dismissals. The link can also go the other way around: the existence of thresholds for the application of EPL to collective or individual dismissals may affect the minimum efficient scale of firms (after accounting for the cost of regulations) and favour particular kinds of company structures (such as sole proprietor firms). This effect can be reinforced (or weakened) by a profile of administrative burdens favouring (or discouraging) the creation of individual firms. The correlation between product market regulations and EPL may also affect the reform process. For example, restrictive product market regulations may make it less urgent for entrepreneurs to lobby for and for workers to accept an easing of EPL. On the other hand, by increasing the speed of labour market adjustment, less restrictive EPL may make regulatory reform in the product market easier to implement.[35] Assessing the way in which the correlations between regulatory regimes translate into economic performance is outside the scope of this paper but interesting agenda for further work in this area.

---

35. A lax EPL regulation may, however, make workers' resistance to regulatory reform fiercer insofar as insiders would be less protected in the event of redundancies.

BIBLIOGRAPHY

ADDISON, J.T. and J.L. GROSSO (1996), "Job security provisions and employment: revised estimates", *Industrial Relations* 35, pp. 585-603.

BERLAGE, L. and D. TERWEDUWE (1988), "The classification of countries by cluster and by factor analysis", *World Development*, Vol. 16, No. 12, pp. 1527-1545.

BLANCHARD, O.J. and P. PORTUGAL (1998), "What hides behind an unemployment rate: comparing Portuguese and US unemployment", National Bureau of Economic Research, *Working Paper* No. 6636.

BUREAU OF INDUSTRY ECONOMICS (1996), *Business Licences. International Benchmarking Report*, 96/9, Canberra.

CENTRE EUROPÉEN DES ENTREPRISES A PARTICIPATION PUBLIQUE, CEEP (1997), *Annales Statistiques*, Bruxelles.

GRUBB, D and W. WELLS (1993), "Employment regulation and patterns of work in EC countries", *OECD Economic Studies*, No. 21, Winter, pp. 7-58, Paris.

GWARTNEY, J. and R. LAWSON (1997), *Economic Freedom of the World 1997, Annual Report*, the Fraser Institute, Vancouver, B.C.

KLINE, P. (1994), *An Easy Guide to Factor Analysis*, Routledge, London.

KOEDIJK, K. and J. KREMERS (1996), "Market opening, regulation and growth in Europe", *Economic Policy*, (0)23, October.

LAZEAR, E.P. (1990), "Job security provisions and employment", *The quarterly Journal of Economics*, pp. 699-726, August.

LOGOTECH, S.A. (1997), *Étude comparative internationale des dispositions légales et administratives pour la formation de petites et moyennes entreprises aux pays de l'Union Européenne, les États-Unis et le Japon*, Projet EIMS 96/142, April.

NICOLETTI, G., R.C.G. HAFFNER, S. NICKELL, S. SCARPETTA and G. ZOEGA (forthcoming), "European integration, liberalisation and labour market performance", in Bertola G., T. Boeri and G. Nicoletti eds. *Welfare and employment in a united Europe*, MIT Press, Cambridge.

OECD (1994), *Electricity Supply Industry*, International Energy Agency, Paris.

OECD (1994), *OECD Jobs Study*, Paris.

OECD (1997), *Indicators of Tariff and Non-tariff Trade Barriers*, Paris.

OECD (1998), *Rail Restructuring in Europe*, Conférence Européenne des Ministres des Transport, Paris.

OECD (1999), *Communications Outlook*, Paris.

OECD (1999), *Financial Market Trends*, No. 72, March, Paris.

OECD (1999), *OECD Employment Outlook*, Paris.

World Bank (1996), "Industry Structure and Regulation in Infrastructure: a Cross-Country Survey", *PSD Occasional Paper*, No. 25, May.

ANNEX

82.   This annex provides:

− The basic data used to construct the detailed indicators of EPL (Tables A1.1, A1.2) ;

− A detailed description of how the detailed indicators of product market regulation and EPL were constructed from the basic data (composition of the indicators, aggregation criteria and keys for converting quantitative and qualitative data into 0-6 scales) (Tables A2.1.1. to A2.1.18);

− The values of the detailed indicators of product market regulation and EPL (Tables A2.2.1 to A2.2.5);

− The values of the summary indicators of product market regulation and EPL (overall, by domain and by sub-domain of regulation), including estimates for the OECD countries excluded from the main analysis (Tables A3.1 to A3.11) .

Table A1.1. Employment protection legislation for regular employment

	Regular procedural inconveniences[b]				Notice and severance pay for no-fault individual dismissals by tenure categories[c]													Difficulty of dismissal							
	Procedures[d]		Delay to start of notice[e]		Notice period after						Severance pay after						Definition of unfair dismissal[f]		Trial period before eligibility arises		Unfair dismissal compensation at 20 years of tenure[g]		Extent of reinstatement[h]	
					9 months		4 years		20 years		9 months		4 years		20 years									
	Scale 0 to 3		Days		Months												Scale 0 to 3		Months				Scale 0 to 3	
	Late 1980s	1998	Late 1980s	1998	Late 1980s	1998	Late 1980s	1998	Late 1980s	1998	Late 1980s	1998	Late 1980	1998	Late 1980s	1998	Late 1980s	1998	Late 1980s	1998	Late 1980s	1998	Late 1980s	1998
Australia	0.5	0.5	1.0	1.0	0.2	0.2	0.7	0.7	1.2	1.2	0.0	0.0	1.0	1.0	1.0	1.0	0.0	0.0	..	..	..	..	1.5	1.5
Austria	2.0	2.0	9.0	9.0	1.0	1.0	1.2	1.2	2.5	2.5	0.0	0.0	2.0	2.0	9.0	9.0	1.0	1.0	1.0	1.0	15.0	15.0	1.0	1.0
Belgium	0.5	0.5	1.5	1.5	2.0	2.0	2.8	2.8	9.0	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	3.3	12.5	15.0	0.0	0.0
Canada	0.0	0.0	1.0	1.0	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.2	0.2	1.3	1.3	0.0	0.0	3.0	3.0	..	..	1.0	1.0
Czech Republic	..	2.0	..	7.0	..	2.0	..	2.5	..	2.5	..	1.0	..	1.0	..	1.0	..	2.0	..	3.0	..	8.0	..	2.0
Denmark	0.5	0.5	1.0	1.0	1.6	1.8	2.8	3.0	5.0	4.3	0.0	0.0	0.0	0.0	1.5	1.5	0.0	0.0	1.5	1.5	9.0	12.0	1.0	1.0
Finland	1.8	1.8	56.0	11.0	2.0	1.0	2.0	2.0	6.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	4.0	4.0	12.0	12.0	1.5	1.5
France	1.5	1.8	12.0	12.0	1.0	1.0	2.0	2.0	2.0	2.0	0.0	0.0	0.4	0.4	2.7	2.7	1.5	1.5	1.6	1.6	15.0	15.0	0.0	0.0
Germany	2.5	2.5	17.0	17.0	1.0	1.0	1.0	1.0	4.5	7.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	6.0	6.0	24.0	24.0	1.5	1.5
Greece	2.0	2.0	1.0	1.0	0.6	0.5	1.7	1.5	9.0	8.0	0.3	0.3	0.9	1.0	4.6	5.8	0.5	0.5	2.0	3.0	15.0	15.8	2.0	2.0
Hungary	..	1.0	..	13.0	..	1.0	..	1.2	..	3.0	..	0.0	..	1.0	..	5.0	..	0.0	..	3.0	..	10.0	..	2.0
Ireland	1.5	1.5	4.5	4.5	0.2	0.3	0.5	0.5	2.0	2.0	0.0	0.0	0.2	0.2	2.2	2.2	0.0	0.0	12.0	12.0	24.0	24.0	1.0	1.0
Italy	1.5	1.5	1.0	1.0	0.3	0.3	1.1	1.1	2.2	2.2	0.7	0.7	3.5	3.5	18.0	18.0	0.0	0.0	0.8	0.8	32.5	32.5	2.0	2.0
Japan	1.5	1.5	3.0	3.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	1.5	1.5	4.0	4.0	2.0	2.0	..	..	26.0	26.0	2.0	2.0
Korea	2.5	1.8	..	32.0	..	1.0	..	1.0	..	1.0	0.0	0.0	2.0	2.0	6.0	6.0	..	2.0	..	..	..	..	..	2.0
Mexico	..	1.0	..	1.0	..	0.0	..	0.0	..	0.0	..	3.0	..	3.0	..	3.0	..	3.0	..	3.0	..	16.0	..	1.0
Netherlands	3.0	3.0	38.0	31.0	0.6	1.0	1.0	1.0	5.3	3.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	1.5	2.0	2.0	6.0	18.0	1.0	1.0
New Zealand	0.8	0.8	7.0	7.0	..	0.5	..	0.5	..	0.5	..	0.0	..	1.5	..	5.0	..	0.0	..	2.0	..	..	..	1.0
Norway	1.5	1.5	2.0	2.0	1.0	1.0	1.0	1.0	5.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	2.5	1.0	1.0	15.0	15.0	2.0	2.0
Poland	..	2.0	..	13.0	..	1.0	..	3.0	..	3.0	..	0.0	..	0.0	..	0.0	..	0.0	..	1.8	..	3.0	..	2.0
Portugal	2.5	2.0	21.0	21.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	3.0	4.0	4.0	20.0	20.0	3.0	2.0	1.0	2.0	20.0	20.0	3.0	2.5
Spain	2.3	2.0	40.0	1.0	1.0	1.0	3.0	1.0	3.0	1.0	0.5	0.5	2.6	2.6	12.0	12.0	2.0	2.0	1.7	2.5	35.0	22.0	0.0	0.0
Sweden	2.0	2.0	15.0	15.0	1.0	1.0	4.0	3.0	6.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	6.0	6.0	32.0	32.0	1.0	1.0
Switzerland	0.5	0.5	1.0	1.0	1.0	1.0	2.0	2.0	3.0	3.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	6.0	6.0	0.0	0.0
Turkey	2.0	2.0	1.0	1.0	..	1.0	..	2.0	..	2.0	..	0.0	..	4.0	..	20.0	..	0.0	..	2.0	..	26.0	..	0.0
United Kingdom	1.0	1.0	2.0	2.0	0.2	0.2	0.9	0.9	2.8	2.8	0.0	0.0	0.5	0.5	2.4	2.4	0.0	0.0	24.0	24.0	8.0	8.0	0.0	0.0
United States	0.0	0.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	..	..	..	..	0.5	0.5

.. Data not available.

a) In addition to the notes below, see OECD, Employment Outlook, 1999.

b) Procedures and delays are either legislated, set through collective bargaining or generally considered necessary because without them the employer's case will be weakened before the courts, if a claim for unfair dismissal is made.

c) Information based mainly on legal regulation, but also, where relevant, on averages found in collective agreements or employment contracts. Where relevant, calculations assume that the worker was 35 years old at the start of employment. Averages are taken where different situations apply (e.g. blue-collar and white-collar workers; or dismissals for personal reasons and for redundancy).

d) Procedures are scored according to the scale 1 when a written statement of the reasons for dismissal must be supplied to the employee; 2 when a third party (such as a works council or the competent labour authority) must be notified; and 3 when the employer cannot proceed to dismissal without authorisation from a third party.

e) Estimated time includes an assumption of 6 days in case of required warning procedure prior to dismissal (although such time periods can be very diverse and may range from a couple of days to several months). One day is counted when dismissal can be notified orally or the notice can be directly handed to the employee, 2 when a letter needs to be sent by mail, and 3 when a registered letter needs to be sent.

f) Scored 0 when worker capability or redundancy of the job are adequate and sufficient grounds for dismissal; 1 when social considerations, age or job tenure must when possible influence the choice of which worker(s) to dismiss; 2 when a transfer and/or retraining to adapt the worker to different work must be attempted prior to dismissal; and 3 when worker capability cannot be a ground for dismissal.

g) Where relevant, calculations assume that the worker was 35 years old at the start of employment and that a court case takes 6 months on average. Averages are taken where different situations apply (e.g. blue-collar and white-collar workers).

h) The extent of reinstatement is based upon whether, after a finding of unfair dismissal, the employee has the option of reinstatement into his/her previous job even when this is against the wishes of the employer. The indicator is 1 where this option is rarely made available to the employee, 2 where it is fairly often made available, and 3 where it is always made available.

Source: OECD, Employment Outlook, 1999.

Table A1.2. Regulation of temporary employment

	Fixed-term contracts						Temporary work agencies (TWAs)					
	Valid cases other than the usual *objective reasons* [a]		Maximum number of successive contracts [b]		Maximum cumulated duration		Types of work for which TWA employment is legal		Restrictions on number of renewals		Maximum cumulated duration of temporary work contracts	
	Scale 0 to 3 [c]		Number		Months		Scale 0 to 4 [d]		Yes/No		Months	
	Late 1980s	1998	Late 1980s	1998	Late 1980s	1998	Late 1980s	1998	Late 1980s	1998	Late 1980s	1998
Australia	3.0	3.0	1.5	1.5	No limit	No limit	4.0	4.0	No	No	No limit	No limit
Austria	2.5	2.5	1.5	1.5	No limit	No limit	3.0	3.0	Yes	Yes	No limit	No limit
Belgium	0.0	2.0	1.0	4.0	24.0	30.0	2.0	2.0	Yes	Yes	2.0	15.0
Canada	3.0	3.0	No limit	No limit	No limit	No limit	4.0	4.0	No	No	No limit	No limit
Czech Republic	..	2.5	..	No limit	..	No limit	0.0	4.0	-	No	-	No limit
Denmark	3.0	3.0	1.5	1.5	No limit	No limit	2.0	4.0	Yes	No	3.0	No limit
Finland	1.0	1.0	1.5	1.5	No limit	No limit	4.0	4.0	..	No	..	No limit
France	1.0	1.0	3.0	2.0	24.0	18.0	2.5	2.0	Yes	Yes	24.0	18.0
Germany	2.0	2.5	1.0	4.0	18.0	24.0	2.0	3.0	Yes	Yes	6.0	12.0
Greece	0.0	0.0	2.5	2.5	No limit	No limit	0.0	0.0	-	-	-	-
Hungary	..	2.5	..	No limit	..	60.0	0.0	4.0	-	No	-	No limit
Ireland	3.0	3.0	No limit	No limit	No limit	No limit	4.0	4.0	No	No	No limit	No limit
Italy	0.5	1.0	1.5	2.0	9.0	15.0	0.0	1.0	-	Yes	-	No limit
Japan	..	2.5	2.5	2.5	..	No limit	2.0	2.0	..	Yes	..	36.0
Korea	..	2.5	..	2.5	..	No limit	0.0	2.5	-	Yes	-	24.0
Mexico	..	0.5	..	No limit	..	No limit	..	..	..	..	..	..
Netherlands	3.0	3.0	1.0	3.0	No limit	No limit	3.0	3.5	Yes	Yes	6.0	42.0
New Zealand	..	3.0	..	5.0	..	No limit	..	4.0	..	No	..	No limit
Norway	1.0	1.0	1.5	1.5	No limit	No limit	1.5	3.0	Yes	Yes	..	24.0
Poland	..	3.0	..	2.0	..	No limit	0.0	4.0	-	Yes	-	No limit
Portugal	2.0	2.0	3.0	3.0	30.0	30.0	1.0	2.0	Yes	Yes	9.0	9.0
Spain	2.0	1.0	6.0	3.0	36.0	36.0	0.0	2.0	-	Yes	-	6.0
Sweden	2.0	2.5	2.0	No limit	..	12.0	0.0	4.0	-	No	-	12.0
Switzerland	3.0	3.0	1.5	1.5	No limit	No limit	4.0	4.0	No	No	No limit	No limit
Turkey	0.0	0.0	..	1.5	..	No limit	0.0	0.0	-	-	-	-
United Kingdom	3.0	3.0	No limit	No limit	No limit	No limit	4.0	4.0	No	No	No limit	No limit
United States	3.0	3.0	No limit	No limit	No limit	No limit	4.0	4.0	No	No	No limit	No limit

.. Data not available.

 - Not applicable.

a) All countries recognise the validity of fixed-term contracts in "objective" situations, a term which typically refers to specific projects, seasonal work, replacement of temporarily absent permanent workers (on sickness or maternity leave), and exceptional workload.

b) The law in most countries does not specify any limits to the number of fixed-term contracts if separate valid objective reasons for each new contract can be given. However, after successive renewals (often at the first such renewal) courts may examine the validity of the reason given and may declare the fixed term unjustified.

c) Scored 0 if fixed-term contracts are permitted only for "objective" or "material" reasons (*i.e* . to perform a task which itself is of fixed duration); 1 if specific exemptions apply to situations of employer need (*e.g* . launching a new activity) or employee need (*e.g* . workers in search of their first job); 2 when exemptions exist on both the employer and the employee side; 3 when there are no restrictions on the use of fixed-term contracts.

d) Scored 0 if TWA employment is illegal, 1 to 3 depending upon the degree of restrictions, and 4 where no restrictions apply.

Source: See OECD, *Employment Outlook* , 1999.

Table A2.1.1. Construction of detailed indicators: Scope of public enterprise sector

Categorical data on presence of state-controlled enterprises				
National, state or provincial government controls at least one firm in:			Answer codes	
ISIC(Rev.2) code	Industry	Weight (a_i)	Yes	No
314	Tobacco manufactures	1	1	0
353	Petroleum refineries	1	1	0
37	Basic metal industries	1	1	0
38	Manufacture of fabricated metal products, machinery and equipment	1	1	0
4101	Electricity	1	1	0
4102	Gas manufacture and distribution	1	1	0
42	Water works and supply	1	1	0
61	Wholesale trade	1	1	0
63	Restaurant and hotels	1	1	0
7111	Railways	1	1	0
7112	Urban, suburban and interurban highway passenger transport	1	1	0
7113	Other passenger land transport	1	1	0
7114	Road freight	1	1	0
7116	Supporting services to land transport	1	1	0
712	Water transport	1	1	0
7116	Supporting services to water transport	1	1	0
7131	Air transport carriers	1	1	0
7132	Supporting services to air transport	1	1	0
72	Communication	1	1	0
81	Financial institutions	1	1	0
82	Insurance	1	1	0
832	Business services	1	1	0
9331	Medical, dental and other health services	1	1	0
9412	Motion picture distribution and projection	1	1	0
Country score (0-6)			$6*(\Sigma_i a_i \text{ answer}_i)/24$	

Table A2.1.2. Construction of detailed indicators: Size of public enterprise sector

	Size in 1995			Retrenchment 1995-1998	Size in 1998
	A	B	C	D	E
Source	CEEP (1997)	Gwartney and Lawson (1997)	OECD estimate based on A and B	OECD (1999)	OECD estimate based on C and D
Definition of indicator	State ownership in the non-agricultural business sector (overall and by sector)	Size of government enterprises as a share of economy	Size of public enterprise sector	Privatisation proceeds	Size of public enterprise sector
Units	% of 1995 non-agricultural business GDP	Index: scale 0-10 from largest to smallest size	Index: scale 0-10 from largest to smallest size	% of 1997 GDP	Index: 0-6 scale from smallest to largest size
Coverage	15 European countries	115 OECD and non-OECD countries	29 OECD countries	29 OECD countries	29 OECD countries
Criterion for scale	-	10=less than 1% 8=only natural monopolies 6=less than 10% 4=more than 10% less than 20% 2=more than 20% less than 30% 0=more than 30%	Gwartney and Lawson index revised and updated with CEEP data	-	(C - 0.2*D)

Table A2.1.3. Construction of the detailed indicators: Special government rights

Categorical data on presence of:			Country scores
primary provision	*secondary provision*	*ancillary provision*	
National, state or provincial governments have special voting rights in a firm within the business sector	There any legal or constitutional constraints to the sale of stakes held by the state in publicly-controlled firms	Special voting rights can be exercised in at least one instance	
Yes	Yes	Yes	6
Yes	Yes	No answer	5.5
Yes	Yes	No	5
Yes	No	Yes	4
Yes	No	No answer	3.5
Yes	No	No	3
No	Yes	-	2
No	No	-	0

Table A2.1.4. Construction of the detailed indicators: Control of public entreprises by legislature

Categorical data on control of public enterprises by legislative bodies	*Weight*	*Answer*	
		Yes	*No*
Strategic choices of any publicly-controlled firms have to be reviewed and/or cleared in advance by national, state, or provincial legislatures	% of business sectors in which the state controls at least a firm (w)	6	0
Country scores (0-6)		w*6/100	

Table A2.1.5. Construction of the detailed indicators: Use of command and control regulation

Categorical data on:	General vs industry-specific weights (a_i)	Industry weights (b_j)	Question weights (c_k)	Coding of answers	
				Yes	No
General information	1/2				
Regulators are required to assess alternative policy instruments (regulatory and non-regulatory) before adopting new regulation			1/2	0	6
Guidance has been issued on using alternatives to traditional regulation			1/2	0	6
Sector specific information	1/2				
Road freight		1/4			
There are regulations setting conditions for driving periods and rests			1/2	6	0
Regulations prevent or constrain backhauling			1/8	6	0
Regulations prevent or constrain private carriage			1/8	6	0
Regulations prevent or constrain contract carriage			1/8	6	0
Regulations prevent or constrain intermodal operations			1/8	6	0
Retail distribution		1/4			
Shop opening hours are regulated			2/3	6	0
Government regulations on shop opening hours apply at national level			1/3	6	0
The regulation of opening hours became more flexible in the last 5 years			*	0	6
Air travel		1/4			
Carriers operating on domestic routes are subject to universal service requirements (e.g. obligation to serve specified customers or areas)			1	6	0
Railways		1/4			
Companies operating the infrastructure or providing railway services are subject to universal service requirements (e.g. obligation to serve specified customers or areas)			1	6	0
Country scores (0-6)			$\Sigma_i a_i \, \Sigma_j b_j \, \Sigma_k c_k$ answer$_{ijk}$		

* - 0.5 to the industry-specific score if answer is "yes"

Table A2.1.6. Construction of the detailed indicators: Price controls

Categorical data on:			Coding of answers	
	Industry weights (b$_j$)	*Question weights (c$_k$)*	*Yes*	*No*
Air travel	1/4			
Fares are regulated		1/2	6	0
Number of 5 busiest routes subject to price regulation (n)		1/2	(2*n/10)*6	
Road freight	1/4			
Retail prices of road freight services are regulated		1/3	6	0
Government provides pricing guidelines to road freight companies		1/3	6	0
Professional bodies or representatives of trade and commercial interests are involved in specifying or enforcing pricing guidelines or regulations		1/3	6	0
Retail distribution	1/4			
Retail prices of certain products are subject to price controls		1/7	6	0
Retail prices of certain staples (e.g. milk and bread) are subject to price controls		1/7	6	0
Retail prices of gasoline are subject to price controls		1/7	6	0
Retail prices of tobacco are subject to price controls		1/7	6	0
Retail prices of alcohol are subject to price controls		1/7	6	0
Retail prices of pharmaceuticals are subject to price controls		1/7	6	0
Retail prices of other product are subject to price controls		1/7	6	0
Telecommunications: digital mobile service	1/4			
Retail prices are regulated		1	6	0
Country scores (0-6)		$\Sigma_j b_j \Sigma_k c_k$ answer$_{jk}$		

Table A2.1.7. Administrative burdens on startups

	Weight on company type (b$_j$)	*Weight on compliance type (c$_k$)*	Scale 0-6						
			0	1	2	3	4	5	6
Corporations	1/2								
Min. n. of procedures		1/4	<=3	<=5	<=8	<=12	<=16	<=20	>20
Min. n. of services		1/4	0	1	2	3	4	5	6
Max. delays (weeks)		1/4	<=4	<=8	<=12	<=16	<=20	<=24	>24
Min. direct and indirect costs (ECU)		1/4	<500	<1000	<1500	<2500	<5000	<7500	>=7500
Sole proprietor firms	1/2								
Min. n. of procedures		1/4	<=1	2	3	<=5	<=7	<=9	>9
Min. n. of services		1/4	0	1	2	3	4	5	6
Max. delays (weeks)		1/4	<=2	<=4	<=8	<=12	<=16	<=20	>20
Min. direct and indirect costs (ECU)		1/4	=0	<100	<300	<500	<750	<1000	>=1000
Country scores (0-6)		$\Sigma_j b_j \Sigma_k c_k$ (compliance type)$_{jk}$							

Table A2.1.8. Construction of the detailed indicators: Licenses and permits system

Categorical data on:		Coding of answers	
	Question weights (c_k)	Yes	No
Is the 'silence is consent' rule (i.e. that licenses are issued automatically if the competent licensing office has not acted by the end of the statutory response period) used at all?	1/3	0	6
Are there single contact points for getting information on licenses and notifications?	1/3	0	6
Are there single contact points for issuing or accepting on licenses and notifications (one-stop shops)?	1/3	0	6
Country scores (0-6)	$\Sigma_k c_k$ answer$_{jk}$		

Table A2.1.9. Construction of the detailed indicators: Communication and simplification of rules and procedures

Categorical data on:			Coding of answers	
	Weights by theme (b_j)	Question weights (c_k)	Yes	No
Communication	1			
There are systematic procedures for making regulations known and accessible to affected parties		1/6	0	6
There is a general policy requiring -plain language- drafting of regulation.		1/6	0	6
Affected parties have the right to appeal against adverse enforcement decisions in individual cases		1/6	0	6
There is communication at international level		1/6	0	6
There are inquiry points where affected or interested foreign parties can get information on the operation and enforcement of regulations		1/12	0	6
Government policy imposes specific requirements in relation to the following aspects of regulatory quality assurance, such as transparency/freedom of information		1/4	0	6
Simplification	1			
There is a complete count of the number of permits and licenses required by the national government (all ministries and agencies)		1/3	0	6
There is an explicit program to reduce the administrative burdens imposed by government on enterprises and/or citizens		1/3	0	6
There is a program underway to review and reduce the number of licenses and permits required by the national government		1/3	0	6
Country scores (0-6)	$\Sigma_j b_j \Sigma_k c_k$ answer$_{jk}$			

Table A2.1.10. Construction of the detailed indicators: Sector specific administrative burdens

Categorical data on:	Overall weight	Industry weights (b_j)	Question weights (c_k)	Coding of answers Yes	Coding of answers No
Road freight		1/2 (*)			
In order to operate a national business you need to obtain a license (other than a driving license) or a permit from the government or a regulatory agency			1/3	6	0
There are criteria other than technical and financial fitness and compliance with public safety requirements considered in decisions on entry of new operators			1/3	6	0
These entry regulations apply also if a firm wants to transport only for its own account			1/3	6	0
Retail distribution		1/2 (*)			
Registration procedures are needed to start up a commercial activity: food products			1/8	6	0
Registration procedures are needed to start up a commercial activity: clothing products	Normalised value of the indicator of general administrative burdens on startups (w)		1/8	6	0
Notification procedures are needed to start up a commercial activity: food products			1/8	6	0
Notification procedures are needed to start up a commercial activity: clothing products			1/8	6	0
License or permit are needed to start up a commercial activity (not related to outlet siting): food products			1/8	6	0
License or permit are needed to start up a commercial activity (not related to outlet siting): clothing products			1/8	6	0
Siting license is needed to start up a commercial activity (in addition to general urban planning provisions): food products			1/8	6	0
Siting license is needed to start up a commercial activity (in addition to general urban planning provisions): clothing products			1/8	6	0
Country scores (0-6)			$\omega * \Sigma_j b_j \Sigma_k c_k$ answer$_{jk}$		

Table A2.1.11. Construction of detailed indicators: Legal barriers to entry

Categorical data on the presence of legal barriers to entry				
National, state or provincial laws or other regulations restrict in at least some markets the number of competitors allowed to operate a business in :			*Answer*	
ISIC(Rev.2) code	*Industry*	*Weight (a_i)*	*Yes*	*No*
314	Tobacco manufactures	1	1	0
353	Petroleum refineries	1	1	0
37	Basic metal industries	1	1	0
38	Manufacture of fabricated metal products, machinery and equipment	1	1	0
4101	Electricity	1	1	0
4102	Gas manufacture and distribution	1	1	0
42	Water works and supply	1	1	0
61	Wholesale trade	1	1	0
63	Restaurant and hotels	1	1	0
7111	Railways	1	1	0
7112	Urban, suburban and interurban highway passenger transport	1	1	0
7113	Other passenger land transport	1	1	0
7114	Road freight	1	1	0
7116	Supporting services to land transport	1	1	0
712	Water transport	1	1	0
7116	Supporting services to water transport	1	1	0
7131	Air transport carriers	1	1	0
7132	Supporting services to air transport	1	1	0
72	Communication	1	1	0
81	Financial institutions	1	1	0
82	Insurance	1	1	0
832	Business services	1	1	0
9331	Medical, dental and other health services	1	1	0
9412	Motion picture distribution and projection	1	1	0
Country scores (0-6)		$6*(\Sigma_i a_i \text{ answer}_i)/24$		

Table A2.1.12. Construction of the detailed indicators: Antitrust exemptions

Categorical data on:			Answer codes	
Antitrust exemptions for public enterprises or state-mandated actions	*Overall weight*	*Question weights (c_k)*	*Yes*	*No*
Is there rule or principle providing for exclusion or exemption from liability under the general competition law for conduct that is required or authorized by other government authority (in addition to exclusions that might apply to complete sectors)?		1/4	6	0
Publicly-controlled firms : Exclusion or exemption from competition law : Cartel & other horizontal	% of business sectors in which the state controls at least a firm (w)	1/4	6	0
Publicly-controlled firms : Exclusion or exemption from competition law : Vertical & abuse of dominance - monopolization		1/4	6	0
Publicly-controlled firms : Exclusion or exemption from competition law : Merger		1/4	6	0
Country scores (0-6)		$\omega*\Sigma_k c_k \text{ answer}_k$		

Table A2.1.13. Construction of the detailed indicators: Discriminatory procedures

Categorical data on:			Coding of answers				
	Weights by theme (b_j)	Question weights (c_k)	Yes	No			
General discrimination	2/3						
The national treatment principle is explicitly recognized		1/3	0	6			
Appeal procedures relating to regulatory decisions are open to foreign parties		2/9	0	6			
There are specific provisions which require that regulations, prior to entry into force, be published or otherwise communicated to the public in a manner accessible at the international level		1/9	0	6			
Competition discrimination	1/3						
When business practices are perceived to restrict competition foreign firms can have redress **through competition agencies**			yes	no	yes	no	no
When business practices are perceived to restrict competition foreign firms can have redress **through trade policy bodies**		see scale	no	yes	no	yes	no
When business practices are perceived to restrict competition foreign firms can have redress **through private rights of action**			yes	yes	no	no	yes/no
Scale for competition discrimination			0	0	3	3	6
Country scores (0-6)			$\Sigma_j b_j \ \Sigma_k c_k$ answer$_{jk}$				

Table A2.1.14. Construction of the detailed indicators: Foreign ownership barriers

Categorical data on:	Weights by theme (b_j)	Question weights (c_k)	Coding of answers		
			Yes	Partly	No
General barriers	1/2				
There are statutory or other legal limits to the number or proportion of shares that can be acquired by foreign investors in publicly-controlled firms		2/3			
Special government rights can be exercised in the case of acquisition of equity by foreign investors		1/3			
Sector-specific barriers	1/2				
Foreign owneship restrictions in telecomunications		1/2	6	3	0
Ceiling on foreign ownership allowed in national air transport carriers		1/2	<50%=0 <40%=1.5 <35%=3 <30%=4.5 <25%=6		0
Country scores (0-6)			$\Sigma_j b_j \ \Sigma_k c_k$ answer$_{jk}$		

Table A2.1.15. Construction of the detailed indicators: Regulatory barriers

Categorical data on:	Coding of answers		
	Question weights (c_k)	*Yes*	*No*
The country has engaged in Mutual Recognition Agreements (MRAs) in at least a sector with any other country	0.4	0	6
There are specific provisions which require or encourage regulators to consider recognizing the equivalence of regulatory measures or the result of conformity assessment performed in other countries, wherever possible and appropriate	0.3	0	6
There are specific provisions which require or encourage regulators to use internationally harmonized standards and certification procedures wherever possible and appropriate	0.2	0	6
There is a requirement that unnecessary trade restrictiveness of regulations be avoided	0.1	0	6
Country scores (0-6)	$\Sigma_k c_k$ answer$_{jk}$		

Table A2.1.16. Construction of the detailed indicators: Tariffs

	Scale 0-6						
	0	1	2	3	4	5	6
Average production-weighted tariff	<=3%	<=6%	<=9%	<=12%	<=15%	<=18%	>18%

Source : OECD (1997) *Indicators of tariff and non-tariff trade barriers, Paris*

Table A2.1.17   Employment protection legislation for regular contracts: keys of conversion

Score assigned	Regular procedural inconveniences		Notice and severance pay for no-fault individual dismissals						Difficulty of dismissal			
	Procedures	Delay to start a notice	Notice period after			Severance pay after			definition of unfair dismissal	trial period	at 20y	reinstate-ment
			9m	4y	20y	9m	4y	20y				
	Scale 0-3	Days	Months	Months	Months	Months	Months	Months	Scale 0-3	Months	Months	Scale 0-3
0		<=2	0	0	<1	0	0	0		>=24	<=3	
1		>2	>0	>0	>=1	>0	>0	>0		>12	>3	
2	scale0-3*2	>=10	>0,4	>0,75	>2,75	>0,5	>0,5	>3	scale0-3*2	>9	>8	scale0-3*2
3		>=18	>0,8	>1,25	>=5	>1	>1	>6		>6	>12	
4		>=26	>1,2	>=2	>=7	>1,75	>2	>10		>3	>18	
5		>=35	>=1,6	>3	>=9	>2,5	>3	>12		>=1.5	>24	
6		>=45	>=2	>=4	>=11	>=3,0	>=4	>18		<1,5	>30	

Table A2.1.18 Employment protection legislation for temporary contracts: keys of conversion

Score assigned	Fixed term contracts			Temporary work agency (TWA) employment		
	Valid cases other than the usual "objective"	Maximum nbr of successive contracts	Maximum cumulated duration	Types of work for which TWA is legal	Restrictions on number of renewals	Maximum cumulated duration
	Scale 0-3	Number	Months	Scale 0-4	Yes/No	Months
0		no limit	no limit			no limit
1		>=5	>36			>=36
2	6-scale0-3*2	>=4	>=30	6-scale0-4*6/4	0	>=24
3		>=3	>=24			>=18
4		>=2	>=18		1	>=12
5		>=1.5	>=12			>6
6		>=0	<12			<=6

Table A2.2.1. State control : values of the detailed indicators (1)

	Scope of public enterprise sector	Size of public enterprise sector	Special voting rights	Control of public entreprises by legislative bodies	Use of command & control regulation (2)	Price controls (2)
Australia	2.8	0.0	0.0	0.0	2.4	1.8
Austria	4.8	2.4	2.0	0.0	2.9	0.0
Belgium	1.8	1.1	5.0	1.8	4.5	2.8
Canada	1.8	1.4	2.0	0.0	1.6	1.0
Czech. Rep.	4.4	2.6	6.0	4.4	2.6	0.3
Germany	1.8	1.4	2.0	0.0	3.4	1.7
Denmark	3.0	1.0	2.0	3.0	4.4	1.0
Finland	3.3	3.9	2.0	3.3	2.9	0.5
France	3.8	2.6	3.0	0.0	4.8	0.9
Greece	3.3	2.4	6.0	3.3	5.5	3.0
Hungary	3.3	3.4	6.0	3.3	1.4	1.1
Ireland	1.8	1.4	0.0	**1.5**	0.0	1.0
Italy	5.3	2.3	6.0	5.3	3.1	2.2
Japan	1.5	0.0	2.0	0.0	1.4	2.9
Korea	2.3	1.4	6.0	2.3	1.0	2.0
Mexico	3.5	1.4	2.0	0.0	1.8	1.3
Netherlands	2.5	1.2	6.0	2.5	2.0	0.2
Norway	3.7	3.9	3.5	3.7	1.9	2.7
New Zealand	1.5	0.0	5.5	1.5	1.9	0.3
Poland	6.0	3.0	6.0	6.0	**4.3**	0.5
Portugal	3.9	2.7	5.5	0.0	3.9	1.0
Spain	4.0	0.8	4.0	0.0	4.6	1.8
Sweden	2.1	2.8	2.0	2.1	0.4	0.0
Switzerland	3.0	0.0	5.0	3.0	1.8	0.3
Turkey	4.3	2.9	2.0	4.3	3.8	2.3
United Kingdom	0.0	0.0	0.0	0.0	2.3	0.6
United States	2.0	0.0	2.0	0.0	1.1	0.0

Bold = some missing data points were estimated

1. Indicators used in factor analysis

2. Includes sector specific information on road freight, air transport, retail distribution and some telecommunications services

Table A2.2.2. Barriers to entrepreneurship: values of the detailed indicators (1)

	Licences and permits system	Communication and simplification of rules and procedures	Administrative burdens for corporations	Administrative burdens for sole proprietor firms	Sector specific administrative burdens (2)	Legal barriers to entry	Antitrust exemptions (3)
Australia	2.0	0.6	1.0	2.0	0.0	2.3	0.5
Austria	0.0	0.9	2.8	2.3	2.2	4.0	0.0
Belgium	6.0	0.8	1.5	4.0	2.8	1.8	0.5
Canada	0.0	0.3	1.5	1.5	1.0	**0.7**	0.5
Czech. Rep.	2.0	1.0	**2.2**	**1.7**	**1.6**	0.8	0.0
Germany	4.0	1.3	2.5	3.3	2.3	0.5	0.0
Denmark	4.0	1.0	0.5	0.3	0.0	2.6	1.3
Finland	4.0	1.6	1.5	2.5	1.4	0.8	1.2
France	4.0	0.9	3.3	3.8	3.6	2.0	1.1
Greece	2.0	1.0	3.3	1.3	2.1	1.8	0.0
Hungary	0.0	0.4	**0.9**	**0.6**	**0.4**	1.8	1.1
Ireland	4.0	0.6	1.5	0.8	0.3	**0.7**	0.0
Italy	0.0	0.8	5.3	4.3	4.5	3.0	1.3
Japan	6.0	1.5	2.3	2.3	1.5	2.3	0.3
Korea	6.0	2.0	**4.3**	**3.4**	**3.6**	0.8	0.6
Mexico	4.0	0.5	**2.1**	**1.6**	**1.6**	1.3	0.0
Netherlands	2.0	0.6	1.8	1.8	1.3	2.0	0.6
Norway	2.0	0.3	1.9	1.9	1.1	2.5	0.0
New Zealand	4.0	0.6	1.0	1.0	0.7	0.3	0.3
Poland	2.0	1.1	**2.3**	**1.8**	**1.8**	**2.4**	1.5
Portugal	2.0	0.0	2.5	1.5	1.5	**1.3**	1.1
Spain	2.0	0.3	3.8	1.8	3.3	0.5	0.0
Sweden	6.0	1.1	1.3	1.0	0.6	1.3	0.8
Switzerland	6.0	0.5	3.3	3.3	0.0	2.3	0.0
Turkey	4.0	2.3	**4.1**	**3.3**	**3.5**	2.0	3.6
United Kingdom	0.0	0.0	0.8	1.3	0.4	1.3	0.0
United States	4.0	0.6	0.5	1.3	0.5	1.0	1.3

Bold = some missing data points were estimated

1. Indicators used in factor analysis

2. Includes sector specific information on road freight, air transport, retail distribution and some telecommunications services

3. Exemptions to public enterprises and state-mandated actions only

Table A2.2.3. Barriers to trade and investment: values of the detailed indicators (1)

	Ownership barriers	Discriminatory procedures	Regulatory barriers	Tariffs
Australia	0.8	0.0	0.0	1.0
Austria	0.0	0.5	0.0	2.0
Belgium	0.0	0.0	0.7	2.0
Canada	3.6	1.4	0.0	4.0
Czech. Rep.	4.0	3.4	3.1	**5.1**
Germany	0.0	0.5	0.0	2.0
Denmark	0.0	0.5	0.0	2.0
Finland	0.0	0.0	0.7	2.0
France	1.8	0.5	0.0	2.0
Greece	1.0	2.0	0.7	2.0
Hungary	2.5	0.0	0.0	**2.0**
Ireland	0.0	0.0	0.0	2.0
Italy	0.0	0.3	0.0	2.0
Japan	1.9	1.4	0.0	1.0
Korea	2.3	0.0	2.3	2.0
Mexico	2.7	1.4	0.3	5.0
Netherlands	0.0	0.5	0.0	2.0
Norway	1.9	**1.6**	0.0	6.0
New Zealand	0.0	2.5	0.0	2.0
Poland	1.5	4.4	4.4	**5.0**
Portugal	1.3	**1.3**	0.0	2.0
Spain	0.0	0.3	0.7	2.0
Sweden	0.0	2.0	0.0	2.0
Switzerland	1.4	0.0	2.4	1.0
Turkey	2.9	2.9	0.0	3.0
nited Kingdom	0.0	0.0	0.0	2.0
United States	2.2	0.3	0.0	1.0

Bold = some missing data points were estimated

1. Indicators used in factor analysis

Table A2.2.4 Indicators of employment protection for regular employment: scores 0 - 6

	Regular procedural inconveniences				Notice and severance pay for no-fault individual dismissals by tenure categories												Difficulty of dismissal							
	Procedures		Delay to start of notice		Notice period after						Severance pay after						Definition of unfair dismissal		Trial period before eligibility arises		Unfair dismissal compensation at 20 years of		Extent of reinstatement	
					9 months		4 years		20 years		9 months		4 years		20 years									
	Late 1980s	1998	Late 1980s	1998	Late 1980s	1998	Late 1980s	1998	Late 1980s	1998	Late 1980s	1998	Late 1980s	1998	Late 1980s	1998	Late 1980s	1998	Late 1980s	1998	Late 1980s	1998	Late 1980s	1998
Australia	1.0	1.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	2.0	2.0	1.0	1.0	0.0	0.0	*0.0*	*0.0*	*1.0*	*1.0*	3.0	3.0
Austria	4.0	4.0	1.0	1.0	3.0	3.0	2.0	2.0	1.0	1.0	0.0	0.0	3.0	3.0	3.0	3.0	2.0	2.0	6.0	6.0	3.0	3.0	2.0	2.0
Belgium	1.0	1.0	0.0	0.0	6.0	6.0	4.0	4.0	5.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	4.0	3.0	3.0	0.0	0.0
Canada	0.0	0.0	0.0	0.0	2.0	2.0	1.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	0.0	0.0	4.0	4.0	*0.0*	*0.0*	2.0	2.0
Czech Rep.	-	4.0	-	1.0	-	6.0	-	4.0	-	1.0	-	2.0	-	2.0	-	1.0	-	4.0	-	4.0	-	1.0	-	4.0
Denmark	1.0	1.0	0.0	0.0	5.0	5.0	4.0	4.0	3.0	2.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	5.0	5.0	2.0	2.0	2.0	2.0
Finland	3.5	3.5	6.0	2.0	6.0	3.0	4.0	4.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	4.0	4.0	2.0	2.0	0.0	0.0
France	3.0	3.5	2.0	2.0	3.0	3.0	4.0	4.0	1.0	1.0	0.0	0.0	1.0	1.0	1.0	1.0	3.0	3.0	5.0	5.0	3.0	3.0	0.0	0.0
Germany	5.0	5.0	2.0	2.0	3.0	3.0	2.0	2.0	2.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	3.0
Greece	4.0	4.0	0.0	0.0	2.0	2.0	3.0	3.0	5.0	4.0	1.0	1.0	2.0	2.0	2.0	2.0	1.0	1.0	5.0	4.0	3.0	3.0	4.0	4.0
Hungary	-	2.0	-	2.0	-	3.0	-	2.0	-	2.0	-	0.0	-	2.0	-	2.0	-	0.0	-	4.0	-	2.0	-	4.0
Ireland	3.0	3.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	1.0	1.0	1.0	1.0	0.0	0.0	2.0	2.0	4.0	4.0	2.0	2.0
Italy	3.0	3.0	0.0	0.0	1.0	1.0	2.0	2.0	1.0	1.0	2.0	2.0	5.0	5.0	5.0	5.0	0.0	0.0	6.0	6.0	6.0	6.0	4.0	4.0
Japan	3.0	3.0	1.0	1.0	3.0	3.0	2.0	2.0	1.0	1.0	0.0	0.0	3.0	3.0	2.0	2.0	4.0	4.0	4.0	4.0	5.0	5.0	4.0	4.0
Korea	5.0	3.5	-	4.0	-	3.0	-	2.0	-	1.0	0.0	0.0	3.0	3.0	2.0	2.0	-	4.0	-	0.0	-	-	-	4.0
Mexico	-	2.0	-	0.0	-	0.0	-	0.0	-	0.0	-	6.0	-	4.0	-	1.0	-	6.0	-	-	-	3.0	-	2.0
Netherlands	6.0	6.0	5.0	4.0	2.0	3.0	2.0	2.0	3.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	5.0	5.0	1.0	3.0	2.0	2.0
New Zealand	1.6	1.6	*1.0*	1.0	*1.0*	2.0	*1.0*	1.0	*0.0*	0.0	*0.0*	0.0	*3.0*	3.0	*2.0*	2.0	*0.0*	0.0	*5.0*	5.0	-	-	-	2.0
Norway	3.0	3.0	0.0	0.0	3.0	3.0	2.0	2.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	5.0	6.0	6.0	3.0	3.0	4.0	4.0
Poland	-	4.0	-	2.0	-	3.0	-	4.0	-	2.0	-	0.0	-	0.0	-	0.0	-	0.0	-	5.0	-	0.0	-	4.0
Portugal	5.0	4.0	3.0	3.0	6.0	6.0	4.0	4.0	1.0	1.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	4.0	6.0	5.0	4.0	4.0	6.0	5.0
Spain	4.5	4.0	5.0	0.0	3.0	3.0	4.0	2.0	2.0	1.0	1.0	1.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	6.0	4.0	0.0	0.0
Sweden	4.0	4.0	2.0	2.0	3.0	3.0	6.0	4.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	4.0	3.0	3.0	6.0	6.0	2.0	2.0
Switzerland	1.0	1.0	0.0	0.0	3.0	3.0	4.0	4.0	2.0	2.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	5.0	5.0	1.0	1.0	0.0	0.0
Turkey	4.0	4.0	0.0	0.0	-	3.0	-	4.0	-	1.0	-	0.0	-	6.0	-	6.0	-	0.0	-	5.0	-	5.0	-	0.0
United Kingdom	2.0	2.0	0.0	0.0	1.0	1.0	2.0	2.0	2.0	2.0	0.0	0.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0
United States	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	*0.0*	*0.0*	*0.0*	*0.0*	1.0	1.0

- = data not available.

Data in italics have been estimated on the basis of information on reforms over the 1990s or other sources.

Table A2.2.5 Indicators of employment protection for temporary employment: scores 0 - 6

	Fixed-term contracts						Temporary work agencies (TWAs)					
	Valid cases other than the usual *objective reasons*		Maximum number of successive contracts		Maximum cumulated duration		Types of work for which TWA employment is legal		Restrictions on number of renewals		Maximum cumulated duration of temporary work contracts	
	Late 1980s	1998	Late 1980s	1998	Late 1980s	1998	Late 1980s	1998	Late 1980s	1998	Late 1980s	1998
Australia	0.0	0.0	5.0	5.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0
Austria	1.0	1.0	5.0	5.0	0.0	0.0	1.5	1.5	4.0	4.0	0.0	0.0
Belgium	6.0	2.0	6.0	2.0	3.0	2.0	1.5	1.5	4.0	4.0	6.0	4.0
Canada	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0
Czech Rep.	-	1.0	-	0.0	-	0.0	6.0	0.0	-	2.0	-	0.0
Denmark	0.0	0.0	5.0	5.0	0.0	0.0	3.0	0.0	4.0	2.0	6.0	0.0
Finland	4.0	4.0	5.0	5.0	0.0	0.0	0.0	0.0	*2.0*	2.0	0.0	0.0
France	4.0	4.0	3.0	4.0	3.0	4.0	2.3	3.0	*4.0*	4.0	2.0	3.0
Germany	2.0	1.0	6.0	2.0	4.0	3.0	3.0	1.5	4.0	4.0	6.0	4.0
Greece	6.0	6.0	4.0	4.0	0.0	0.0	6.0	6.0	*4.0*	*4.0*	*6.0*	6.0
Hungary	-	1.0	-	0.0	-	1.0	6.0	0.0	-	2.0	-	0.0
Ireland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0
Italy	5.0	4.0	5.0	4.0	6.0	5.0	6.0	4.5	*4.0*	4.0	6.0	0.0
Japan	*1.0*	1.0	4.0	4.0	*0.0*	0.0	3.0	3.0	*4.0*	4.0	*4.0*	1.0
Korea	-	1.0	-	4.0	-	0.0	6.0	2.3	-	4.0	-	2.0
Mexico	-	5.0	-	0.0	-	0.0	-	-	-	-	-	-
Netherlands	0.0	0.0	6.0	3.0	0.0	0.0	1.5	0.8	4.0	4.0	6.0	1.0
New Zealand	*0.0*	0.0	*1.0*	1.0	*0.0*	0.0	*0.0*	0.0	*2.0*	2.0	*0.0*	0.0
Norway	4.0	4.0	5.0	5.0	0.0	0.0	3.8	1.5	4.0	4.0	2.0	2.0
Poland	-	0.0	-	4.0	1.0	0.0	6.0	0.0	-	4.0	-	0.0
Portugal	2.0	2.0	3.0	3.0	2.0	2.0	4.5	3.0	4.0	4.0	5.0	5.0
Spain	2.0	4.0	1.0	3.0	2.0	2.0	6.0	3.0	*4.0*	4.0	*6.0*	6.0
Sweden	2.0	1.0	4.0	0.0	*5.0*	5.0	6.0	0.0	*4.0*	2.0	*6.0*	4.0
Switzerland	0.0	0.0	5.0	5.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0
Turkey	6.0	6.0	-	5.0	1.0	0.0	6.0	6.0	-	-	-	-
United Kingdom	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0
United States	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0

- = data not available.

Data in italics have been estimated on the basis of information on reforms over the 1990s or other sources.

Table A3.1 : **State control: Country scores by domain and sub-domain (1)**

	Summary indicators		
	Domain	*Sub-domains*	
	State control	Public ownership	Involvement in business operation
Australia	1.26	0.81	1.83
Austria	2.11	2.36	1.77
Belgium	2.78	2.01	3.78
Canada	1.29	1.19	1.42
Germany	1.76	1.22	2.46
Denmark	2.46	2.28	2.70
Finland	2.68	3.28	1.90
France	2.63	2.30	3.04
Greece	3.87	3.39	4.50
Irlande	0.94	1.32	0.46
Italy	3.92	4.44	3.26
Japan	1.29	0.70	2.05
Netherlands	2.28	2.57	1.90
Norway	3.19	3.72	2.51
New Zealand	1.66	1.58	1.77
Portugal	2.83	2.69	3.02
Spain	2.59	1.95	3.42
Sweden	1.51	2.25	0.55
Switzerland	2.08	2.34	1.75
United Kingdom	0.55	0.03	1.22
United States	0.85	0.84	0.87
Czech Rep,	3.30	4.08	2.31
Hungary	2.94	3.62	2.06
Korea	2.33	2.47	2.16
Mexico	1.71	1.70	1.72
Poland	4.25	5.07	3.20
Turkey	3.30	3.55	2.99

(1) Computed using weights in Table 5. Due to data problems, the weights were estimated based on the detailed indicators for countries above the line.

Table A3.2. **Barriers to entrepreneuship : Country scores by domain and sub-domain (1)**

	Summary indicators			
	Domain	*Sub-domains*		
	Barriers to entrepreneurship	Administrative burdens on startups	Regulatory and administrative opacity	Barriers to competition
Australia	1.13	1.03	1.40	0.98
Austria	1.60	2.43	0.57	1.16
Belgium	2.55	2.64	3.52	0.97
Canada	0.80	1.27	0.21	0.55
Germany	2.10	2.53	2.69	0.30
Denmark	1.32	0.43	2.51	1.68
Finland	1.93	1.72	2.81	1.16
France	2.73	3.39	2.61	1.40
Greece	1.66	2.21	1.54	0.58
Ireland	1.20	0.89	2.31	0.30
Italy	2.74	4.49	0.63	1.75
Japan	2.33	2.03	3.78	0.97
Netherlands	1.41	1.59	1.39	1.03
Norway	1.33	1.63	1.28	0.73
New Zealand	1.21	0.89	2.32	0.34
Portugal	1.46	1.80	1.14	1.14
Spain	1.77	2.79	1.23	0.22
Sweden	1.80	1.04	3.56	1.04
Switzerland	2.24	2.15	3.42	0.75
United Kingdom	0.48	0.78	0.09	0.35
United States	1.26	0.75	2.11	1.23
Czech. Rep.	1.38	1.75	1.53	0.31
Hungary	0.68	0.71	0.25	1.22
Korea	3.14	3.59	4.03	0.85
Mexico	1.65	1.76	2.32	0.45
Poland	1.83	1.99	1.64	1.73
Turkey	3.37	3.56	3.24	3.11

(1) Computed using weights in Table 7. Due to data problems, the weights were based on the detailed indicators for countries above the line.

Table A3.3. **Barriers to trade and investment : Country scores by domain and sub-domain (1)**

	Summary indicators		
	Domain	*Sub-domains*	
	Barriers to trade and investment	Explicit barriers	Other barriers
Australia	0.43	0.65	0.14
Austria	0.54	0.74	0.28
Belgium	0.63	0.62	0.65
Canada	2.15	3.18	0.84
Germany	0.54	0.74	0.28
Denmark	0.54	0.74	0.28
Finland	0.63	0.62	0.65
France	1.03	1.53	0.38
Greece	1.32	1.55	1.04
Ireland	0.43	0.62	0.20
Italy	0.49	0.68	0.24
Japan	1.02	1.48	0.44
Netherlands	0.54	0.74	0.28
Norway	2.15	3.08	0.97
New Zealand	0.95	1.21	0.61
Portugal	1.07	1.52	0.49
Spain	0.68	0.68	0.69
Sweden	0.84	1.09	0.53
Switzerland	1.32	0.93	1.81
United Kingdom	0.43	0.62	0.20
United States	0.87	1.35	0.27
Czech. Rep.	3.83	4.18	3.37
Hungary	1.14	1.76	0.35
Korea	1.74	1.64	1.87
Mexico	2.21	3.08	1.11
Poland	3.71	3.27	4.29
Turkey	2.07	2.94	0.95

(1) Computed using weights in Table 10. Due to data problems, the weights were estimated based on the detailed indicators for countries above the line.

Table A3.4. **Administrative regulation: Country scores by domain and sub-domain (1)**

	Summary indicators		
	Domain	*Sub-domains*	
	Administrative regulation	Administrative burdens of startups	Regulatory and administrative opacity
Australia	1.1	1.0	1.4
Austria	1.6	2.3	0.5
Belgium	3.0	2.7	3.5
Canada	0.9	1.3	0.2
Germany	2.7	2.7	2.7
Denmark	1.1	0.3	2.4
Finland	2.2	1.8	2.8
France	3.1	3.5	2.6
Greece	2.0	2.2	1.5
Ireland	1.5	0.9	2.3
Italy	3.0	4.6	0.6
Japan	2.7	2.0	3.7
Netherlands	1.5	1.6	1.3
Norway	1.4	1.6	1.2
New Zealand	1.5	0.9	2.3
Portugal	1.5	1.8	1.1
Spain	2.3	2.9	1.2
Sweden	2.0	1.0	3.5
Switzerland	2.6	2.1	3.3
United Kingdom	0.5	0.8	0.1
United States	1.2	0.7	2.0
Czech. Rep.	1.7	1.8	1.6
Hungary	0.5	0.6	0.2
Korea	3.9	3.8	4.1
Mexico	2.0	1.8	2.3
Poland	1.8	2.0	1.6
Turkey	3.5	3.6	3.2

(1) Computed using weights in Table 9. Due to data problems, the weights were estimated based on the detailed indicators for countries above the line.

Table A3.5. **Economic regulation: Country scores by domain and sub-domain (1)**

	Summary indicators		
	Domain	***Sub-domains***	
	Economic regulation	Regulation of economic structure	Regulation of economic behaviour	Regulation of competition
Australia	1.3	1.6	1.3	1.0
Austria	2.1	3.2	2.1	0.5
Belgium	2.4	1.7	3.9	1.5
Canada	1.1	1.0	1.5	0.8
Germany	1.4	1.0	2.3	0.7
Denmark	2.3	2.5	2.8	1.4
Finland	2.1	2.5	2.3	1.2
France	2.3	2.3	3.2	1.3
Greece	3.1	2.6	4.8	1.5
Ireland	0.8	1.2	0.4	0.5
Italy	3.5	3.9	4.1	2.0
Japan	1.4	1.2	1.7	1.2
Netherlands	2.1	2.1	3.0	0.8
Norway	2.7	3.2	2.8	1.5
New Zealand	1.4	0.9	2.7	0.4
Portugal	2.5	2.2	3.7	1.3
Spain	2.1	1.6	3.5	0.8
Sweden	1.3	1.9	1.1	0.8
Switzerland	1.9	2.2	2.7	0.4
United Kingdom	0.6	0.4	0.9	0.3
United States	1.0	1.0	1.2	0.8
Czech. Rep.	2.5	2.8	3.5	0.6
Hungary	2.6	2.8	3.1	1.5
Korea	2.0	1.6	3.0	1.3
Mexico	1.5	1.7	1.8	0.7
Poland	3.6	4.2	4.4	1.6
Turkey	3.1	3.2	3.0	3.0

(1) Computed using weights in Table 8. Due to data problems, the weights were estimated based on the detailed indicators for countries above the line.

Table A3.6. **Product market regulation: Country scores by domain and sub-domain (1)**

	Summary indicators		
	Domain	**_Sub-domains_**	
	Product market regulation	Inward-oriented policies	Outward-oriented policies
Australia	0.9	1.2	0.5
Austria	1.4	1.8	0.7
Belgium	1.9	2.7	0.9
Canada	1.5	1.0	2.0
Germany	1.4	1.9	0.7
Denmark	1.4	1.9	0.7
Finland	1.7	2.3	0.8
France	2.1	2.7	1.2
Greece	2.2	2.7	1.5
Ireland	0.8	1.1	0.5
Italy	2.3	3.3	0.8
Japan	1.5	1.8	1.1
Netherlands	1.4	1.8	0.7
Norway	2.2	2.2	2.2
New Zealand	1.3	1.4	1.0
Portugal	1.7	2.1	1.2
Spain	1.6	2.2	0.9
Sweden	1.4	1.7	0.9
Switzerland	1.8	2.2	1.4
United Kingdom	0.5	0.5	0.4
United States	1.0	1.1	0.9
Czech. Rep.	2.9	2.3	3.7
Hungary	1.6	1.8	1.2
Korea	2.4	2.7	1.8
Mexico	1.9	1.7	2.2
Poland	3.3	3.0	3.7
Turkey	2.9	3.3	2.2

(1) Computed using weights in Table 11. Due to data problems, the weights were based on the detailed indicators for countries above the line.

Table A3.7. **Synopsis of summary indicators of product market regulation by domain (1)**
(point estimates)

	Summary indicators					
	Overall indicator	*Domains*				
	Product market regulation	*State control*	*Barriers to entrepreneurship*	*Barriers to trade and investment*	*Economic regulation*	*Administrative regulation*
Australia	0.9	1.3	1.1	0.4	1.3	1.1
Austria	1.4	2.1	1.6	0.5	2.1	1.6
Belgium	1.9	2.8	2.6	0.6	2.4	3.0
Canada	1.5	1.3	0.8	2.2	1.1	0.9
Germany	1.4	1.8	2.1	0.5	1.4	2.7
Denmark	1.4	2.5	1.3	0.5	2.3	1.1
Finland	1.7	2.7	1.9	0.6	2.1	2.2
France	2.1	2.6	2.7	1.0	2.3	3.1
Greece	2.2	3.9	1.7	1.3	3.1	2.0
Ireland	0.8	0.9	1.2	0.4	0.8	1.5
Italy	2.3	3.9	2.7	0.5	3.5	3.0
Japan	1.5	1.3	2.3	1.0	1.4	2.7
Netherlands	1.4	2.3	1.4	0.5	2.1	1.5
Norway	2.2	3.2	1.3	2.2	2.7	1.4
New Zealand	1.3	1.7	1.2	0.9	1.4	1.5
Portugal	1.7	2.8	1.5	1.1	2.5	1.5
Spain	1.6	2.6	1.8	0.7	2.1	2.3
Sweden	1.4	1.5	1.8	0.8	1.3	2.0
Switzerland	1.8	2.1	2.2	1.3	1.9	2.6
United Kingdom	0.5	0.6	0.5	0.4	0.6	0.5
United States	1.0	0.9	1.3	0.9	1.0	1.2
Czech Rep,	2.9	3.3	1.4	3.8	2.5	1.7
Hungary	1.6	2.9	0.7	1.1	2.6	0.5
Korea	2.4	2.3	3.1	1.7	2.0	3.9
Mexico	1.9	1.7	1.7	2.2	1.5	2.0
Poland	3.3	4.2	1.8	3.7	3.6	1.8
Turkey	2.9	3.3	3.4	2.1	3.1	3.5

(1) Due to data problems, the weights were based on the detailed indicators for countries above the line.

Table A3.8. **Synopsis of summary indicators of product market regulation by domain (1)**
(interval estimates)

	Overall indicator	Summary indicators				
			Domains			
	Product market regulation	State control	Barriers to entrepreneurship	Barriers to trade and investment	Economic regulation	Administrative regulation
Australia	0.9	1.3	1.1	0.4	1.3	1.1
Austria	1.4	2.1	1.6	0.5	2.1	1.6
Belgium	1.9	2.8	2.6	0.6	2.4	3.0
Canada	1.4-1.6	1.3	0.7-1.3	2.2	1.0-1.9	0.9
Germany	1.4	1.8	2.1	0.5	1.4	2.7
Denmark	1.4	2.5	1.3	0.5	2.3	1.1
Finland	1.7	2.7	1.9	0.6	2.1	2.2
France	2.1	2.6	2.7	1.0	2.3	3.1
Greece	2.2	3.9	1.7	1.3	3.1	2.0
Ireland	0.7-1.2	0.7-1.6	1.1-1.7	0.4	0.5-2.0	1.5
Italy	2.3	3.9	2.7	0.5	3.5	3.0
Japan	1.5	1.3	2.3	1.0	1.4	2.7
Netherlands	1.4	2.3	1.4	0.5	2.1	1.5
Norway	2.2-2.6	3.2	1.3	1.8-3.1	2.7	1.4
New Zealand	1.3	1.7	1.2	0.9	1.4	1.5
Portugal	1.6-2.2	2.8	1.3-1.9	0.8-2.0	2.3-3.2	1.5
Spain	1.6	2.6	1.8	0.7	2.1	2.3
Sweden	1.4	1.5	1.8	0.8	1.3	2.0
Switzerland	1.8	2.1	2.2	1.3	1.9	2.6
United Kingdom	0.5	0.6	0.5	0.4	0.6	0.5
United States	1.0	0.9	1.3	0.9	1.0	1.2
Czech Rep,	2.2-3.6	3.3	0.5-3.3	2.7-4.0	2.5	0.6-4.3
Hungary	1.3-2.7	2.9	0.4-3.2	0.7-2.0	2.6	0.1-3.7
Korea	1.8-2.7	2.3	1.4-4.2	1.7	2.0	1.6-5.3
Mexico	1.6-2.5	1.7	0.8-3.6	2.2	1.5	0.9-4.6
Poland	2.2-4.2	3.4-4.6	0.7-4.0	2.6-3.9	2.7-4.4	0.6-4.3
Turkey	2.3-3.2	3.3	1.7-4.5	2.1	3.1	1.2-4.9

(1) Due to data problems, the weights were based on the detailed indicators for countries above the line.

Table A3.9. **Employment protection legislation: Regular contracts**
Country scores by domain and sub-domain (1)

	Summary indicators							
	Domain		*Sub-domains*					
	EPL : Regular contracts (1998)	EPL : Regular contracts (1990)	Procedural inconveniences (1998)	Direct cost of dismissals (1998)	Delay of dismissal (1998)	Procedural inconveniences (1990)	Direct cost of dismissals (1990)	Delay of dismissal (1990)
Australia	0.9	0.9	0.5	1.7	0.6	0.5	1.7	0.6
Austria	2.8	2.8	2.5	2.4	3.7	2.5	2.4	3.7
Belgium	1.6	1.6	0.8	0.7	4.1	0.8	0.7	4.1
Canada	0.9	0.9	0.1	1.3	2.0	0.1	1.3	2.0
Germany	3.0	2.9	3.7	1.9	3.1	3.7	1.9	2.8
Denmark	1.7	1.8	0.7	1.5	3.8	0.7	1.5	3.9
Finland	2.3	2.5	2.7	0.6	3.4	3.1	0.6	3.7
France	2.5	2.4	2.8	1.1	3.6	2.7	1.0	3.6
Greece	2.6	2.8	2.0	2.9	3.3	2.0	3.0	3.9
Ireland	1.7	1.7	1.8	1.7	1.6	1.8	1.7	1.6
Italy	3.0	3.0	1.8	4.2	3.6	1.8	4.2	3.6
Japan	3.0	2.5	2.9	3.1	3.1	2.9	2.8	1.6
Netherlands	3.2	3.1	4.2	1.6	3.5	4.2	1.4	3.4
Norway	2.9	2.9	2.7	2.3	4.1	2.7	2.3	4.1
New Zealand	1.6	1.5	0.9	1.8	2.5	0.8	1.8	2.3
Portugal	4.3	5.0	3.7	5.2	4.3	4.6	5.7	4.8
Spain	2.8	3.8	2.8	2.1	3.5	4.6	2.4	4.1
Sweden	3.0	3.1	3.6	1.8	3.4	3.7	1.8	3.7
Switzerland	1.3	1.3	0.5	0.6	3.4	0.5	0.6	3.4
United Kingdom	0.7	0.7	0.8	0.5	0.9	0.8	0.5	0.9
United States	0.1	0.1	0.0	0.4	0.0	0.0	0.4	0.0
Czech. Rep.	3.0	-	2.8	2.7	3.6	-	-	-
Hungary	2.2	-	1.6	2.6	2.8	-	-	-
Korea	-	-	-	-	-	-	-	-
Mexico	2.0	-	2.5	2.7	0.6			
Poland	2.3	-	1.9	1.9	3.4	-	-	-
Turkey	2.6	-	1.9	2.6	3.7	-	-	-

(1) Computed using weights in Table 12. Due to data problems, the weights were estimated based on the detailed indicators for countries above the line.

Table A3.10. **Employment protection legislation: Temporary contracts**
Country scores by domain and sub-domain (1)

	Summary indicators					
	Domain		*Sub-domains*			
	EPL : Temporary contracts (1998)	EPL : Temporary contracts (1990)	Procedures (1998)	Duration (1998)	Procedures (1990)	Duration (1990)
Australia	1.2	1.2	1.6	0.8	1.6	0.8
Austria	2.0	2.0	2.6	1.1	2.6	1.1
Belgium	2.6	4.4	2.5	2.7	4.5	4.4
Canada	0.3	0.3	0.4	0.2	0.4	0.2
Germany	2.5	4.2	2.2	3.0	3.9	4.6
Denmark	1.2	3.1	1.6	0.8	3.2	3.0
Finland	1.9	1.9	2.5	1.0	2.5	1.0
France	3.7	3.0	3.7	3.6	3.2	2.8
Greece	4.5	4.5	5.1	3.5	5.1	3.5
Ireland	0.3	0.3	0.4	0.2	0.4	0.2
Italy	3.6	5.3	3.8	3.2	5.1	5.7
Japan	2.3	2.7	2.8	1.4	3.0	2.3
Netherlands	1.5	3.0	1.8	1.0	3.0	2.9
Norway	2.8	3.2	3.5	1.9	4.0	2.1
New Zealand	0.5	0.5	0.7	0.3	0.7	0.3
Portugal	3.2	3.5	3.1	3.3	3.5	3.4
Spain	3.7	3.5	3.7	3.7	3.5	3.6
Sweden	1.8	3.8	1.0	3.1	4.1	3.3
Switzerland	1.2	1.2	1.6	0.8	1.6	0.8
United Kingdom	0.3	0.3	0.4	0.2	0.4	0.2
United States	0.3	0.3	0.4	0.2	0.4	0.2
Czech. Rep.	0.5	-	0.7	0.2	-	-
Hungary	0.6	-	0.7	0.6	-	-
Korea	2.3	-	2.7	1.7	-	-
Mexico	-	-	-	-	-	-
Poland	1.4	0.0	1.8	0.8	0.0	0.0
Turkey	4.6	-	5.3	3.6	4.4	3.5

(1) Computed using weights in Table 13. Due to data problems, the weights were estimated based on the
detailed indicators for countries above the line.

Table A3.11. **Synopsis of summary indicators of employment protection legislation (1)**

	1998			1990			Evolution		
	EPL	EPL Regular contracts	EPL Temporary contracts	EPL	EPL Regular contracts	EPL Temporary contracts	EPL	EPL Regular contracts	EPL Temporary contracts
Australia	1.1	0.9	1.2	1.1	0.9	1.2	0.0	0.0	0.0
Austria	2.4	2.8	2.0	2.4	2.8	2.0	0.0	0.0	0.0
Belgium	2.1	1.6	2.6	3.0	1.6	4.4	0.0	-1.9	-0.9
Canada	0.6	0.9	0.3	0.6	0.9	0.3	0.0	0.0	0.0
Germany	2.8	3.0	2.5	3.6	2.9	4.2	0.1	-1.6	-0.8
Denmark	1.5	1.7	1.2	2.4	1.8	3.1	0.0	-1.8	-0.9
Finland	2.1	2.3	1.9	2.2	2.5	1.9	-0.3	0.0	-0.1
France	3.1	2.5	3.7	2.7	2.4	3.0	0.1	0.6	0.3
Greece	3.5	2.6	4.5	3.6	2.8	4.5	-0.2	0.0	-0.1
Ireland	1.0	1.7	0.3	1.0	1.7	0.3	0.0	0.0	0.0
Italy	3.3	3.0	3.6	4.2	3.0	5.3	0.0	-1.7	-0.9
Japan	2.6	3.0	2.3	2.6	2.5	2.7	0.5	-0.5	0.0
Netherlands	2.4	3.2	1.5	3.1	3.1	3.0	0.1	-1.5	-0.7
Norway	2.9	2.9	2.8	3.1	2.9	3.2	0.0	-0.4	-0.2
New Zealand	1.0	1.6	0.5	1.0	1.5	0.5	0.0	0.0	0.0
Portugal	3.7	4.3	3.2	4.2	5.0	3.5	-0.6	-0.3	-0.5
Spain	3.2	2.8	3.7	3.7	3.8	3.5	-1.0	0.1	-0.4
Sweden	2.4	3.0	1.8	3.4	3.1	3.8	-0.1	-1.9	-1.0
Switzerland	1.3	1.3	1.2	1.3	1.3	1.2	0.0	0.0	0.0
United Kingdom	0.5	0.7	0.3	0.5	0.7	0.3	0.0	0.0	0.0
United States	0.2	0.1	0.3	0.2	0.1	0.3	0.0	0.0	0.0
Czech Rep,	1.7	3.0	0.5	-	-	-	-	-	-
Hungary	1.4	2.2	0.6	-	-	-	-	-	-
Korea	-	-	2.3	-	-	-	-	-	-
Mexico	-	2.0	-	-	-	-	-	-	-
Poland	1.9	2.3	1.4	-	-	-	-	-	-
Turkey	3.6	2.6	4.6	-	-	-	-	-	-

(1) Due to data problems, the weights were based on the detailed indicators for countries above the line.

ECONOMICS DEPARTMENT
WORKING PAPERS

225. *Some Issues Related to the Equity-Efficiency Trade-Off in the Swedish Tax and Transfer System*
(November 1999) Henning Strand

224. *The Economic Effects of Employment-Conditional Income Support Schemes for the Low-Paid : An Illustration from a CGE Model Applied to Four OECD Countries*
(October 1999) Andrea Bassanini, Jørn Henrik Rasmussen and Stefano Scarpetta

223. *The Use of Financial Market Indicators by Monetary Authorities*
(September 1999) Paul Mylonas and Sebasian Schich

222. *Tax Reform in Switzerland*
(August 1999) David Carey, Kathryn Gordon and Philippe Thalman

221. *Trends in Market Openness*
(August 1999) Jonathan Coppel and Martine Durand

220. *Technology Upgrading with Learning Cost : A Solution for Two "Productivity Puzzles"*
(July 1999) Sanghoon Ahn

219. *Testing for a Common OECD Phillips Curve*
(July 1999) Dave Turner and Elena Seghezza

218. *Sustainable Economic Growth: Natural Resources and the Environment*
(July 1999) Paul van den Noord and Ann Vourc'h

217. *Coping with Population Ageing in Australia*
(July 1999) David Carey

216. *Estimating Prudent Budgetary Margins for 11 EU Countries : A Simulated SVAR Model Approach*
(July 1999) Thomas Dalsgaard and Alain de Serres

215. *The Problems and Prospects Faced by Pay-As-You-Go Pension Systems : A Case Study of Greece*
(June 1999) Paul Mylonas and Christine de la Maisonneuve

214. *Greek Public Enterprises : Challenges for Reform*
(May 1999) Paul Mylonas and Isabelle Joumard

213. *The Levels and Cyclical Behaviour of Mark-Ups Across Countries and Market Structures*
(May 1999) Joaquim Oliveira Martins and Stefano Scarpetta

212. *Poverty Dynamics in Four OECD Countries*
(April 1999) Pablo Antolín, Thai-Thanh Dang and Howard Oxley
Assisted by Ross Finnie and Roger Sceviour

211. *The Recent Experience with Capital Flows to Emerging Market Economies*
(February 1999) Sveinbjörn Blöndal and Hans Christiansen

210. *Foreign Portfolio Investors Before and During a Crisis*
(February 1999) Woochan Kim and Shang-Jin Wei

209. *Towards More Efficient Government : Reforming Federal Fiscal Relations in Germany*
(February 1999) Eckhard Wurzel

208.   *Stock Market Fluctuations and Consumption Behaviour : Some Recent Evidence*
        (December 1998) Laurence Boone, Claude Giorno and Pete Richardson

207.   *Microeconometric analysis of the retirement decision: The Netherlands*
        (June 1998) Maarten Lindeboom

206.   *Microeconometric analysis of the retirement decision: United Kingdom*
        (June 1998) Raffaele Miniaci and Elena Stancanelli

205.   *Microeconometric analysis of the retirement decision: Italy*
        (June 1998) Raffaele Miniaci

204.   *Microeconometric analysis of the retirement decision: Germany*
        (June 1998) Pablo Antolin and Stefano Scarpetta

203.   *Microeconometric analysis of the retirement decision: United States*
        (June 1998) Joseph Quinn, Richard Burkhauser, Kevin Cahill and Robert Weathers

202.   *The retirement decision in OECD countries*
        (June 1998) Sveinbjörn Blöndal and Stefano Scarpetta

201.   *The macroeconomic effects of pension reforms in the context of ageing populations:*
        overlapping generations model simulations for seven OECD countries
        (June 1998) Ketil Hviding and Marcel Mérette

200.   *The macroeconomics of ageing, pensions and savings: a survey*
        (June 1998) Richard Kohl and Paul O'Brien

199.   *Marginal Effective Tax Rates on Physical, Human and R&D Capital*
        (May 1998) Kathryn Gordon and Harry Tchilinguirian

198.   *The Norwegian Health Care System*
        (May 1998) Paul van den Noord, Terje Hagen and Tor Iversen

197.   *APEC Trade Liberalisation : Its Implications*
        (May 1998) Seunghee Han and Inkyo Cheong

196.   *The OECD Jobs Strategy : Progress Report on Implementation of Country Specific Recommendations*
        (May 1998)

196   *La Strategie de l'OCDE pour l'emploi : rapport sur l'état d'avancement de la mise en oeuvre des*
        recommandations par pays
        (May 1998)

195.   *Trends in OECD Countries' International Competitiveness*
        (April 1998) Martine Durand, Christophe Madashi and Flavia Terribile

194.   *The European Union's Trade Policies and their Economic Effects*
        (April 1998) Peter Hoeller, Nathalie Girouard and Alessandra Colecchia