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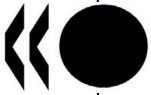
**Taking Stock of Existing  
Structural Policy  
and Outcome Indicators**

**Daive Furceri,  
Annabelle Mourougane**

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**TAKING STOCK OF EXISTING STRUCTURAL POLICY AND OUTCOME INDICATORS**

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**by Davide Furceri and Annabelle Mourougane**

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## ABSTRACT/RÉSUMÉ

### **Taking stock of existing structural policy and outcome indicators**

This paper reviews and assesses in terms of availability, reliability and transparency existing *policy* and *outcome indicators* that have been found to be linked both directly and indirectly to economic growth and living standards. Indicators aiming at capturing the political and social situation of countries, as well as governance-related issues, are examined (e.g. political system, political stability, corruption, crime and violence). Topics also include product and labour markets, infrastructure, trade, financial indicators and composite indices of reform.

*Keywords:* Structural indicators; economic performance; policy; outcome; governance

*JEL Classification:* O4 ; P50

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### **Un inventaire des indicateurs structurels de politique et de performance**

Ce document passe en revue et évalue en termes de disponibilité, fiabilité et transparence les indicateurs de politiques et de performance qui existent actuellement et sont liés directement ou indirectement à la croissance économique et au niveau de vie. Des indicateurs cherchant à mesurer la situation sociale et politique des pays, de même que des sujets liés à la gouvernance sont examinés (par exemple, le système politique, la corruption, le crime et la violence). Sont aussi couverts les marchés des produits et du travail, les infrastructures, le commerce, les indicateurs financiers et les indicateurs composites de réforme.

*Mots Clefs :* Indicateurs structurels; performance économique; politique; résultats; gouvernance

*Classification JEL :* O4; P50

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## TAKING STOCK OF EXISTING STRUCTURAL POLICY AND OUTCOME INDICATORS

By Davide Furceri and Annabelle Mourougane<sup>1</sup>

### I. Introduction

1. Differences in living standards (generally proxied by income) across OECD countries reflect both different structural policy settings and institutional characteristics. Although there is a broad consensus that institutions and policy stance matter for living standards, these are not always easily captured through reliable and timely structural indicators. In recent years, a large number of indicators have been developed to fill this gap.

2. The last three decades have witnessed an intensive effort, both in the production of policy and outcome indicators and in linking these indicators to economic growth and living standards. This work has contributed to develop a better understanding on growth-enhancing policies, but has sometimes relied on the misuse of these indicators. For this reason, it is useful to undertake an evaluation of these indicators and their potential use in empirical work relating them to growth and living standards.

3. Following and expanding the work by Loayza and Soto (2003), this paper reviews and assesses in terms of availability, reliability and transparency existing *policy* and *outcome indicators* that have been used and found to be linked both, directly and indirectly, to economic growth and living standards.

4. In more detail, the focus of the paper is on indicators produced by international organisations (including the OECD), think tanks and researchers. Special attention is given to indicators that are widely used in the literature. Topics include product and labour markets, infrastructure, trade, financial indicators and composite indices of reform are examined. Moreover, indicators aiming at capturing the political and social situation of countries, as well as governance-related issues, are assessed (e.g. political system, political stability, corruption, crime and violence).

5. The rest of the paper is organised as follows. The next section presents a typology of indicators that will be used throughout the paper. The second section reviews existing policy and outcome indicators. Finally, a detailed annex documents the main features of these indicators.

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1. The authors are working at the OECD Economics Department. They would like to thank Rüdiger Ahrend, Sven Blondal, Jonathan Coppel, Sean Dougherty, Giuseppe Nicoletti, Joaquim Oliveira Martins and Klaus Schmidt-Hebbel and other colleagues for helpful discussions and suggestions. They would also like to thank Mika Yamanaka for excellent editorial support. The views expressed in this paper do not necessarily reflect those of the OECD or its member countries.

## II. Typology of indicators

6. A wide range of indicators are currently produced by international organisations as well as individual researchers. They differ not only on their time and geographical coverage, but also by their intrinsic nature. Structural indicators can be differentiated according to a number of criteria which are discussed in turn below.

### *Perception-based versus fact-based*

7. The distinction between perception-based and fact-based indicators is important not least because fact-based indicators are replicable (Table 1). Yet fact-based does not mean objective as these indicators also embody a significant degree of subjectivity (e.g. in the choice of questions). Moreover, assessments of complicated rules are subject to errors of fact and judgement, particularly when the analyst has to determine the net effect of conflicting rules and regulations. Perception-based and fact-based indicators are complementary sources of information. Perception-based information can be internal (results based upon the views of respondents from within the country) or external (results based upon assessments made by non residents of the country).

**Table 1. Fact and perception-based measures**

	<b>Fact-based measures</b>	<b>Perception-based measures</b>
Advantages	Do not rely on personal judgement Can be subject to peer review Exogenous to economic developments occurring at the time the data are collected Free of noise (other than measurement errors) Ownership more distinguishable	Easier to assemble a database Answers reflect in part the way regulations are enforced Can cover all level of regulations
Drawbacks	Require assembling a huge database and assistance from governments and lawyers Often only focus on regulation at the national level (problem in federal countries where regulation can be carried out by local governments) Such measures can not indicate certain ground-level features (how regulations are enforced) The quantification of regulations requires the construction and combination of various types of indexes raising the questions of how to code the laws and how to weight them (entry point for subjectivity)	Rely on personal judgements Issue of comparability of answers between nations (most surveys ask questions that are specific to the country) No control on the type of questions asked Context specific

Source : Based on Nicoletti and Pryor (2006)

### *Single versus composite indicator*

8. A composite indicator combines different sub-indicators into a single measure. Composite indicators have a number of advantages over single indicators (Table 2). If the same concept is measured by different data sources it is possible to increase the coverage and reliability by combining the sources. A widely cited example is the Governance Matters Reports from the World Bank, which draws together 25 data sources into six composite indicators. The downside of composite indicators is that unless the component data is shown, it is not clear how the rating is derived. Such a lack of clarity weakens the basis for inferring policy prescriptions. In addition all the existing composite indicators fail to capture the

necessity to ensure coherence amongst various economic policies. In most cases, the composite indicator is simply the aggregation of unrelated sub-indicators and the existing interactions between these variables is ignored. A notable exception is the summary measure of tertiary education set-up developed by Oliveira Martins *et al.* (2007).

9. The choice of the weights is not straightforward. Weights can be derived either from theory or empirical analysis, usually principal component analysis. Alternatively equal weights could be applied. Although the first alternative is more attractive from an analytical point of view, it is not without drawbacks. Indeed, some indicators have weights varying over time and as a result, the ranking between countries can reflect more a change in weights than a change in policy. Robustness tests run in the context of the re-estimation of the OECD product market regulations suggest that it is preferable to use equal weights in the context of multilateral surveillance process (Woefl *et al.*, 2009).

**Table 2: Pros and cons of composite indicators**

Advantages	<ul style="list-style-type: none"> <li>Reduces multicollinearity</li> <li>Can summarise complex or multidimensional issues</li> <li>Easier to interpret than trying to find a trend in many separate indicators</li> <li>Facilitates the task of ranking countries</li> <li>Can assess progress of countries over time on complex issues</li> <li>Reduces the size of a set of indicators or includes more information</li> <li>Places issues of country performance and progress at the centre of the policy arena</li> <li>Facilitates communication with the general public and promotes accountability</li> </ul>
Drawbacks	<ul style="list-style-type: none"> <li>May send misleading policy messages if they are poorly constructed or misinterpreted</li> <li>May invite simplistic policy conclusions</li> <li>May be misused if the construction is not transparent and lacks sound statistical or conceptual principles</li> <li>The selection of indicators and weights could be the target of political challenge</li> <li>May disguise serious failing in some dimensions of policy and increase the difficulty of identifying proper remedial action</li> <li>May lead to inappropriate policies if dimensions of performance that are difficult to measure are ignored.</li> </ul>

Source: OECD, (2005) Handbook on constructing composite indicators: methodology and user guide, OECD Statistics Working Papers 2005/3

10. Given the complexity of composite indicators, a number of characteristics have been identified to help users and avoid misinterpretation. These relate to : relevance, accuracy, timeliness, accessibility, interpretability and coherence (OECD, 2005).

### ***Policy versus outcome measures***

11. Policy indicators are policy instruments on which policy makers can have a direct impact. However these measures are often an imperfect proxy of the policy lever. Outcome measures capture the country performance in a specific domain and reflect the effects of national policy measures and the international environment. The indicator can be an intermediate, or a final indicator of economic performance. In general reliable and timely measures are available, but policymakers can only influence indirectly such indicators via policy action.



### III. Review of existing structural indicators

12. This section reviews the main policy and outcome indicators that are currently produced by international and other organisations. Indicators are discussed by policy topics (See the Annex for a detailed and extensive description of the existing indicators by category).

#### *Governance*

13. The focus on governance has gained prominence over the last decade following the move toward more open markets and less direct governmental control of business activities. Governance can be broadly defined as a system of values, processes, policies and institutions by which a society manages its economic, political and social affairs. However, governance indicators are usually narrowed down to measure specific areas of governance, for instance electoral systems, corruption, human rights, public service provision, civil society, and gender equality.

14. Measuring governance is difficult as this involves many institutions and players. Formal rules can be easily observed, but informal rules are non-observable although they may have a greater influence on the quality of governance and require a deep understanding of the society. Moreover, because the concepts are so broad, the same terms may be used in different ways.

15. Despite these difficulties, a large number of indicators have been constructed in recent years (see Annex) and cover both developed and developing economies. Among the hundreds of indicators that have emerged the most widely-used are policy, composite and perception-based indicators.

#### *Institutional factors*

16. The first strand of governance indicators aims to measure some aspects of good governance through institutional factors. By shaping the economic environment and influencing the behaviour of economic agents, formal and informal institutions impact on long-term growth. They are also associated with good development outcomes, in particular poverty reduction. The World Bank Governance Matters indicators have been pioneers in this area. They are based on expert assessments and surveys on firms and are updated every year. They cover different areas of governance, ranging from the citizens' freedom to political stability and regulatory effectiveness. These indicators are constructed in a way such that their average across all countries is always zero and the standard deviation is always one. As a result, their scale is arbitrary and they can not be used to monitor changes in governance levels for a given country. Moreover, these indicators are subject to very large measurement errors. To address this issue, they are usually reported together with confidence intervals. However, despite all the precautions taken in the publications, these indicators are sometimes misused in comparisons over time or time-series analysis. The World Bank also publishes country information through its country policy and institutional assessment, which are based on the World Bank staff's assessment, but only part of the assessment is publicly available.

17. The composite and sub-indicators of Governance Matters are now widely reported in the press and used in academic research. These indicators are timely and cover a wide range of countries. Transparency in the methodology and in the source used has significantly improved over the years. Since 2006, underlying data from virtually all of the individual data sources are available so that it is possible to replicate the data.

**Table 3 : Correlation between governance indicators and GDP per capita**

	log (GDP per capita)		Year
	World	OECD	
Voice and Accountability	0.73***	0.82***	2005
Political stability	0.65***	0.65***	2005
Government effectiveness	0.87***	0.84***	2005
Regulatory quality	0.84***	0.85***	2005
Rule of Law	0.83***	0.86***	2005
Control of corruption	0.82***	0.81***	2005
Corporate Illegal corruption	0.75***	0.8***	2005
Corporate legal corruption	0.52***	0.69***	2005
Bribe	-0.2***	0.01	2005
Corruption perception Index	0.8***	0.8***	2005
Corruption (WDI)	-0.28***		2005
Property rights (Doing business)	-0.53***	-0.2	2008
Political constraint (Henniz, 2006)	0.31***	0.29	2004
Polity IV	0.42***	0.7***	2005
State fragility Index	-0.88***	-0.46***	2001

Note: \*\*\*, \*\*, \* denote significance at 1, 5 and 10%.

Source: OECD Secretariat

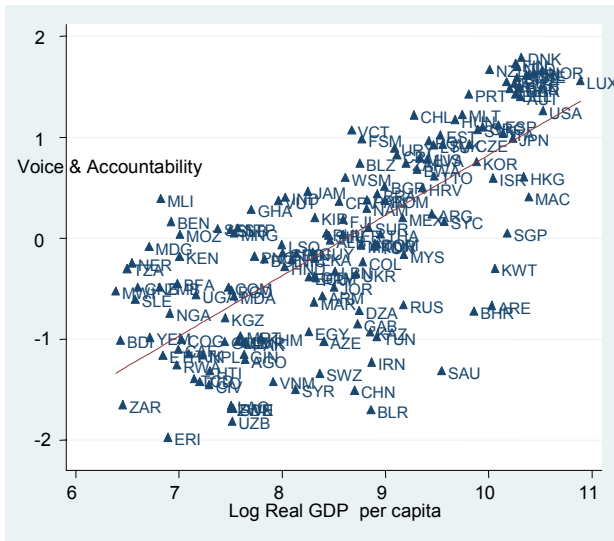
18. Governance indicators are strongly correlated with the current level of national income per capita (Table 3, Figure 1), whether the sample covers the world or is restricted to the OECD. By contrast, correlations between those indicators and GDP per capita growth are much lower, and sometimes not significant. This is consistent with the concepts of absolute and conditional convergence (Barro and Sala-i-Martin, 1991; Sala-i-Martin, 1995; Furceri, 2006).

19. As the amplitude of the correlation is similar across different indicators, it may be sufficient to focus on one dimension of institutional governance.<sup>2</sup>

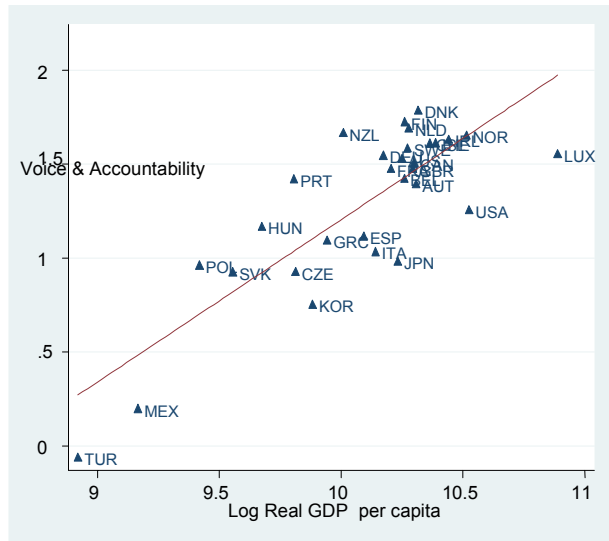
2. An alternative would be to construct a summary measure, but this would raise the issue of interpretation and choice of weights.

**Figure 1: Correlation between selected Governance Matters indicators and GDP per capita**

World 2005, correlation = 0.73\*\*\*



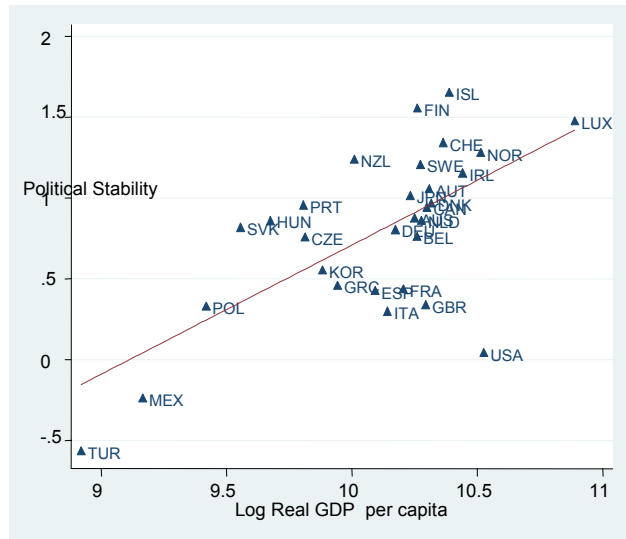
OECD 2005, correlation=0.82\*\*\*



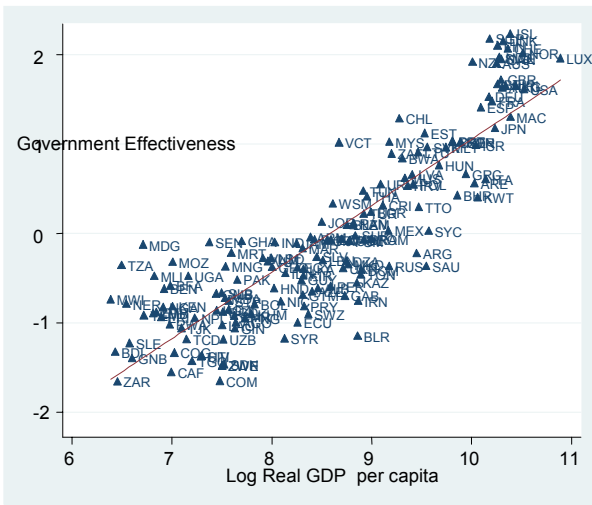
World 2005, correlation=0.65\*\*\*



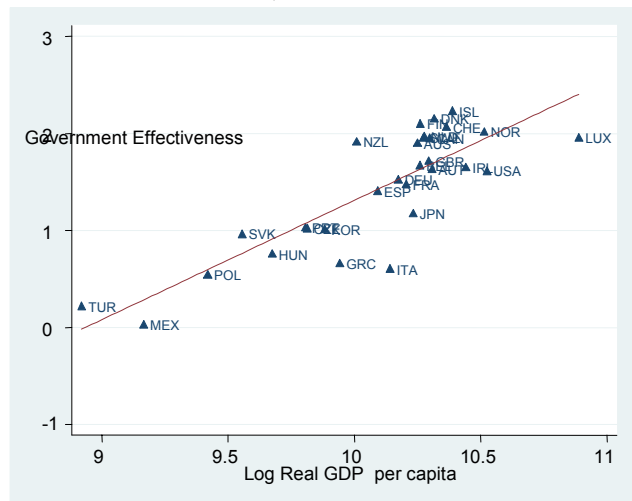
OECD 2005, correlation = 0.65\*\*\*



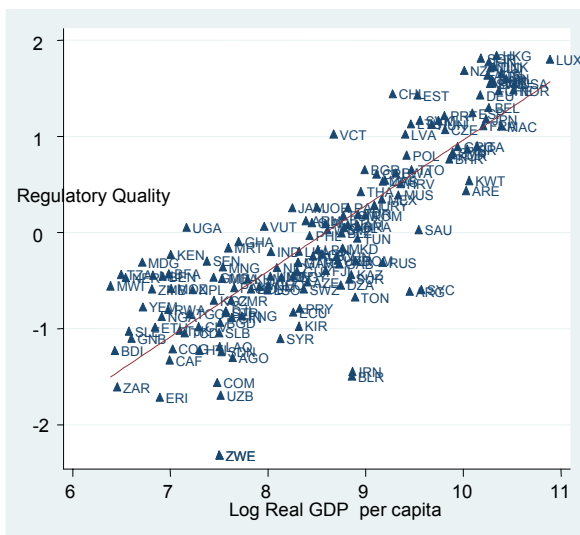
World 2005, correlation = 0.87\*\*\*



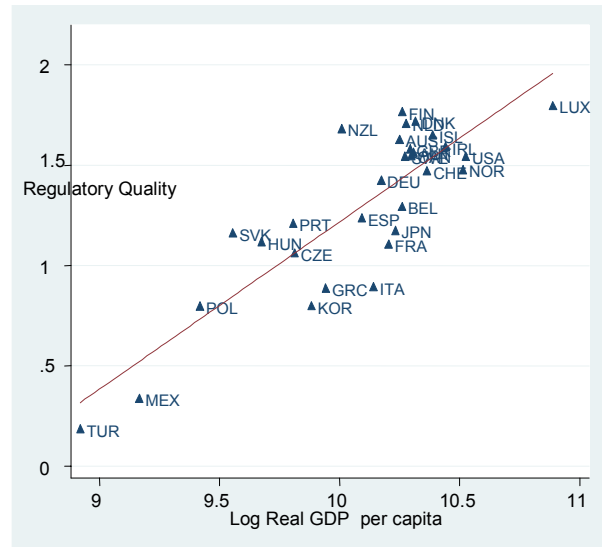
OECD 2005, correlation = 0.84\*\*\*

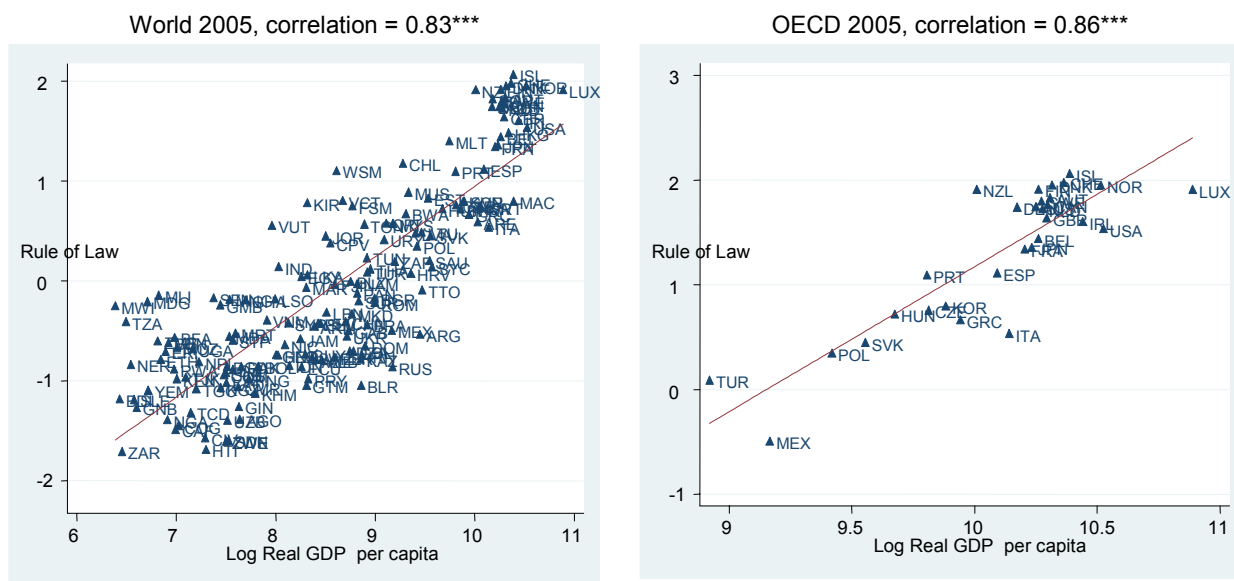


World 2005, correlation = 0.84\*\*\*



OECD 2005, correlation=0.85\*\*\*





Note: \*\*\*, \*\*, \* denote significance at 1, 5 and 10%.

Source: World Bank.

20. However, the use of these indicators can be questioned on a number of grounds (Arndt and Oman, 2006):

- The indicators are inherently subjective and not grounded in theory. As a result the same indicator can lead to very different interpretations.
- The data rely on a large variety of sources consisting of surveys of firms and individuals, as well as the assessments of commercial risk rating agencies, non-governmental organisations, and a number of multilateral aid agencies and other public sector organisations. The reliability of these sources is variable. In total the dataset draws on 33 sources.
- The indicators embody large measurement errors. For some developing countries, the indicator relies on a limited number of surveys, increasing further the risk of measurement error. To partially address these issues, confidence intervals around the main World Bank indicators are published. A change in an indicator over time is only significant when the confidence intervals of the new and old indicator do not overlap.
- The indicators do not permit the identification of trends over time. The changing composition of many of the indicators over time means that the indicator can not be reliably used to compare levels of governance over time in a given country or among countries. This implies that monitoring of progress over time is not possible.
- The aggregation procedure assigns less weight to the sources that are less correlated with other sources. Typically more weight is given to expert assessment and firm surveys than to population surveys which carry often no weight. This suggests that measurement errors are uncorrelated across sources and is a questionable assumption. Moreover weights attributed to different sources vary between countries, lowering cross-country comparability.

*Public finances and tax*

21. Given the size of government and its role in the economy, the contribution of government to national economic growth is of great significance (Folster and Henrekson, 2001; Alfonso and Furceri, 2008). Moreover transparent budgeting institutions foster debate between different alternative policies. However, there are few reliable sources of comparative public management data. To fill this gap, the OECD will publish a bi-annual Government at a Glance publication, starting in 2009. Information on the budget process, decentralisation, public sector efficiency have been gathered through questionnaires collected by the OECD. In addition, composite indicators measuring compliance with OECD good practice for the quality of regulatory management systems according to 16 dimensions. The indicators rely on a principal component analysis using 1998 and 2005 data and have then been interpolated to cover the period 1998-2006. The data will be updated using the 2008 questionnaire. Data are available for all OECD countries except Luxembourg, Poland and Slovakia and are subject to peer review. The first component of the principal component analysis gathers information on institution, tool and capacity building, and preliminary results suggest that this indicator is well-correlated with economic outcomes such as employment, GDP or labour productivity.

22. Another promising project to measure the quality of public finances along several dimensions is underway at the European Commission. Some composite measures have also been developed by the centre of budget and policy priorities (open budget index) and the Heritage Foundation (fiscal freedom) but their simplicity renders their interpretation difficult. Lastly, the World Bank has constructed a perception-based indicator of government effectiveness in its Governance Matters publication.

23. The structure of tax systems also matters for growth (Johansson et al., 2008; Arnold, 2008). A lot of data are available on the structure of the tax system, its efficiency and its redistributive impact (at least for some types of tax) in OECD publications. Updated information on the level and the structure of tax is available in Tax and Benefit and in Revenue Statistics for OECD countries. This includes standard data on corporate, income or consumption tax revenue and rates. More sophisticated indices such as the C-efficiency index, which seeks to capture the efficiency of consumption taxes are also constructed at the OECD. Information on tax rates can also be found in the OECD Tax database, but the country coverage is usually limited and corporate rates are only available for specific groups of firms.

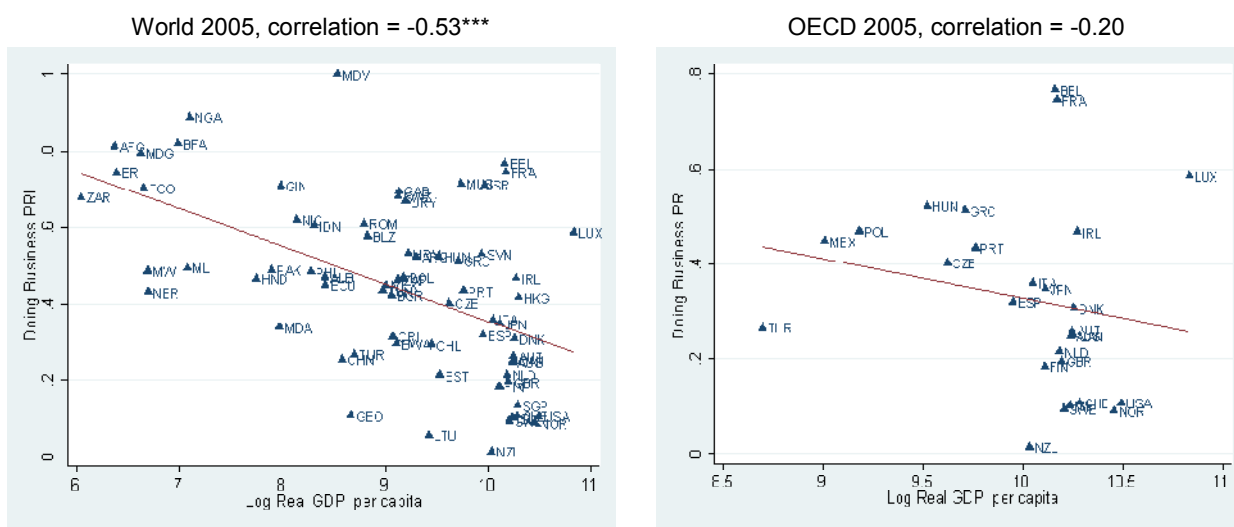
*Property rights*

24. (Intellectual) property rights refer to the degree to which (intellectual) private property is protected by institutions and policy. Strong perceived property rights encourage firms to invest, but at the same time may slowdown the diffusion of technology. The overall effect on investment remains an empirical question. Moreover the cost of reforming property rights can be high and slow the reform process. Several measures of property rights are available. The first indicator was developed by Ginarte and Park (1997). The Heritage Foundation index is the most widely used and is an assessment of the degree to which the country protects property rights and facilitates private contracting. Other indicators of property rights are commonly used in the literature, such as the indicator of protection against the risk of expropriation from the International Country Guide Risk. An indicator of investor protection is also available in the World Bank's Doing Business database. This indicator is updated every year and covers a large number of countries and is based on official or quasi-official sources. The data are also subject to peer review. It is correlated with the level of GDP per capita, but the coefficient of correlation is small, especially when the analysis is restricted to the group of OECD countries (Figure 2). In addition, the Doing Business database focus on specific geographical areas, and types of firms and may thus not be fully representative of property rights at the national level.

*Political institutions*

25. Political institutions, including the type of regime or the electoral system through their effect on the country political stability and or government spending, are also crucial in investment decisions and long-term growth. Coding on the form of government and measure of government stability are currently available in many databases. In particular, the Polity IV project and the World Bank database of political institutions gather updated information on a large set of countries. Other frequently indicators cover civil and political rights and are based on expert assessments.

**Figure 2: Correlation between Doing business property right and GDP per capita**



Note: \*\*\*, \*\*, \* denote significance at 1, 5 and 10%.

Source: World Bank.

26. The Polity IV dataset has a broad geographical and temporal scope. The correlation with the level of GDP per capita for countries is significant but not high. Each annual update of the Polity data series includes a systematic re-examination of country coding over the previous five years and a review of cases that have raised concerns and resulted in specific inquiries by data users. The underlying methodology is transparent. The construction of the overall Polity IV indicator ultimately relies on points which are assigned to qualify certain features of the political system (e.g. on competitiveness of executive recruitment). This has the benefit of ensuring an equal treatment across countries and comparability over time, but also means the weights are arbitrarily imposed.

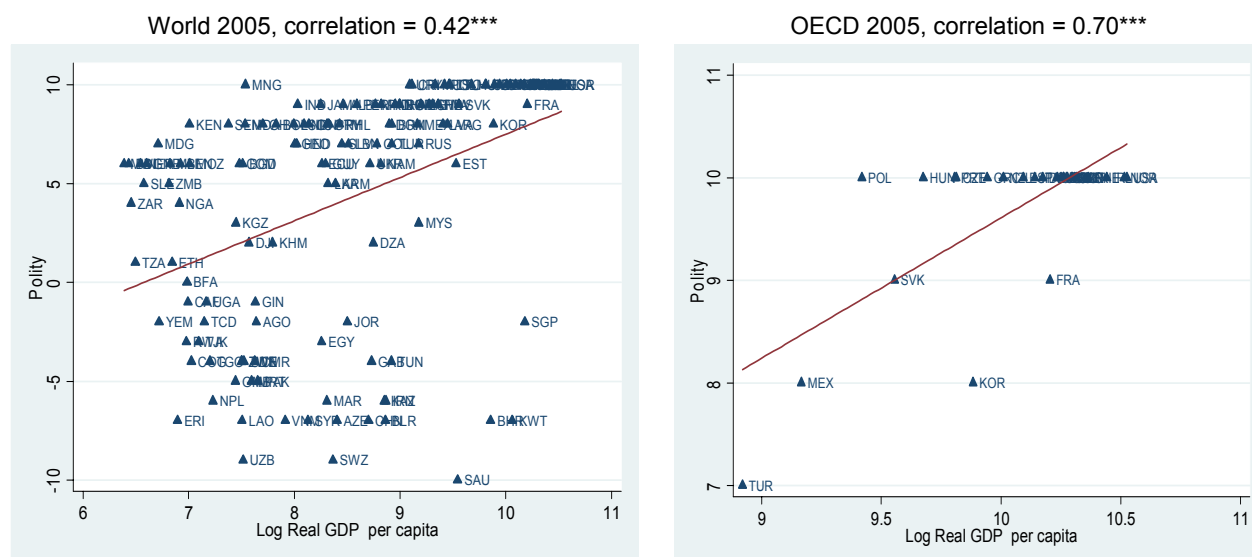
27. The World Bank’s Database on Political Institutions dataset contains objective information on different feature of the political system and electoral rules. It is based on official sources. The more aggregate variable in this database codes the political regime using only three categories: direct presidential, strong president elected by assembly and parliamentary. This indicator may not be sufficiently precise to help discriminating between political systems in OECD countries (Figure 3).

*Corruption*

28. Another strand of governance indicators have sought to measure corruption, i.e. the abuse of public office for private gains. This is an outcome of poor governance. It is found to influence a number of fundamental economic aggregates (Lambsdorff, 1999). In particular, corruption discourages private investment and distorts resource allocation. Reducing corruption is also found to have positive side effects

such as increasing the effectiveness of public spending. But measuring corruption is difficult, as those with direct knowledge of corruption are likely to keep silent on it. In particular, the extent to which political decisions are influenced by corruption is very difficult to estimate as it lies outside the direct experience of citizens and small businesses.

**Figure 3: Correlation between Polity IV political indicator and GDP per capita**



Note: \*\*\*, \*\*, \* denote significance at 1, 5 and 10%.

Source: Polity IV project and World Bank.

29. A wide range of perception-based corruption indicators are currently available, using information from expert and business surveys. Two indicators are worth mentioning: the Corruption Perception Index (CPI) from Transparency International and the control of corruption index from Governance Matters. In response to the criticism that corruption indicators underestimate the extent of corruption in developed economies, Kaufmann *et al.* (2008) have also assessed the importance of legal<sup>3</sup> and illegal corruption. Both the CPI and the control of corruption indicators are timely and appear well correlated with the level of GDP per capita, although clear income threshold effects are visible (Figure 4). The control of corruption index suffers nonetheless from the same limitations as the other indicators of Governance Matters (see above).

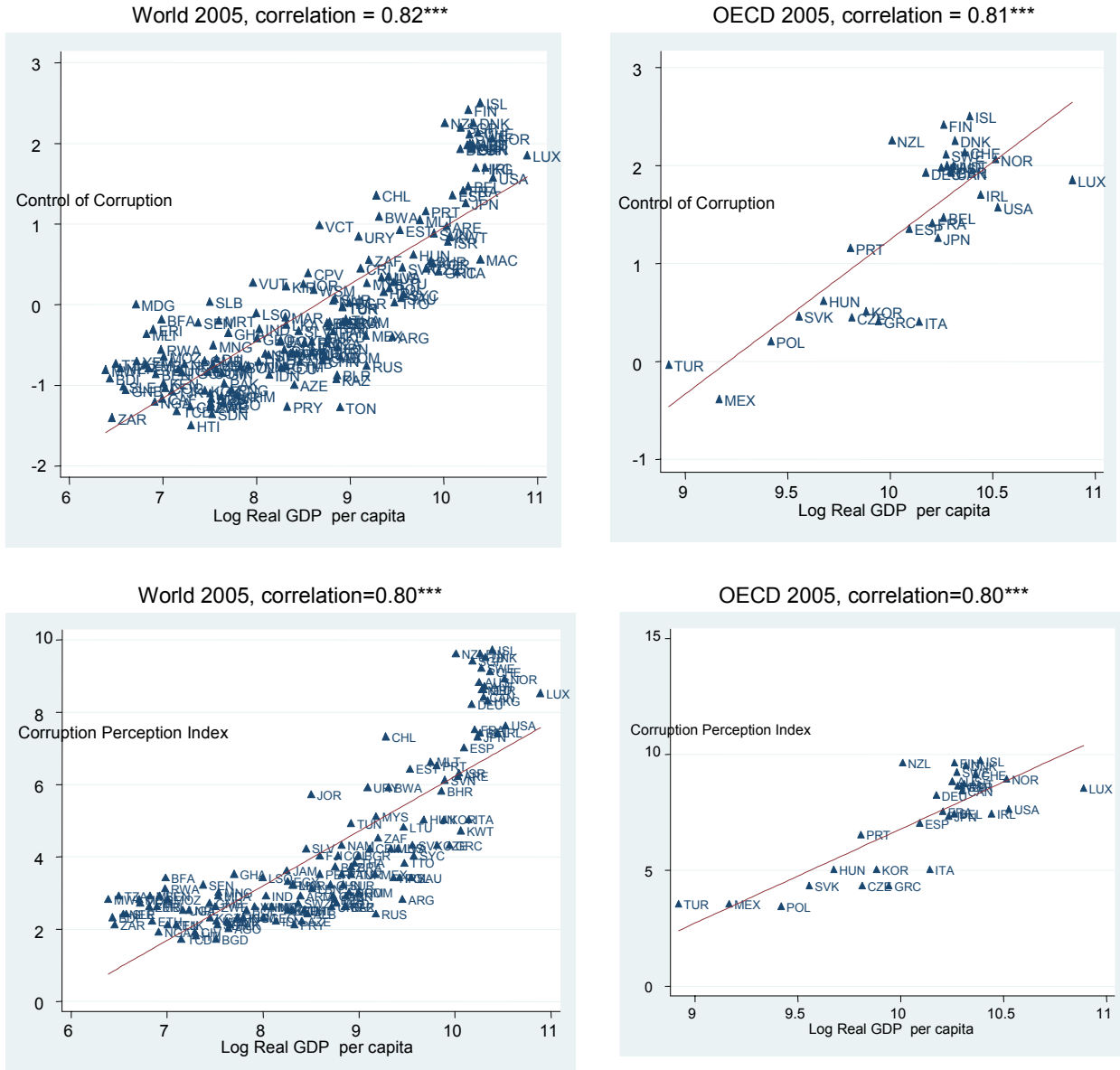
30. The corruption perception index from Transparency International is probably the most widely used and the one with the broadest geographical coverage, though the coverage can vary overtime. It is a subjective index. Despite its label, this indicator does not measure the actual level of corruption, but provides a country ranking according to the degree of perceived corruption among public officials and politicians. The indicator is published together with standard errors, casting some light on the uncertainties surrounding the data. Information on its methodology and sources is easily accessible. However, the measure lacks consistency over time. The sources used for the CPI is indeed sometimes discontinued over the years with no reason and even though the source is available: only two sources have been used in every years the index has been published. It is also difficult to interpret the year-on-year change of score in the CPI which could reflect the fact that different points of views have been collected and different questions asked rather than a change in the reality of corruption in a country. According to Transparency

3. Legal corruption is corruption that is undertaken within the legal framework.



International, the CPI measure is a ranking that can not be used as a measure of corruption: indeed it emphasised the rank ordering of countries over internal reforms in countries. This means that this indicator can not be used as an indicator of reform effort. In addition, this indicator suffers from selection bias (OECD, 2006). Finally the indicator draws on 12 sources, with different degrees of reliability.

**Figure 4: Correlation between selected indicators of corruption and GDP per capita**



Note: \*\*\*, \*\*, \* denote significance at 1,5 and 10%.

Source: World Bank, Transparency International.

*Link with economic performance*

31. The link between selected governance indicators and economic growth, or other measures of economic performance has been examined in depth (Easterly, 2005). In general, high quality governance institutions are found to matter for economic performance (Table 4). However, the direction of causality is not always clear: ‘deep’ institutions are also highly endogenous, and it is not at all easy to identify their causal role with respect to income levels or economic growth (Glaeser *et al.*, 2004; Acemoglu *et al.*, 2005). Moreover, the role of geographic factors and trade openness appears to be closely inter-related with institutions, making their identification difficult (Rodrick *et al.*, 2004; Boulhol and de Serres., 2008). In addition, there appear to be important threshold effects, with good institutions (e.g. the absence of corruption) having very little effect at the two extremes of the income scale. Finally, it should be noted that the nature and limits of composite governance indicators are not always fully grasped by users, weakening the rigour and credibility of many studies. In addition, the results found in the literature are usually sensitive to changes in the econometric model used, and to the variables included and the underlying assumptions.

**Table 4. Governance and economic growth**

<i>Indicator or methodology and main results</i>	
<b><i>Institutional factors</i></b>	
North (1990, 2005)	Indicator: Formal and informal institutions (culture and unwritten values) The paper demonstrates the importance of a system of governance and their interaction with the behaviour of economic and political organisations for long-term economic growth, enhancement of human welfare and societal development.
Globerman and Shapiro (2002)	Indicator: Aggregate of the 6 Governance Matters indicators Countries that fail to achieve a minimum threshold of effective governance are unlikely to receive much FDI, and above that threshold the quality of governance infrastructure is an important determinant of the amount received.
Kaufmann and Kraay (2002)	Indicator: 6 Governance Matters indicators Good governance tends to promote growth. However growth, <i>per se</i> , does not tend to promote better governance.
Kaufmann <i>et al.</i> (2008)	Institutions appear to play an important role in economic development, and countries with higher levels of GDP per capita have <i>much</i> higher quality institutions according to many measures.
Johansson <i>et al.</i> (2008)	Methodology: Macro and micro-based analysis The structure of the tax system has an impact on growth.
<b><i>Property rights</i></b>	
Jaumotte and Pain (2005)	Indicator: Cross-country index of intellectual property rights developed in Ginarte and Park (1997) and updated in Park and Singh (2002). Intellectual property rights have little effect on R&D spending.
Knack and Keefer (1995); Mauro (1995); Acemoglu, Johnson and Robinson (2001)	Less secure property rights are correlated with lower aggregate investment and slower economic growth.
<b><i>Political factors</i></b>	
Przeworski <i>et al.</i> (2000)	Indicator: Use objective criteria for distinguishing on a yearly basis between democratic and non-democratic governments (with 2 sub-categories: authoritarian and bureaucratic dictatorship) for 141 countries between 1950 and 1990. Democratic and non-democratic governments tend to grow on average at the same rate, but population grows faster in non democracies so that GDP per capita grow more rapidly in democracies. Existence of a poverty trap: in the poorest countries, democracy makes no difference to economic growth.
Persson and Tabellini (2004) Persson and Tabellini (2003)	Constitutional rules shape economy policy. Methodology: Panel data from 1960 covering about 500 elections in over 50

democracies.

A broad classification of electoral rules into proportional and majoritarian does not seem to be strongly correlated with economic performance. It appears nonetheless that a parliamentary form of government is associated with better performance and better growth promoting policies, measured by indexes for broad protection of property rights and of open borders in trade and finance. The negative effect of presidentialism is only present among the democracies with lowest scores for the quality of democracy;

The authors classify countries in two groups according to the electoral formula and estimate the extent of electoral cycles in different specifications, including fixed country and time effects as well as a number of time-varying regressors. Governments in democracies that use plurality rule cut taxes, and government spending during election years—the magnitude of both cuts is of the order of 0.5 percent of GDP. In proportional representation democracies, tax cuts are less pronounced, and no spending cuts are observed.

Milesi-Ferretti, Perotti and Rostagno (2002) ;Persson and Tabellini (2003, 2004)

Relying on different data, these papers show that a statistically significant (but smaller) effect of the electoral systems remains after controlling for other determinants of social security and welfare spending, such as the percentage of the elderly in the population, per capita income, the age and quality of democracy.

Gradstein (2008)

Method: Theoretical model

Low-quality institutions, concentration of political power and material wealth and underdevelopment are persistent over time. The possibility of two developmental paths is exhibited: with concentration of political and economic power, low-quality institutions, and slow growth; and a more equal distribution of political and economic resources, high-quality institutions, and faster growth.

Marshall and Cole (2008)

Indicator of state fragility

A fairly strong relationship is found between income and the fragility of states in the global system. However, a wide variance in fragility scores at any level of incomes is also observed.

### **Corruption**

Lambsdorff (1999)

Method: Overview of the literature

Corruption affects a variety of economic indicators such as government expenditures, total investment, capital flows and foreign direct investment, international trade, foreign aid and GDP per capita.

Kraay and Nehru (2004)

Indicator: CPIA indicators from 1997 to 2001

Significant inverse correlation between the quality of a country's institutions and probability of debt distress

Welsh (2008)

Indicator: Transparency International average perceived corruption indicators

This article uses self-rated subjective well-being as an empirical approximation to general welfare and shows that cross-national welfare is affected by corruption not only indirectly through GDP, but also directly through non-material factors.

Kaufmann *et al.* (2008)

Indicator of legal corruption

Governance and corruption issues are key constraints to investment and business and are particularly significant in assessing country's overall positions

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Source: OECD Secretariat

### **Society**

#### *Health*

32. Health can affect growth through several channels. First, health affects labour productivity, since healthier workers can work harder and for a longer period of time. Second, health favours human capital accumulation, since healthier students on average have higher cognitive functioning. Third, health encourages physical capital accumulation, since healthier workers that work for a longer period of time

increases saving (for retirement) and thus investment, and since the increase in labour input from healthier workers will increase the marginal product of capital. Fourth, health influences population growth.

33. Health indicators can be subdivided into policy and outcome indicators. Health policy indicators are a combination of health care resources, lifestyle and socio-economic factors. Health care resources usually are separated into monetary (public spending on health) and non-monetary resources (number of physicians, hospitals, medical machinery, etc). While from a theoretical point of view health care resources are positively linked to health outcome indicators, the evidence is not conclusive from an empirical point of view<sup>4</sup>. In contrast, socio-economic factors (such as education) and lifestyle factors (tobacco, alcohol and nutrition) have been found to be strongly related to health outcomes. Data on health policy indicators are easily accessible and can be used to assess their impact on health outcomes (see Annex). However, they suffer from endogeneity problems in relation to outcome indicators and GDP growth. Thereby, they have to be used very carefully in that context.

34. Outcome indicators aim to measure health outcomes. Those that have been usually considered in the literature are: mortality/longevity indicators (life expectancy at various ages), mortality indicators adjusted for the presence of a particular disease and quality of life, and other health-related indicators, such as public satisfaction for the health care system<sup>5</sup>. Different international organisations such as OECD, World Health Organization and World Bank publish data on many of these outcome indicators, and data are available for a long time span. The variable that has been mostly used in the literature on health and growth is a performance measure, life expectancy at birth. Data on life expectancy are available from official sources (OECD, IMF, World Bank) and over a large time span and for a broad set of countries.

35. These indicators have been found in many studies to be positively linked to GDP per capita, GDP growth and TFP growth, although it is unclear in which direction the causality goes (Table 5).<sup>6</sup> On the one hand, life expectancy at birth clearly improves when living standards increase, on the other hand life expectancy at birth can raise incentives to invest in education and increases labour supply if it extends the working life. The latter effect could be particularly important in economies where the population is ageing rapidly. Although micro studies based on individual and household data found a positive link between health outcomes and economic performance, the evidence of a link at the aggregate level is much less clear for developed countries (Price *et al.* 2008; Dormont *et al.* 2008). The weaker evidence found for developed countries could be due to a non-linear relationship, positive at low levels of development and insignificant or negative at higher levels. Moreover, it should be noted that the use of these indicators to assess the impact on growth has to be dealt with carefully, since problems of endogeneity and omitted variables bias may arise.

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4. See for example, Berger and Messer (2002), Self and Grabowski (2003), Soares *et al.* (2007), Joumard *et al.* (2008).

5. See Joumard *et al.* (2008).

6. See Bloom *et al.* (2004) and Jamison *et al.* (2005) for a review of studies assessing the impact of health on economic growth.

**Table 5: Selected results on health and economic performance**

	<i>Indicator or methodology and main results</i>
Barro (1996)	Indicator: Life expectancy Main result: The paper shows significant effects of health on growth for a panel of 84 countries from 1965 to 1990.  Methodology: 3SLS; controlling for human capital and other covariates.
Barro and Lee (1994)	Indicator: Life expectancy Main result: The paper shows significant effects of health on growth for a panel of 90 countries from 1965 to 1985.  Methodology: SUR and random effects; controlling for human capital and other covariates.
Barro and Sala-i-Martin (1995)	Indicator: Life expectancy Main result: The paper shows significant effects of health on growth for a panel of 90 countries from 1965 to 1985.  Methodology: SUR and random effects; controlling for human capital and other growth and governance covariates.
Bhargava, Jamison, Lau, and Murray (2001)	Indicator: Adult survival rate Main result: The paper shows significant effects of health on growth for a panel of 92 countries from 1965 to 1990.  Methodology: Dynamic random effects; controlling for fertility and other growth covariates.
Bloom, Canning, and Malaney (2000)	Indicator: Life expectancy Main result: The paper shows significant effects of health on growth for a panel of 92 countries from 1965 to 1990.  Methodology: Pooled OLS; controlling for working age and growth covariates.
Bloom and Williamson (1998)	Indicator: Life expectancy Main result: The paper shows significant effects of health on growth for a panel of 78 countries from 1965 to 1990.  Methodology: Pooled OLS; controlling for growth covariates.
Caselli, Esquivel and Lefort (1996)	Indicator: Life expectancy Main result: The paper shows significant effects of health on growth for a panel of 91 countries from 1960 to 1985.  Methodology: GMM; controlling for human capital
Finlay (2007)	Indicator: Adult mortality Main result: The paper shows significant effects of health on growth for a panel of 62 countries from 1960 to 2000. Methodology: 2SLS; controlling for human capital, fertility and other growth covariates
Gallup and Sachs (2000)	Indicator: Life expectancy Main result: The paper shows significant effects of health on growth for a panel of 91 countries from 1960 to 1985. Methodology: GMM; controlling for human capital
Sachs and Warner (1997)	Indicator: Life expectancy and life expectancy squared Main result: The paper shows significant effects of health on growth for a

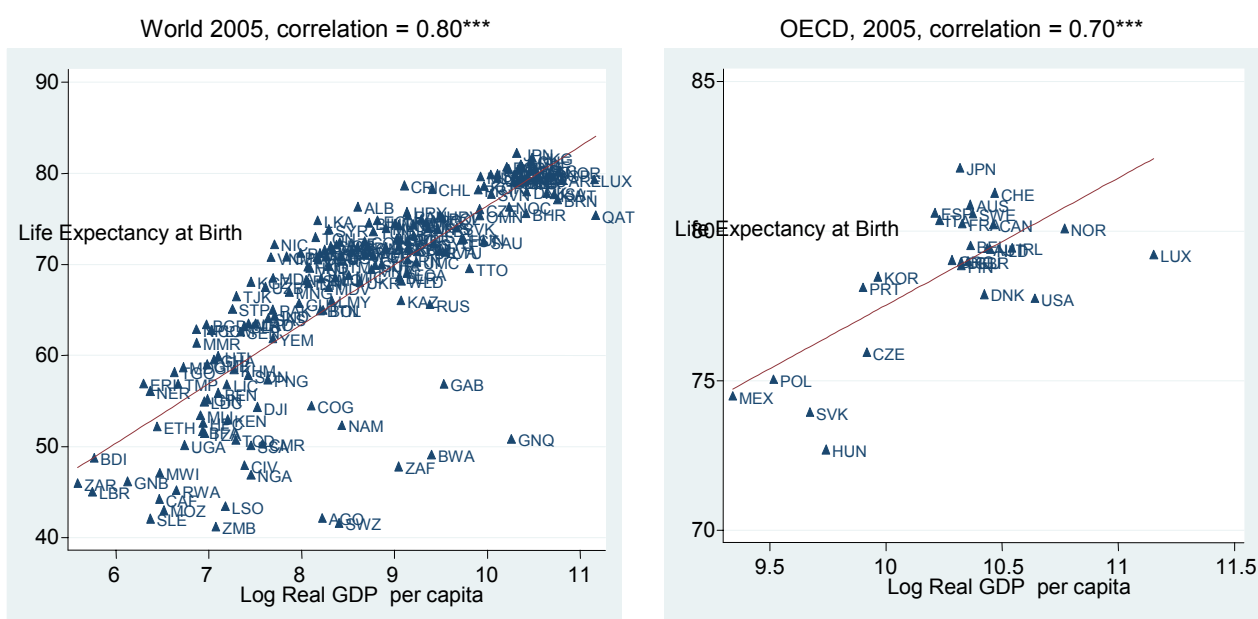
panel of 97 countries from 1965 to 1990.  
 Methodology: OLS; controlling for human capital, governance and growth covariates.  
 Indicator: Cardio-vascular disease

Suhrcke and Urban (2006)

Main result: The paper shows significant effects of health on growth for a panel of 74 countries from 1960 to 2000, especially for rich countries.  
 Methodology: GMM; controlling for growth covariates.

Source: OECD Secretariat

**Figure 5: Correlation between life expectancy and GDP per capita**



Note: \*\*\*, \*\*, \* denote significance at 1, 5 and 10%.

Source: World Bank, OECD.

*Education*

36. Investment in human capital at all ages is crucial for long term growth and is often considered as a pre-requisite to development (Table 6).

**Table 6: Selected results on education and economic performance**

	<b>Results</b>
Barro (1991), Mankiw et al (1992)	Educational factors have a positive impact on output levels
Barro (1997)	An extra year of education raises economic growth by 1.2% per annum
Toppel (1999), Oulton (1997)	The impact of an extra year of schooling is much smaller than in Barro (1997)
Harmond et al (2001)	An additional year of schooling increases wage by around 6.5% across European countries
Krueger and Lindhal (2001)	Find a significant effect of education on growth only for countries with the lowest level of education
Cohen and Soto (2001), de la Fuentes and Domenech (2006)	Schooling indicators have an impact in standard growth specifications
Hanuchek and Kimbo (2001); Coulombe (2004)	Using indicator of skills, the effect of education on output is found to be stronger than those estimated using attainment data

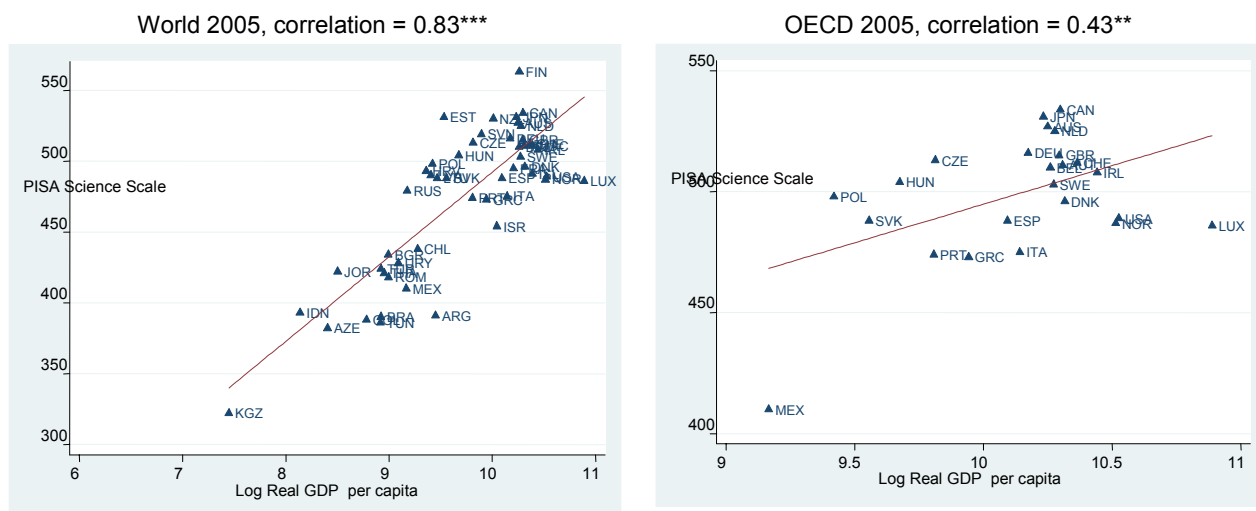
Source: OECD Secretariat

37. Data on early education and childcare are available in the OECD Family database, though it is mostly limited to childcare support, public spending on childcare or enrollments. No indication on the quality of the services is currently available on a cross-country basis.

38. For primary and secondary education, the OECD Education at a Glance database is a rich source of information and is updated every year. This data can be complemented by UNESCO data for non OECD countries. In addition the PISA score, which is based on series of tests passed by 15-year old students, is now regularly published for different topics. The aggregate score is found to be well correlated with the level of GDP per capita, especially when developed countries are incorporated in the sample (Figure 6).

39. Investment in tertiary education is usually measured through indicators of education output (and not quality) such as enrollment, literacy, graduation ratios or the number of years of schooling. The main difficulty in using this data is generally their lack of comparability across countries. Harmonised graduation ratios have been produced by the OECD and UNESCO. Consistent time series for a relatively long period (usually 1991-2004) can be derived by combining these two sources. Data on international student enrollments can also be found in the UNESCO-OECD-Eurostat (UOE) data collection on education statistics. In addition, composite indicators have been built to measure supply-side factors, such as a summary measure of the institutional set-up of tertiary education, or demand-side factors such as the internal rate of return to education (Oliveira Martins *et al.*, 2007). These data are available for many OECD countries, but only for some years (2005-2006 for the supply-side indicator and 2001 for the internal rate of return).

**Figure 6: Correlation between PISA scores and GDP per capita**



Note: \*\*\*, \*\*, \* denote significance at 1, 5 and 10%.

Source: World Bank, OECD.

**Labour market**

40. Labour markets matter for growth through their impact on both labour utilisation and to a lesser extent labour productivity. A very large body of the literature has examined these effects from a theoretical and empirical point of view. In particular, institutions are usually found to affect the structural unemployment rate, although some of these results sometimes suffer from a lack of robustness (Table 7).



**Table 7: Labour market indicators and performance**

<i>Indicator</i>	<i>Papers</i>	<i>Impact on structural unemployment</i>
Unemployment benefits	OECD (2006); IMF (2003); Nunziata(2002);Jimeno Rodriguez-Palenzuela (2002); Nickel et al. (2003); Belot and van Ours (2001); Morgan and Mourougane (2005); Blanchard and Wolfers (2000); Daveri and Tabellini (2000); Fitoussi et al. (2000); Elmeskov et al. (1998); Nickell (1997,1998); Scarpetta (1996), Nicoletti and Scarpetta (1995) Macculloch and DiTella (2002) ; Baker et al. (2004); Bertola et al. (2002) ; Fiori et al. (2007)	Positive (sometimes significant in most but not in all cases)  No effect
Active labour market policies	OECD (2006); Fitoussi et al. (2000); Elmeskov et al. (1998); Nickell (1997,1998); Scarpetta (1996); Boone and van Ours (2004) Baker et al. (2004)	negative (sometimes significant in most, but not in all cases) No effect
Union density and/or bargaining coverage	IMF (2003); Morgan and Mourougane (2005); Blanchard and Wolfer (2000); Nickell (1997,1998); Scarpetta (1996), OECD (2006); Macculloch and DiTella (2002) ; Nunziata (2002); Baker et al. (2002); Daveri and Tabellini (2000); Fitoussi et al. (2000); Elmeskov et al. (1998)	Positive  No effect or negative
Centralization and coordination of wage bargaining	OECD (2006); IMF (2003); Nunziata (2003); Baker et al. (2002); Jimeno and Rodriguez-Palenzuela (2002); Nickel et al. (2003); Blanchard and Wolfer (2000); Fitoussi et al. (2000); Nickell (1997,1998); Scarpetta (1996); Nicoletti and Scarpetta (1995); Fiori et al. (2007) Macculloch and DiTella (2002); Belot and van Ours (2001); Bertola et al. (2001)	Negative  No effect or positive
EPL	OECD (2006); Baker et al. (2004); Nunziata (2003); Nickell et al. (2003); Belot and van Ours (2001); Morgan and Mourougane (2005); Daveri and Tabellini (2000); Nickell et al. (2002); Nicoletti and Scarpetta (1995); Fiori et al. (2007) IMF (2003); Bertola et al. (2002); Jimeno and Rodriguez-Palenzuela (2002); Blanchard and Wolfers (2000); Elmeskov et al. (1998); Scarpetta (1996)	No effect or negative  Positive
Labour tax wedge	OECD (2006); IMF (2003); Nunziata (2002); Baker et al. (2004); Jimeno and Rodriguez-Palenzuela (2002); Nickell et al. (2003); Belot and van ours (2001); Bertola et al. (2002); Morgan and Mourougane (2005); Blanchard and Wolfer (2000); Daveri and Tabellini (2000); Elmeskov et al. (1998); Nickell (1997, 1998); Nicoletti and Scarpetta (1995) Macculloch and DiTella (2002); Fitoussi et al. (2000) ; Scarpetta (1996); Fiori et al. (2007)	Positive  No effect

Source: OECD Job Strategy.

41. Both policy and outcome indicators have been developed to monitor labour markets and are already well covered in the literature and in works published by international organisations (such as *Going for Growth* published by the OECD). Policy indicators produced at the OECD cover a vast range of labour market institutions ranging from employment protection legislation to data on trade unions. These data are generally available for specific years only and suffer from serious limitations (e.g. EPL measure is a *de jure* measure and does not reflect effective employment protection). These data are usually only constructed for OECD countries and sometimes for large non-member countries. Other institutional variables such as unemployment benefit generosity or replacement rates are more timely but usually constructed for certain household or worker types. By contrast, a lot of detailed information is available for OECD countries and on a long time span on active labour markets policies and labour taxes. Marginal effective tax rates are also regularly computed for different household types. Data on minimum wages are

available in the OECD minimum wage database for countries that have a national statutory minimum wage.

42. Other international institutions also publish data on labour market institutions. A large set of institutional variables is collected in the European Commission's LABREF database and the ILO Laborsta database. Qualitative information on the wage system is freely available on the EIRO website. Perception-based measures on worker motivations and industrial disputes can also be found in the World competitiveness report which is updated every year. In addition, time-series for selected institutional data such as EPL have been constructed by Allard (2005) and Amable et al. (2007), but the method applied to construct these indicators can be questioned<sup>7</sup>.

43. Outcome indicators include data on employment, unemployment, hours worked and labour force participation. Data are usually fact-based, timely and have a broad country coverage. Efforts have been made over the years to harmonise the data across countries. Moreover, a breakdown by gender, age, skill and sector is also available. The structural (or equilibrium) unemployment rate is a different type of outcome indicator as it is non-observable. It can be estimated using different methodologies, e.g. the OECD Economics Department uses a core price Phillips curve and Kalman filter technique. Indicators of the implicit tax on retirement have also been developed and regularly updated by the OECD.

### ***Product market***

44. Well-functioning product markets affect positively productivity and consumer welfare through various channels (Table 8). Indeed, competition in product markets boosts efficiency in three ways. First, it enhances allocative efficiency. Second, productive efficiency or x-efficiency *i.e.* the ability of firms to produce output at minimum resource costs can also be increased. Third, competition influences the incentives to innovate and invest - so-called dynamic efficiency. In addition, increased competitive pressures can spur employment growth. At the same time, regulations are important to address market failures stemming for instance from asymmetries of information and externalities. But they also increase firms' compliance costs.

45. A large number of indicators have been developed to measure access to markets and the degree of competition. They are usually based on questionnaires and can be either perception- or fact-based. Although they are usually considered as policy indicators, composite measures sometimes aggregate policy and performance sub-indicators.

46. Among the policy indicators, the World Bank's Doing Business report has attracted a lot of attention because of its broad country coverage and its annual updates. Its objective is to track reforms aimed at simplifying business regulations, strengthening property rights, opening up access to credit and enforcing contracts by measuring their impact on 10 indicator sets. The indicators are then aggregated into an overall ranking comparing ease of doing business across countries. One of the main advantages of this database is that the methodology is transparent, data are comparable across countries, easily replicable and reliability checks are done through the production process. However, the data may not be fully representative of the extent of regulation at the national level as they focus on some specific regions or types of firms. Some data on administrative burdens and labour market institutions have been criticized as being too rough. In addition, some of the data are perception-based. The data also cover only domestically owned, limited liability companies and a limited set of transactions. Moreover, it is assumed that firms have full information on requirements and procedures and the data may underestimate firms' compliance burden.

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7. In particular, it can be argued that the additional information used to derive the new indicator can not be easily assigned to EPL sub-indicators.

47. Another well-known indicator is the Product Market Regulation indicator (PMR) published by the OECD, and its sectoral time-series variants. These are composite indicators summarising information on laws and regulations, as well as the compliance burden born by firms. These indicators are already extensively used in the context of multilateral structural surveillance, in the Going for Growth report or in country Economic Surveys. They have also been extensively used in academic research. They are based on a combination of responses to a questionnaire filled in by country officials and external data sources. The data are thus fact-based, and highly transparent so that it is possible to reproduce the score of the indicator from the results used to derive it. The final outcomes, as well as the underlying data and the methodology are subject to peer review. The weighting procedure has recently been simplified but comparability over time has been ensured through the construction of past data using the same methodology. Moreover, confidence bands are provided, helping the users to assess the reliability of the data. The data are regularly updated every two to three years, with usually improvements in the methodology. Lately non-tariff data in the service sector have been included and complement the tariff data already included in the PMR indicator. The country coverage has been extended over the years and covers now also China and India. Looking forward, the indicator will be enriched by the integration of the indicator of sectoral regulator independence which is found to be closely related to investment in infrastructure (Sutherland et al., forthcoming).

48. The Business Competitiveness Index (BCI) produced by the World Economic Forum is a composite indicator constructed using a combination of survey and hard indicators, including a measure of intellectual property protection and the stringency of environmental regulation. Their focus is on capturing factors that matter for competitiveness at the micro-economic level. The construction process is fully transparent. However, the selection of the different indicators is nonetheless not straightforward and some may be strongly inter-correlated (e.g. intellectual property protection and property rights). Lastly the weights are determined using factor analysis at a lower level of aggregation and regression on GDP per capita at a higher level of aggregation. It is unclear whether the ranking from the BCI is robust to an alternative weighting choice. Finally, there is no information on measurement errors.

49. Overall, past analysis points to a strong correlation between these various indicators for the OECD countries. The correlation between the ease of doing business and the OECD product market regulation indicator is 0.7.

50. A new indicator is the questionnaire-based measure of whether a sector is subject to incentive price regulation, generally in the form of a price cap<sup>8</sup>, constructed by the OECD. The indicator is available for all OECD countries except Poland and Greece over the period end 2007- early 2008. The sectoral coverage varies across countries. There is no plan to update the questionnaire so far. The methodology is transparent and the data have been subject to peer review. One main limitation of this indicator is that it does not account for quality changes. There is, however, evidence that this indicator has a positive impact on investment in infrastructure in the presence of an independent regulator (Sutherland *et al.*, forthcoming). Indicators summarising the main features of the regulatory institutions have been constructed in Hoj (2007a). The indicators cover both general and sector-specific competition policies.

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8. The regulator specifies a price basket that can increase in line with an exogenous measure of input costs minus measures of efficiency gains.

**Table 8: Product market indicators and economic performance**

<b>Results</b>	
Nicoletti <i>et al.</i> (2001), Blanchard and Giavazzi (2003), Baissanini and Duval, Griffith <i>et al.</i> (2007) OECD (2003a), Aghion and Griffith (2005), Conway <i>et al.</i> (2006), Arnold <i>et al.</i> (2008), Nicoletti and Scarpetta (2005), Scarpetta and Tressel (2002), Fiori <i>et al.</i> (2007)	Anticompetitive product market regulations have significant negative effects on employment rates.  Anti-competitive product market regulations are negatively associated with productivity performance.
Bayoumi <i>et al.</i> (2004)	Greater competition produces large effects on macroeconomic performance, as measured by standard indicators. It may also improve macroeconomic management by increasing the responsiveness of wages and prices to market conditions. Finally, greater competition can generate positive spillovers to the rest of the world through its impact on the terms-of-trade.
Bassaini and Ernst (2002) Scarpetta and Tressel (2002)	Positive impact of deregulation on R&D activity. Strict regulation hinders the adoption of exiting technologies, possibly by reducing competitive pressures, technology spillovers, or the entry of new high-tech firms.
Bartelman <i>et al.</i> (2003)	Deregulation has a positive impact on the expansion of successful firms.

Source: OECD Secretariat

51. A large number of outcome indicators (e.g. firm creation and destruction etc. ...) are also available but most of the time at a national or sectoral level, and only updated infrequently. Indices of concentration (such as the Herfindal index) are sometimes computed, but not on a regular basis or for a sufficient number of countries. Mark-ups have also been developed in OECD studies and elsewhere (Hoj *et al.*, 2007b).

### **Infrastructure**

52. The impact of infrastructure on output (and output growth) is difficult to pin down and the direction of causality hard to determine empirically (Table 9). However, there is some empirical evidence that investment has positive effects that go beyond the impact to be expected from a larger capital stock (Sutherland *et al.*, forthcoming). In particular, infrastructure investment appears to have on average a stronger long-term effect on growth at lower levels of provision, though the effect is different between developing and developed countries.

53. Data on infrastructure available over a relatively long time period and comparable across countries are scarce. Capital stock data published by national statistical offices lack harmonisation. They can usually be complemented by physical measures of infrastructure provision, but the latter can not be easily aggregated. Moreover these measures fail to capture the quality of infrastructure.

54. A composite indicator measuring how countries exploit the potential benefits of Public and Private Partnerships (PPPs) have recently been developed by the OECD. The data are available for 19 countries, though not for the United Kingdom which has made extensive use of PPPs in the past. Data are questionnaire-based. No update is, however, currently planned.

**Table 9: Infrastructure and economic performance**

<i>Results</i>	
Ford and Poret (1991)	Infrastructure can have growth enhancing effect but the relation is weak and unstable
Bonaglia et al. (2000)	Infrastructure makes a positive contribution to productivity in some Italian regions
Kozerec et al. (2001)	Strong positive contribution of telecom and electricity, gas and water on productivity in the United States and Europe
Sutherland et al. (forthcoming)	Evidence that infrastructure has a positive effect that goes beyond the expected impact from capital stock.
Hurlein (2006), Bougheas et al. (2000), Sutherland et al. (forthcoming)	Evidence that the link between infrastructure and growth is non-linear

Source: OECD Secretariat

### *International trade*

55. The last three decades have witnessed rapid economic integration. This has spurred an economic on trade and its effects on growth and living standards, both from a theoretical and an empirical point of view.

56. From a theoretical point of view, there are different channels through which trade can stimulate growth and improve living standards. First, according to the theory of comparative advantages, trade based on specialisation increases domestic output due to higher productivity. Second, trade is a means to increase worldwide competition in production, and to enhance efficiency. Third, trade guarantees a greater choice of products. Fourth, it expands potential markets and permits domestic firms to take advantage of economies of scale. Fifth, trade allows the diffusion of knowledge and technological innovation.

57. From an empirical point of view there is a large literature showing that economies that are more open to international trade have higher rates of growth, as a result of higher investment, human capital accumulation, higher technology diffusion and sustained gains in factor productivity<sup>9</sup>.

58. These empirical works, however, differ in the approach of measuring trade openness. In particular, it is possible to classify the empirical research investigating the relation between trade and growth in two branches: those that use policy indicators as measures of trade openness, and those that use outcome indicators (in terms of trade intensity).

59. Trade policy indicators describe the institutional features of a country's attitude toward the rest of the world. The most common policy indicators are tariff barriers (or the effective tariff). However, there are many different policy instruments, i.e. non-tariff barriers (such as quotas, exemptions, special permits, and discriminatory practices) that can affect trade and which can be considered a better proxy for trade openness, especially in developed countries.<sup>10</sup> Thus, other indicators such as the one provided by the

9. In particular, Wacziarg (2001) considers six channels through which trade affects growth: (1) macroeconomic policy quality, (2) government size, (3) price distortions from the existence of black market premium, (4) investment share of GDP, (5) technology, and (6) foreign direct investment. His results show that the most important channel is investment, accounting for 63 percent of trade's total effect on growth, while the technology channel and the stabilizing channel account for the rest of the effect. For other empirical results see Lewer and Van den Berg (2003) which presents a critical survey of the literature on this topic.

10. Existing standards or regulation regarding safety or environmental issues are another form of non-tariff barriers. These barriers may be more stringent for developed countries than more traditional forms of non-barriers.

Heritage foundation, Sachs and Warner (1995) and Wacziarg (2001) have used both tariff and non-tariff barriers to construct an indicator for trade openness. The main advantage of these indicators is the (almost) absent problem of endogeneity with respect to growth. In contrast, the main limitation is their limited availability, and the fact that they usually reflect the legal framework in which agents operate, but not the effective degree of protection they face.

60. A policy indicator of trade openness has been constructed by the Heritage Foundation. The indicator is transparent in the way it is constructed and data are available for a very broad set of countries (161) from 1995 to 2007, based on well documented sources<sup>11</sup>. The indicator is based on both trade and non-tariff barriers. While this is an advantage to other indicators based exclusively on tariff barriers, it has the main disadvantage that non-tariffs barriers are difficult to construct and often require subjective judgments. However, the indicator is positively correlated with outcome indicator such as GDP's share of total exports and imports and it shows a strong and positive correlation with GDP per capita<sup>12</sup>. This suggests that the indicator is reliable (measure what it pretends) and matters for living standards.

61. An alternative would be to restrict the construction of the indicator to tariff barriers. The OECD collects tariff data for most of its member countries. However, the outcome does not seem to be well correlated with openness, suggesting that abstracting from non-tariff barriers would lead to a serious bias and lower the usefulness of the data.

62. Another policy indicator is the FDI restrictiveness index constructed by Golub (2003) and updated in Koyama and Golub (2006). The indicator is available for OECD economies and 13 non OECD economies. It covers three categories of restrictions: limitations on foreign ownership, screening or notification procedures and management or operational restrictions.

63. Outcome indicators describe the volumes and values of existing trade. The outcome indicator that has been mostly used to investigate the relation between trade and growth are export growth (see Table 10) and the share of total exports and imports to GDP. Other indicators of the same type are the structure-adjusted trade intensity (which is the ratio of real imports plus real exports to real GDP, corrected for transportation costs, country size and country income) and the ratio of imports to aggregate consumption. These indicators are all fact-based, and easy to construct. Moreover, many international organisations collect data on exports and imports (differentiated by structure, destination and origin) and these indicators are easy to compute. The main drawback of this type of indicator is the endogeneity problem with respect to growth (Frankel and Romer, 1995).

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11. The authors used the following sources to determine scores for trade policy, in order of priority: World Bank, *World Development Indicators 2007* and *Data on Trade and Import Barriers: Trends in Average Tariff for Developing and Industrial Countries 1981–2005*; World Trade Organization, *Trade Policy Reviews, 1995–2007*; Office of the U.S. Trade Representative, *2007 National Trade Estimate Report on Foreign Trade Barriers*; World Bank, *Doing Business 2008*; U.S. Department of Commerce, *Country Commercial Guide, 2004–2007*; Economist Intelligence Unit, *Country Report, Country Profile, and Country Commerce, 2004–2007*; and official government publications of each country.

12. The indicator has a strong and positive relation both overtime and cross country with GDP per capita. It is important to stress, however, that cross country variation is the most important source of variability.

**Table 10: Trade growth and economic performance: effects of real export growth on real GDP growth**

Average coefficient value	0.220
Median coefficient value	0.189
Average t-Statistic	3.460**
Maximum coefficient value	1.851
Minimum coefficient value	-1.433
Average standard error	0.021
Average 95% confidence interval	±0.042
Average Kurtosis distribution	11.502
Average skewness	-0.134

Notes: \*\*Significant at the 95% level. Based on 196 regressions.

Source: Levewr and Van den Berg (2003)

### ***Financial markets***

64. Financial markets influence capital accumulation and productivity growth through their intermediation role. They foster the efficient allocation of capital, facilitate international capital flows and allow the pooling of risks and spreading of information about investment opportunities.

65. From an empirical point of view there is a large literature finding that economies with more developed financial markets have higher rates of growth. In particular, according to cross-country comparisons, individual country studies as well as industry and firm level analyses, a positive link exists between the sophistication, the deepness and the well functioning of the financial system and economic growth (see Table 11).

66. To assess the effect of financial markets on economic growth two sets of indicators have been used: policy indicators and outcome indicators.

67. Financial policy indicators try to measure aspects of domestic and financial markets mostly related to the regulatory stance, both as regards stability, competition and liberalisation. The main advantage of these indicators is the (almost) absent problem of endogeneity with respect to growth. Moreover, while until the last decade data were not easily available, today many organisations have undertaken (IMF, World Bank) or in the process of undertaking (OECD) projects to construct databases on financial policy indicators. Similarly, the importance of financial liberalisation for living standards and economic growth has encouraged independent organisations (such as the Heritage Foundation) to build their own policy indicators.

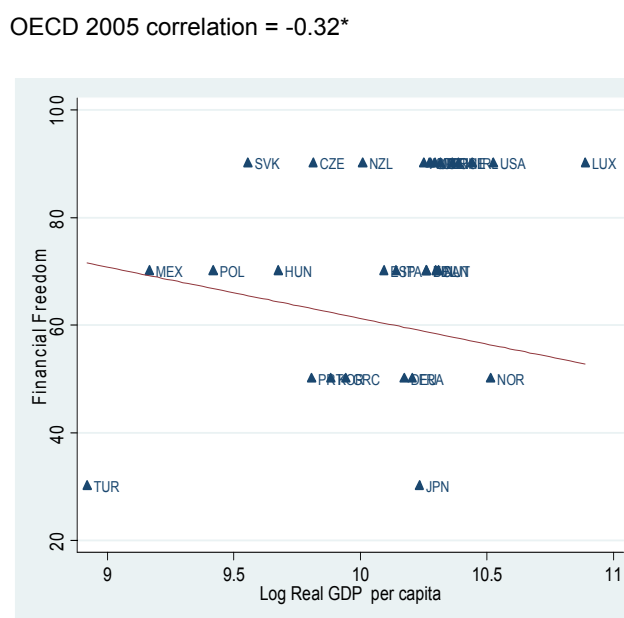
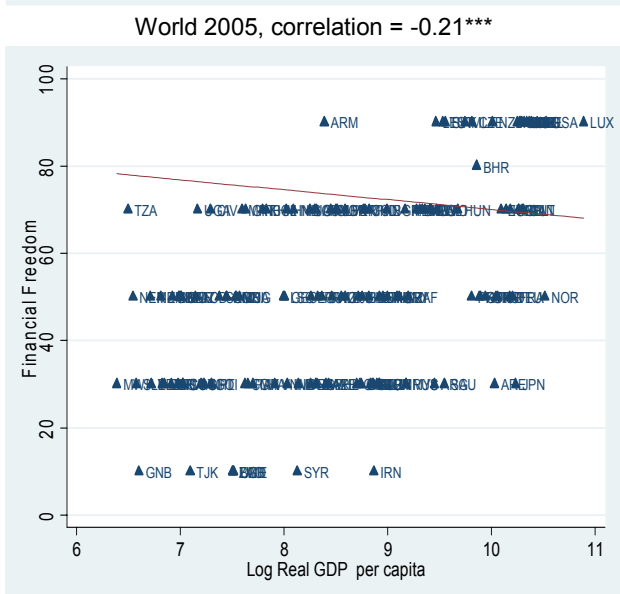
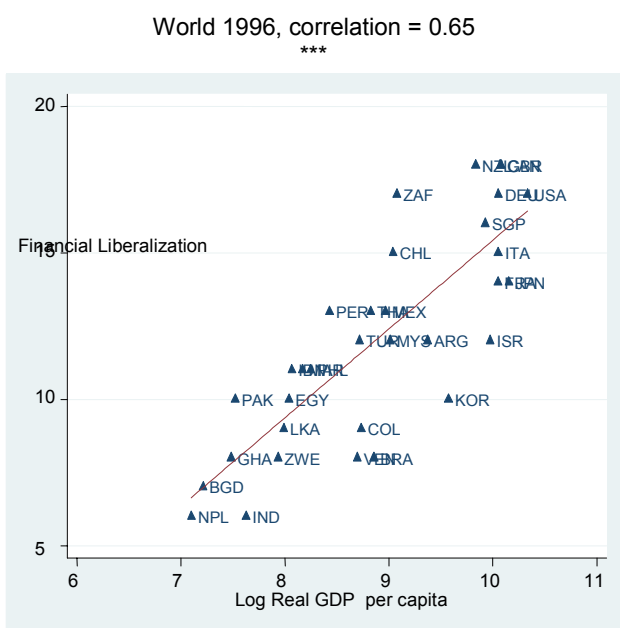
68. Outcome indicators describe the deepness, the efficiency, the concentration of domestic financial markets, and the degree of financial liberalisation. The Fraser Institute has constructed an index that measures the freedom to exchange with foreigners called Economic Freedom of the World. With regard to the domestic financial market, Beck *et al.* (2007) construct perhaps the most comprehensive dataset of indicators that measure the size, activity, and efficiency of financial intermediaries and markets (some of these indicators are, for example, financial market capitalisation, bank concentration, net interest rate margin, credit and bank deposit, and other measures of financial deepness). With regards to international finance, outcome indicators often follow the same methodology of trade outcome indicators. Examples of these indicators are: the financial liberation indicator (overall stock of external liabilities and assets to GDP) and the financial freedom indicator (the share of portfolio equity and FDI to GDP, and the share of equity liabilities in total liabilities).<sup>13</sup> Data on the variables used to calculate the indicators are from official

13. See Lane and Milesi-Ferretti (2007).

sources (IMF, World Bank) and are available for a large time span and very broad set of countries. Moreover, the indicators seem to matter for living standards. In fact, they are positively and significantly associated with GDP, both across countries and over time (Figure 7).

69. While all these indicators are easy to measure and can be used to assess the implication of the financial structure and liberalisation on growth, their main drawback is the presence of endogeneity problems with respect to growth. Thus, their use to assess the impact of financial markets on growth has to be considered jointly with the use of policy indicators (as instruments).

**Figure 7: Correlation between selected indicators of financial developments and GDP per capita**



Note: \*\*\*, \*\*, \* denote significance at 1,5 and 10%.

Source: World Bank, IMF.



**Table 11: Financial markets and economic growth**

	<b>Indicator used or methodology and results</b>
De Serre <i>et al.</i> (2007)	A set of indicators of banking and regulation created from the World Bank Regulation and Supervision database for 25 OECD countries. Regulation which is more conducive to competitive and efficient financial markets have a positive impact on output and productivity.
Atje and Jovanovic (1993) and Levine and Zervos (1998)	Stock market trading as a share of GDP
Levine (1998, 1999) and Levine <i>et al.</i> (2000)	Positive correlation between stock market trading and growth. Use GMM and a country's legal origin as an instrument for financial development.
Aghion <i>et al.</i> (2005)	Establish a causal link between finance and growth. Same technique as in Levine <i>et al.</i> (2000) Financial development influences the speed of growth convergence rather than the steady state.
Benhabib and Spiegel (2000)	Indicators of financial development are correlated to both TFP growth and to the accumulation of physical and human capital. But the indicators that are strongly correlated with total factor productivity growth differ from those boosting investment.
Rioja and Valev (2004a, 2004b)	The impact of financial development on growth may vary with the level of financial development and of income.
Loayza and Rancière (2005)	Evidence that a positive long-run relationship between financial intermediation and output growth can co-exist with a negative short-run relationship.
Edison <i>et al.</i> (2002, 2004)	Use a wide variety of measures of international financial integration and of equity market liberalisation. Introduce an interaction variable : GDP*capital account liberalisation. International financial integration does not in general accelerate economic growth after controlling for financial and institutional characteristics. But interaction variables are found to be significant.
Rajan and Zingales (1998)	Estimate measures of the financial dependence of industries (i.e. a reliance on financing from outside) and interact this measure with measure of financial development. There is a significant and sizeable causal effect from the state of financial markets to economic growth.
Demirguc-Kunt and Maksimovic (1998)	In countries with better financial development, relatively more firms grow faster than predicted by internal accounting data.
Beck <i>et al.</i> (2004)	Financial development exerts a positive growth effect on industries that are technologically more dependent on small firms.
Becker and Sivadasan (2006)	Financial development may mitigate financial constraints of firms and enhance investment.

Source: OECD Secretariat

### ***Reform and composite indicators***

70. Measuring progress in structural reforms is crucial to formulate policy recommendations. Information on individual reforms is currently collected by the European Commission in its MICREF database for EU countries. These data often come from other international organisations or one-off studies. Indicators of reform intensity have been constructed as the average of labour (or product) market institutions for OECD countries (Hoj *et al.*, 2006). There has been some interesting attempts to construct summary measures of reform progress by aggregating variables in different areas (Lora and Panizza, 2002; Eicher and Röhn, 2007). These indicators suffer from the drawbacks associated with composite indicators, in particular the difficulty of interpreting them and the arbitrariness of the chosen weights. It remains also to be seen whether these indicators could be updated at a sufficient frequency to allow a regular monitoring of progress.

71. Among the composite indicators that cover a large number of areas, it is worth mentioning the Global Competitiveness index from the World Economic Forum which takes into account both macroeconomic and microeconomic foundations of competitiveness. Its scope is very large in terms of

areas covered and country coverage. The indicator is a weighted average of indicators gathered in 12 pillars<sup>14</sup>. Weights of the different pillars depend on the country's level of development, but robustness checks suggest that the index is not sensitive to the weights. This indicator is regularly updated. However, regular changes in the methodology (in terms of data source or composition of the index<sup>15</sup>) cast doubts on its comparability over time.

#### **IV. Conclusion**

72. The analysis undertaken in this paper has identified a number of areas which matter for living standards, but are currently not well captured by existing indicators. Although numerous indicators in these areas are currently available, these do not always meet the standards required in the context of international benchmarking exercise. Governance is clearly a domain that matters for living standards, but is currently absent in the framework. However, existing good governance measures are mostly perception based and cannot be credibly used for policy recommendations. Further work will be required to develop fact-based indicators in several dimensions of governance. It will be particularly helpful to construct an indicator of property rights and continue work on developing indicators of government management systems.

73. Depending on their use, the question of the regular update of these indicators can also be vital. Most of the structural indicators are, however usually developed in the context of a one-off study and/or not updated at regular intervals. This prevents their use in empirical work where time series are needed or in a surveillance process where reform progress is closely monitored.

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14. Institutions, macroeconomy, health, primary education, higher education and training, goods market efficiency, labour market efficiency, financial market sophistication, technological readiness, market size, business sophistication and innovation.

15. For instance the exchange rate has been recently removed from the index.

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## ANNEX: DESCRIPTION OF THE INDICATORS

## POLITICS AND GOVERNANCE

SOURCE	INDICATOR	SHORT DESCRIPTION	SCOPE	TYPE
*World Bank Governance matters <a href="http://info.worldbank.org/governance/wgi/resources.htm">http://info.worldbank.org/governance/wgi/resources.htm</a>		Composite indicators - weighted averages of the underlying data, with weights reflecting the precision of the individual data sources. Underlying data are coming from expert assessment and surveys of firms and individuals from different data sources and produced by different institutions. Confidence interval for each score for a given year is given.	Between 204 and 207 countries in 2004 Period: 1996-2007 But indicators are not comparable over time Update: Bi-annual The first "Governance Matters" paper was released in 1999. Since then five updates of "Governance Matters" have been published.	
	Voice and accountability	The extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.		Perception-based Policy Indicator
	Political stability and violence	Perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including domestic violence and terrorism.		Perception-based Policy Indicator
	Government effectiveness	The quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.		Perception-based Policy Indicator
	Regulatory quality	The ability of the government to formulate and implement		Perception-based

		sound policies and regulations that permit and promote private sector development.		Policy Indicator
	Rule of law	The extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, the police, and the courts, as well as the likelihood of crime and violence.		Perception-based Policy Indicator
	Control of corruption	The extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as “capture” of the state by elites and private interests.		Perception-based Policy Indicator
World Bank	Country Policy and Institutional Assessment (CPIA) <a href="http://web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS/IDA/0,,contentMDK:20189503~menuPK:2607492~pagePK:51236175~piPK:437394~theSitePK:73154,00.html">http://web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS/IDA/0,,contentMDK:20189503~menuPK:2607492~pagePK:51236175~piPK:437394~theSitePK:73154,00.html</a>	16 criteria divided in 4 clusters: economic management; structural policies; policies for social inclusion and equity; public sector management and institutions. The World Bank country team gives a score from 1 to 6 to each criterion and give each cluster the same weight.	Period: Since 1977 But individual country data were disclosed only since 2005 Annual update	Perception-based Policy Indicator
International Country Guide Risk (ICGR) <a href="http://www.prsgroup.com/ICRG_Methodology.aspx">http://www.prsgroup.com/ICRG_Methodology.aspx</a>		Predictive tool for international investments. The International Country Risk Guide (ICRG) rating comprises 22 variables in three subcategories of risk: political, financial, and economic. ICRG’s financial and economic-risk assessments rely entirely on objective measurements. These include the ratios of a country’s foreign debt to its GDP, its foreign debt-service and its current-account balance to its exports, its net international liquidity to imports, its budget balance to GDP and its levels of growth, inflation and GDP per capita. ICRG’s political-risk assessments rely entirely on experts’ subjective interpretations of pre-specified risk “components” whose pre-determined weights are made the same for all countries to facilitate comparison across countries and over time. It comprises: the ability for the government to stay in	140 countries (+20 countries on an annual basis) Period: Annual Data from 1984 can be available for research at a lower cost (exclude the recent year) Updated every month	Fact and Perception-based Policy and Outcome indicators

		office and to carry out its declared programme; socio-economic conditions (unemployment etc...), other factors affecting investment risks (contract viability, expropriation...); internal and external political violence and conflict; corruption; military in politics; religious and ethnic tensions; democratic accountability; bureaucratic quality; strength and impartiality of the legal system and popular observance of the law.		
Economist Intelligence Unit <a href="http://www.eiu.com/site_info.asp?info_name=sovereign_ratings">http://www.eiu.com/site_info.asp?info_name=sovereign_ratings</a>	*Sovereign ratings (but not included in the database)	The Country Risk Service publishes regular ratings. The sovereign rating measures the risk of a build-up in arrears of principal and/or interest on foreign- and/or local-currency debt that is the direct obligation of the sovereign or guaranteed by the sovereign.	120 Countries The ratings for emerging markets are updated monthly while those for most developed countries are updated bi-annually.	Fact and Perception-based  Outcome indicators
Global Insight	Global Risk services <a href="http://www.globalinsight.com">www.globalinsight.com</a>	It measures specific investment risks on a country-by-country basis using 51 precisely defined risk factors—from immediate risks such as tax policies and currency depreciation, to secondary risks including terrorism and trade conflicts. 12 investments types are assessed.	140 countries	
Ifo institute for economic research	World Economic Survey (WES)	WES data survey different dimensions of economic environment, such as “the lack of confidence in government’s economic policy”, “political instability”, and “legal and administrative restrictions for foreign firms to invest in these countries and/or repatriate profits”.	Period: Data available since 1992	Perception-based  Policy Indicator
Gallup World Poll <a href="http://www.gallupworldpoll.com">www.gallupworldpoll.com</a>	National Leadership Index	Defined by the confidence people have in key institutions. Questions in this index measure approval of national governments and confidence in elections, judicial systems, and the military.	140 countries The first round of data collection was carried out in late 2005 and 2006. Citizens are continuously surveyed based on a telephone or face-to-face interview.	Perception-based  Policy Indicator
Gallup World Poll <a href="http://www.gallupworldpoll.com">www.gallupworldpoll.com</a>	Law and Order Index	This index represents the security level that citizens observe for themselves and their families. Questions in this index measure confidence in local police, perceptions of safety, and specific problems such as money or property being stolen.	140 countries The first round of data collection was carried out in late 2005 and 2006. Citizens	Perception-based  Policy Indicator

			are continuously surveyed based on a telephone or face-to-face interview.	
Gallup World Poll <a href="http://www.gallupworldpoll.com">www.gallupworldpoll.com</a>	Engaged Citizens Index	Items in the Engaged Citizens Index focus on respondents' satisfaction with their communities, and their inclination to volunteer their time, money, or assistance to others. Questions in this index gauge satisfaction with community, personal freedoms, generosity, and respect for minorities and other social groups.	140 countries The first round of data collection was carried out in late 2005 and 2006. Citizens are continuously surveyed based on a telephone or face-to-face interview.	Perception-based Policy Indicator
Gallup World Poll <a href="http://www.gallupworldpoll.com">www.gallupworldpoll.com</a>	Community Quality of Life Index	The Community Quality of Life Index is a combination of many subindexes covering all aspects of community life from the perspective of the people who live there. Questions in this index measure overall satisfaction with community as well as satisfaction with community jobs, healthcare, transportation, appearance, education, leadership, housing, and environmental quality.	140 countries The first round of data collection was carried out in late 2005 and 2006. Citizens are continuously surveyed based on a telephone or face-to-face interview	Perception-based Policy Indicator
Gallup World Poll <a href="http://www.gallupworldpoll.com">www.gallupworldpoll.com</a>	Religiosity Index	The Religiosity Index is a measure of the importance of religion and attendance of religious services. Questions in this index measure citizens' self-reported importance of religion and religious service attendance.	140 countries The first round of data collection was carried out in late 2005 and 2006. Citizens are continuously surveyed based on a telephone or face-to-face interview	Perception-based Policy Indicator
Gallup World Poll <a href="http://www.gallupworldpoll.com">www.gallupworldpoll.com</a>	Tolerance Index	The Tolerance Index measures overall perceived openness to diversity in respondents' communities. Questions in this index gauge citizens' opinions about helping strangers and whether their communities are good places for racial and ethnic minorities, gay and lesbian people, and immigrants to live.	140 countries The first round of data collection was carried out in late 2005 and 2006. Citizens are continuously surveyed based on a telephone or face-to-face interview	Perception-based Policy Indicator
World Development Indicator	*Corruption index	It is the percentage of managers surveyed ranking this as a major business constraint.	2006 for 36 countries (mostly non-OECD)	Perception-based

				Policy Indicator
Transparency International	*Corruption perceptions index <a href="http://www.transparency.org/policy_research/surveys_indices/about">http://www.transparency.org/policy_research/surveys_indices/about</a>	The Transparency International Corruption Perceptions Index ranks countries in terms of the degree to which corruption is perceived to exist among public officials and politicians. It is a composite index, a poll of polls, drawing on corruption-related data from expert and business surveys carried out by a variety of independent and reputable institutions. The CPI reflects views from around the world, including those of experts who are living in the countries evaluated.	The 2007 CPI ranks 180 countries The country sample change every year Period: first released in 1995 Not comparable over time Every year but the coverage of countries can differ	Perception-based Policy Indicator
Transparency International	Global corruption barometers <a href="http://www.transparency.org/policy_research/surveys_indices/about">http://www.transparency.org/policy_research/surveys_indices/about</a>	A public opinion survey that assesses the general public's perception and experience of corruption and expectation about future experience in more than 60 countries around the world covering up to 50000 people. Disaggregated data per countries and questions are provided. The data distinguished between corruption in public and private institutions and between petty and grand corruption.	64 countries in 2003	Perception-based Policy Indicator
Transparency International	*Bribe payer index <a href="http://www.transparency.org/policy_research/surveys_indices/bpi">http://www.transparency.org/policy_research/surveys_indices/bpi</a>	The supply side of corruption and ranks corruption by source country and industry sector. The purpose is to rank leading exporting countries in terms of the degree to which international companies with their headquarters in those countries are likely to pay bribes to senior public officials in key emerging market economies. The question 'In the business sectors with which you are most familiar, please indicate how likely companies from the following countries are to pay or offer bribes to win or retain business in this country?' is used to determine the ranking on the Bribe Payers Index. The survey asks respondents in emerging markets to rate the bribe paying behaviour of companies from developed countries. The scale used runs from 0 (indicating certain to bribe) to 10 (indicating no bribery will be offered).	29 countries (not all OECD) Period: 2002 and 2006	Perception-based Policy Indicator
Global integrity	*Global integrity index (but not included in the database)	The Global Integrity Index assesses the existence, effectiveness, and citizen access to key national-level anti-corruption mechanisms used to hold governments accountable. The Global Integrity Index is generated by aggregating more than 300	41 countries Updated every three years	Fact and Perception-based Policy Indicator

	<a href="http://report.globalintegrity.org/globalIndex.cfm">http://report.globalintegrity.org/globalIndex.cfm</a>	<p>Integrity Indicators systematically gathered for each country covered.</p> <p>The Integrity Indicators break down that "access" into a number of categories and questions, ranging from inquiries into electoral practices and media freedom to budget transparency and conflicts of interests regulations. These concepts are measured by looking not only at what laws or institutions are "on the books" but by assessing their staffing levels, budget levels, political independence, and citizen access to the most important anticorruption mechanisms.</p> <p>Several rounds of review are conducted at the international level to ensure that cross-country comparisons are valid. In addition, all assessments are reviewed by a country-specific, double-blind peer review panel comprising additional local and international subject matter experts.</p> <p><a href="http://report.globalintegrity.org/methodology/whitepaper.cfm">http://report.globalintegrity.org/methodology/whitepaper.cfm</a></p>		
Gallup World Poll <a href="http://www.gallupworldpoll.com">www.gallupworldpoll.com</a>	Corruption Index	The Corruption Index assesses the degree to which respondents perceive corruption within public and private institutions. Questions in this index measure corruption in businesses and government, among other areas.	140 countries The first round of data collection was carried out in late 2005 and 2006. Citizens are continuously surveyed based on a telephone or face-to-face interview	Perception-based
Kaufman (2004)	Legal and illegal corruption indices	These indices are constructed by averaging the answer to the Executive Opinion Survey questionnaire from the World Economic Forum.	104 countries	Perception-based Policy indicator
OECD "Management in Government: Comparative Country Data" launched in November 2005  <a href="http://www.oecd.org/document/12/0,3343,en_2649_33735_37688524_1_1_1_1,00.html">http://www.oecd.org/document/12/0,3343,en_2649_33735_37688524_1_1_1_1,00.html</a>		<p>First publication of government at a glance is planned for 2009. The project will encompass six categories of variables: revenues; inputs; public sector processes; outputs; outcomes; and antecedents or constraints that contextualise government efficiency and effectiveness.</p> <p>The project's approach is incremental, starting from existing data and statistics and gathering new data when and if necessary and at minimal cost.</p>	Bi-annual updates	Perception-based  Policy and Outcome indicators

Center on Budget and policy priorities	*Open budget index <a href="http://www.openbudgetindex.org/">http://www.openbudgetindex.org/</a>	The Open Budget Index provides comprehensive practical information to gauge a government's commitment to budget transparency and accountability. The 2006 Index was calculated from the answers to a questionnaire completed by 59 in-country researchers around the world. <a href="http://www.openbudgetindex.org/materials.htm">http://www.openbudgetindex.org/materials.htm</a>	59 countries in 2006; expected for 2008  Period: 2006	Perception-based  Policy Indicator
Heritage Foundation	Index of fiscal freedom	The index weights equally three quantitative components using a quadratic cost function: the top tax rate on individual income, the top tax rate on corporate income and total tax revenue as a percentage of GDP. Data used from the computation are taken from a variety of sources, including OECD data.	Country coverage varies but in general around 160 countries Period 1995 to 2008	Perception based  Policy indicator
European Commission	Index of public finance quality	Composite indicators have been constructed along several dimensions: size of government, fiscal position and sustainability, composition, efficiency and effectiveness of expenditure, structure and efficiency of revenue systems and fiscal governance. These indicators are constructed using 81 variables. Several weighting system have been tested and the methodolig is still under discussion.	EU countries The project is underway	Fact-based Policy Indicator
OECD	Regulatory Management System Database	Include 16 dimension on regulatory policies, regulatory institutions , regulatory procedures and regulator tools. A summary indicator has been constructed using Principal Analysis Component.	27 countries Data for 1998 and 2005 Interpolated data in-between	Fact based Policy variable
OECD	Tax database <a href="http://www.oecd.org/document/60/0,3343,en_2649_34897_1942460_1_1_1_1,00.html">http://www.oecd.org/document/60/0,3343,en_2649_34897_1942460_1_1_1_1,00.html</a>	This database compiles tax data from various OECD publications, in particular Taxing wages. It gathered tax rates regarding wage taxation, corporate and capital income taxation, social contribution and value added tax.	OECD countries Period varies with the data	Fact based Policy variable
	Consumption trends	This publication presents data on different consumption taxes, as well as an indicator of efficiency (c-index) and environmental taxes.	OECD countries Period 1995 to 2003	Fact-based Policy and performance indicator
	Revenue statistics	This database contains data on tax levels and structures. Data	OECD countries	Fact-based



	<a href="http://www.oecd.org/document/58/0,3343,en_2649_34533_39498298_1_1_1_1,00.html">http://www.oecd.org/document/58/0,3343,en_2649_34533_39498298_1_1_1_1,00.html</a>	are also available by sub-sector, as well as data on non-tax revenue and grants.	Period 1965-2005	Policy and performance indicator
CD Howe	METR on capital <a href="http://www.cdhowe.org/pdf/ebrief_63.pdf">http://www.cdhowe.org/pdf/ebrief_63.pdf</a>	Marginal effective tax rates on capital investments incorporate corporate income taxes, sales taxes on capital purchases and other capital-related taxes including asset and net worth taxes, stamp duties on securities, taxes on contributions to equity. Special tax holiday regimes operating in some countries are not included in the analysis. Property taxes are not included due to lack of data.	80 countries Period 2003-2008 Updated every year	Fat-based Policy indicator
*Heritage Foundation	Property right index	This indicator scores the degree to which a country's laws protect private property rights and the degree to which its government enforces those laws. It also assesses the likelihood that private property will be expropriated and analyses the independence of the judiciary, the existence of corruption within the judiciary and the ability of individuals and business to enforce contracts. The authors grade each countries using information on whether private property is guaranteed by the government, the court system enforces contracts efficiently and quickly, the justice system punishes those who unlawfully confiscate private property, there is no corruption or expropriation. The authors use several sources, in priority data from Economist Intelligence Unit as from the US Department of Commerce or of States.	103 countries Period: 1997	Fact and Perception-based  Policy Indicator
Ginarte and Park (1997) and updated in Park and Singh (2002)	Intellectual property right index	The index is based on five aspects of national patent systems, with each country being assigned a score of between 0 and 1 according to the coverage, the duration and the enforcement of patent rights, membership of international treaties and restrictions placed on the use of patent rights. The score for each category is based on the weighted sum of the scores for a number of additional subcomponents.	Data are available at five-year intervals since 1980	Fact and perception based  Policy Indicator
Johnson et al. (2002)	Insecurity of property right index	Different indices are constructed using the firms answers to a questionnaire. The first one combines the three property-rights	5 Eastern economies (Poland, Slovakia, Romania,	Perception based Policy Indicator

		<p>questions — extralegal payments for licenses, extralegal payments for services, and paying for protection — into an additive index of property-rights insecurity for each firm. A higher value of this index therefore represents less secure property rights.</p> <p>An alternative index for property rights insecurity is equal to one if firms make any one of the three types of payments and zero otherwise.</p>	Russia and Ukraine) One-off study 1997	
World Bank Doing Business	Strength of investor protection index	<p>The strength of investor protection index is the average of the extent of disclosure index, the extent of director liability index and the ease of shareholder suits index. The index ranges from 0 to 10, with higher values indicating more investor protection.</p> <p>Data come from a survey of corporate lawyers and are based on security regulation, companies laws and court rules of evidence.</p>	178 economies  Updated every year	Perception-based  Policy indicator
Reporters Without Borders	*Worldwide press freedom index	<p>The report is based on a questionnaire sent to partner organizations of Reporters Without Borders (14 freedom of expression groups in five continents) and its 130 correspondents around the world, as well as to journalists, researchers, jurists and human rights activists.</p> <p>The survey asks questions about direct attacks on journalists and the media as well as other indirect sources of pressure against the free press. RWB is careful to note that the index only deals with press freedom, and does not measure the quality of journalism. Due to the nature of the survey's methodology based on individual perceptions, there are often wide contrasts in a country's ranking from year to year.</p>	172 countries Period: 2002 to 2007	Perception-based  Policy Indicator
Freedom House		<p>Rating of political rights and civil liberty on a scale of 1 (the highest) to 7 (the lowest). The average of the two rating is the country's status: "free (&lt;3), partly free (3&lt;..&lt;&lt;5) and not free (&gt;5). The rating is calculated on the basis of in-house experts subjective perceptions organised according to a checklist of questions. The list on political rights comprises 10 questions on 3 categories: electoral process; pluralism and participation; the functioning of the government.</p>	192 countries Period: Every years but data are not comparable over time (change in methodology) Annual update	Perception-based  Policy Indicator

		The list on civil liberty comprises 15 questions in four categories: the freedom of expression and belief; people rights to associate and organise; the rule of law; and personal autonomy and individual rights.		
*Polity IV project <a href="http://www.systemicpeace.org/polity/polity4.htm">http://www.systemicpeace.org/polity/polity4.htm</a>		Political Regime Characteristics and Transitions, 1800-2007, annual, cross-national, time-series and polity-case formats coding democratic and autocratic "patterns of authority" and regime changes in all independent countries with total population greater than 500,000 in 2007. The aggregate Polity IV indicator is computed as the difference between two composite indicators measuring the degree of democracy and autocracy in a country. Each composite indicator is calculated by assigning points to institutional features (e.g. on competitiveness of the executive recruitment).  <a href="http://www.systemicpeace.org/inscr/p4manualv2006.pdf">http://www.systemicpeace.org/inscr/p4manualv2006.pdf</a>	162 countries in 2007 Period: 1800 to 2007	Fact-based  Policy Indicator
*Henisz (2006) <a href="http://www-management.wharton.upenn.edu/henisz/">http://www-management.wharton.upenn.edu/henisz/</a>	Political Constraint	It is a composed indicator of political risk. It measures the feasibility of a change in policy given the structure of a nation's political institutions (the number of veto points) and the preferences of the actors that inhabit them (the partisan alignment of various veto points and the heterogeneity or homogeneity of the preferences within each branch).	235 countries (with some missing for earlier years) Period: 1800-2004	Perception-based  Policy Indicator
*World Bank- Database of Political Institutions (DPI) <a href="http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/0,,contentMDK:20649465~pagePK:64214825~piPK:64214943~theSitePK:469382,00.html">http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/0,,contentMDK:20649465~pagePK:64214825~piPK:64214943~theSitePK:469382,00.html</a>		DPI contains several indicators regarding Chief Executive Variables ( i.e. parliamentary system, military chief, nationalist chief, religious chief, etc.) Party Variables in the Legislature (Herfindahl Index of parties' concentration, fractionalization, largest government part that represents any special interest), Electoral Rules and Number of Elections, Stability (longest tenure of veto players; number of veto players who drop from government in any given year) and Federalism.	178 countries  Period: 1975-2006	Fact-based  Policy Indicator
Comparative Data feature of ACE Electoral Knowledge Network. (formally EPIC project)		The survey covers 11 election related topics. It Provide information about electoral systems, electoral management, legislative framework, voter registration, voter education and other related topics.	Over 180 countries Work in progress, results online expected for end-2008	Perception-based  Policy Indicator

<a href="http://aceproject.org/epic-en/methodology">http://aceproject.org/epic-en/methodology</a>		The information available on Comparative Data is compiled through a comprehensive multiple-choice survey about national elections on a country-by-country basis. The multiple-choice aspect of the survey allows for comparative statistics.		
Global report on conflict	State fragility index	It combines scores on two essential qualities of state performance: effectiveness and legitimacy. These two quality indices combine scores on distinct measures of the key performance dimensions of security, governance, economics and social development.	162 countries Data for 1995, 2001 and 2007	Fact-based Policy Indicator
Cingranelli-Richards Human Rights <a href="http://www.humanrightsdata.com">www.humanrightsdata.com</a>		The database describes a wide variety of government human rights practices (13) including torture, workers' rights, women's rights, and freedom of religion over a 26-year period. Contains both disaggregated measures of specific human rights practices, which can either be analyzed separately or combined into valid and reliable indices, as well as two already-aggregated indices. The primary source of information about human rights practices is obtained from a careful reading of the annual United States Department of State's Country Reports on Human Rights Practices.	192 countries Annual 1981-2006	Fact-based Policy Indicator

### SOCIO ECONOMIC INDICATORS

SOURCE	INDICATOR	SHORT DESCRIPTION	SCOPE	TYPE
World Bank	World development Indicators 2008  Data available at: <a href="http://ddp-ext.worldbank.org/ext/DDPQQ/member.do?method=getMembers">http://ddp-ext.worldbank.org/ext/DDPQQ/member.do?method=getMembers</a>	WDI 2008 includes approx. 800 indicators in 87 tables, organised in six sections: World View, People, Environment, Economy, States and Markets, and Global Links.	54 time series indicators for 207 countries and 18 groups, data from 1990 to 2006	Fact-based Policy and Outcome indicators

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*World Bank, development economic research group	Life expectancy at birth		Period:1960-2006 Countries: 208	Fact-Based Outcome indicator
World bank, development economic research group	Incidence of poverty		Period: 1981-2004	Fact-based Policy Indicator
United Nations Development Programme Human Development Index  <a href="http://hdr.undp.org/en/statistics/indices/hdi/">http://hdr.undp.org/en/statistics/indices/hdi/</a>	*Human development index Education index	The HDI is a summary composite index that measures a country's average achievements in three basic aspects of human development: health, knowledge, and a decent standard of living. Health is measured by life expectancy at birth; knowledge is measured by a combination of the adult literacy rate and the combined primary, secondary, and tertiary gross enrolment ratio; and standard of living by GDP per capita (PPP US\$). The HDI sets a minimum and a maximum for each dimension, called goalposts, and then shows where each country stands in relation to these goalposts, expressed as a value between 0 and 1. The educational component of the HDI is comprised of adult literacy rates and the combined gross enrolment ratio for primary, secondary and tertiary schooling, weighted to give adult literacy more significance in the statistic.	176 countries in 2005 Period: Every five years from 1975	Fact-based Policy Indicator
OECD	Society at a glance <a href="http://www.oecd.org/document/24/0,3343,en_2649_34637_2671576_1_1_1_1,00.html">http://www.oecd.org/document/24/0,3343,en_2649_34637_2671576_1_1_1_1,00.html</a>	This publication reports a wide range of indicators General Context Indicators: National Income per Capita, Age-Dependency Rates, Fertility Rates, Migration, Marriage and Divorce Self-Sufficiency Indicators: Employment, Unemployment, Mothers in Paid Employment, Childcare Costs, Tax Wedge on Labour, Out-of-Work Benefits, Students' Performance Equity Indicators: Material Deprivation, Earnings Inequality, Gender Wage Gaps, Intergenerational Mobility, Public Social Spending, Poverty Persistence, Housing Costs, Old-Age Pension Replacement Rates Health Indicators: Life Expectancy, Health Care Expenditure, Low Birth Weight, Sick-Related Absences from Work, Long-Term Care Recipients, Health Inequalities Social Cohesion Indicators: Voting, Prisoners, Suicides, Work Accidents, Trust in Political Institutions, Life Satisfaction.	OECD countries Availability depends on the indicators	Fact-based Policy and Outcome indicators

OECD	Family database <a href="http://www.oecd.org/docuement/4/0,3343,en_2649_34819_37836996_1_1_1_1,00.html">http://www.oecd.org/docuement/4/0,3343,en_2649_34819_37836996_1_1_1_1,00.html</a>	The database brings together information from different OECD databases (for example, the OECD Social Expenditure database, the OECD Benefits and Wages database, or the OECD Education database, and databases maintained by other (international) organisations. In the April 2008 version 23 indicators were available on the structure of families, the labour market situations of families, public policies for families and children and child outcomes (health, poverty, education, societal participation).	OECD countries Availability depends on the indicators	Fact-based  Policy and Outcome indicators
OECD	Programme for International Student Assessment (PISA)  <a href="http://pisa2006.acer.edu.au/interactive.php">http://pisa2006.acer.edu.au/interactive.php</a>	PISA assesses how far students near the end of compulsory education have acquired some of the knowledge and skills that are essential for full participation in society. In all cycles, the domains of reading, mathematical and scientific literacy are covered not merely in terms of mastery of the school curriculum, but in terms of important knowledge and skills needed in adult life.	Coverage has increased over time: 43 countries in the 1st assessment in 2000, in 41 countries in 2003, in 57 countries in the 3rd assessment in 2006 and 62 countries have signed up to participate in the 4th assessment in 2009. 2000, 2003, 2006, Update: next issue will be in 2009	Fact-based  Outcome indicator
OECD	Education at a glance	The database covers a numbers of areas including education output and the impact of learning, financial investment in education, access to education, the learning environment and organisation of school.	OECD countries Availability varies variables and countries Annual update	Fact-based
OECD	Health data 2008 <a href="http://www.ecosante.org/index2.php?base=OCDE&amp;langh=ENG&amp;langs=ENG">http://www.ecosante.org/index2.php?base=OCDE&amp;langh=ENG&amp;langs=ENG</a>	Detailed database covering all the aspects of health from health status, to health care resource, expenditure and utilisation and financing. Social protection, pharmaceutical markets and demographic aspects are also covered, as well as non medical determinants of health.	OECD countries Period:1960 to 2007 Updated every year	Fact-based  Policy and Outcome indicators
OECD	Pensions at a glance	Includes data on replacement rates, relative pensions levels and pension wealth.	OECD countries Period: Update every 2 years	Fact based Policy and performance.
UNESCO-OECD-Eurostat (UOE) data collection	Student enrolment Foreign and international	The UNESCO/OECD/EUROSTAT (UOE) database on education statistics is compiled on the basis of national	In general 54 (including 30 OECD countries)	Fact-based

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<a href="http://www.oecd.org/document/54/0,3343,en_2649_39263238_38082166_1_1_1_1,00.html#1">http://www.oecd.org/document/54/0,3343,en_2649_39263238_38082166_1_1_1_1,00.html#1</a>	/mobile students enrolled New entrants by sex and age Graduates Education personnel Expenditure by funding source and transaction type Expenditure by nature and resource category Students aligned to finance and personnel data Total population by sex and age	administrative sources, reported by Ministries of Education or National Statistical offices according to international standards, definitions and classifications. The collected annual data cover the outputs of educational institutions, the policy levers that shape educational outputs, the human and financial resources invested in education, structural characteristics of education systems, and the economic and social outcomes of education. The main purpose of this database is to produce and publish indicators and analysis on the operation, evolution and impact of education, from early childhood through formal education to learning and training throughout life.	Coverage of non-member is less good Period:1998 to 2005 Last update was done in Sept 2006	Policy and Outcome indicators
Gallup World Poll <a href="http://www.gallupworldpoll.com">www.gallupworldpoll.com</a>	Communications Index	The intent of the Communications Index is to evaluate the availability and penetration of communications technology. Questions in this index measure whether citizens have televisions, computers, and access to the Internet in their homes.	140 countries The first round of data collection was carried out in late 2005 and 2006. Citizens are continuously surveyed based on a telephone or face-to-face interview	Perception-based  Policy Indicators
Gallup World Poll <a href="http://www.gallupworldpoll.com">www.gallupworldpoll.com</a>	Food and Shelter Index	This index is derived from a series of questions designed to assess the capabilities people have to meet their everyday, basic needs. Questions in this index measure issues from having enough money for food and clothing to having running water and electricity in the home.	140 countries The first round of data collection was carried out in late 2005 and 2006. Citizens are continuously surveyed based on a telephone or face-to-face interview	Perception-based  Policy Indicators
Gallup World Poll <a href="http://www.gallupworldpoll.com">www.gallupworldpoll.com</a>	Economics Index	The key issues included in this index focus on people's evaluations and outlook for their standard of living and the national economic situation. Questions in this index measure satisfaction with and improvements in standards of living, as well as national economic conditions.	140 countries The first round of data collection was carried out in late 2005 and 2006. Citizens are continuously surveyed based on a telephone or face-to-face interview	Perception-based  Outcome indicator
Gallup World Poll <a href="http://www.gallupworldpoll.com">www.gallupworldpoll.com</a>	Health Index	This index measures personal perceptions of physical and emotional health. Questions in this index gauge satisfaction with personal health and citizens' self-reported levels of health, rest, worry, sadness, and pain.	140 countries The first round of data collection was carried out in late 2005 and 2006. Citizens	Perception-based  Outcome indicator

			are continuously surveyed based on a telephone or face-to-face interview	
Gallup World Poll <a href="http://www.gallupworldpoll.com">www.gallupworldpoll.com</a>	Well-Being Index	Developed in collaboration with the world's foremost behavioural economists, the Well-Being Index items are used to rate citizens' current and past quality of life. Questions in this index measure overall life quality now and five years from now, as well as citizens' reported incidences of laughter, learning, and being treated with respect.	140 countries The first round of data collection was carried out in late 2005 and 2006. Citizens are continuously surveyed based on a telephone or face-to-face interview	Perception-based  Outcome indicator
Gallup World Poll <a href="http://www.gallupworldpoll.com">www.gallupworldpoll.com</a>	Youth Development Index	The Youth Development Index includes general measures of "development of youth" and "respect for youth," along with satisfaction with the educational system. Questions in this index gauge child treatment, learning opportunities for children, and satisfaction with schools and education.	140 countries The first round of data collection was carried out in late 2005 and 2006. Citizens are continuously surveyed based on a telephone or face-to-face interview	Perception-based  Outcome indicator
Gallup World Poll <a href="http://www.gallupworldpoll.com">www.gallupworldpoll.com</a>	Environment Index	The purpose of the Environment Index is to measure satisfaction with efforts to deal with environmental issues. Questions in this index gauge satisfaction with air quality, water quality, and the overall environmental system.	140 countries The first round of data collection was carried out in late 2005 and 2006. Citizens are continuously surveyed based on a telephone or face-to-face interview	Perception-based  Outcome indicator
IEA, Edition 2007 Available in <a href="#">oecd.stat</a>	CO2 emission from fuel combustion per capita by sector (name in <a href="#">oecd.stat</a> : per capita emission by sector)	Emission from fuel combustion	166 countries Period: 1998 to 2005	Fact-based  Performance Indicator



**LABOUR MARKET**

SOURCE	INDICATOR	SHORT DESCRIPTION	SCOPE	TYPE
OECD Employment Outlook  <a href="http://www.oecd.org/document/34/0,3343,en_2649_33927_40917154_1_1_1_1,00.html#lmp">http://www.oecd.org/document/34/0,3343,en_2649_33927_40917154_1_1_1_1,00.html#lmp</a>				
	Employment protection legislation	The measure of employment protection developed here refers to the protection of regular employment and the regulation of temporary work and is intended to measure the strictness of EPL.	OECD countries 1990 1998, 2003 and 2008	Fact and Perception-based  Policy indicator
	Union Coverage			Fact-based  Policy Indicator
	Union density	Trade union density is defined as the percentage of employees who are members of a trade-union.	OECD countries 1960-2002	Fact-based  Policy Indicator
	Replacement ratio			Fact-based  Outcome indicator
	Labour market programmes	Labour market programmes include public employment services, training, hiring subsidies and direct job creations in the public sector, as well as unemployment benefits.	OECD countries Data from 1998 to 2006 (vary depending on the country)	Fact-based  Policy indicator
	Involuntary part-time workers	Involuntary part-time workers are part-timers (working less than 30-usual hours per week) because they could not find a full-time job.	OECD countries 2000 to 2007	Fact-based  Outcome indicator
Economic Outlook	Hours worked, employment, unemployment rate, labour force		OECD countries and some non-member 1960-2008, quarterly data	Fact-based Outcome indicator
OECD	Marginal tax on retirement		Most OECD countries	Fact-Based Policy indicator
Tax and Benefits	Marginal tax rate	The analysis is done for different family types and income levels. An individual called average production worker who works full-time in the manufacturing sector and earns an		Fact-based  Policy Indicator

		average wage is first identified. This worker may claim different tax reliefs and benefits depending on the personal circumstances such as marriage and children. For each country, the tax code is then applied and the worker's net income is computed.		
Tax and Benefits	Marginal tax rate			Fact-based Policy Indicator
	Labour market outcome indicators	This includes, participation rates, employment rates, unemployment by age and categories. Most data are coming from MEI.	OECD countries Monthly or quarterly updates	Fact based Outcome indicator
Social spending database			24 OECD countries 1980 to 2003	Fact based Policy indicator
	Active labour market policies			
	Sickness and disability benefits			
Economic Outlook	NAIRU	Estimated by the Economics Department using a price Phillips curve estimated using a Kalman filter approach.	23 OECD countries Irregular update	Estimation
OECD	Minimum wage database (Info:Himmervol (2007))	Data on gross statutory minimum wage, on relative minimum wage as a percentage of average wage, labour costs for full-time minimum wage workers, labour tax on full-time minimum wage workers.	21 OECD countries 2000-2005	Fact-based
Allard (2005) Measuring Job Security Over Time: In Search of a Historical Indicator.	EPL	Based on the OECD methodology and scoring system, Allard (2005a) reviews EPL changes and derives time-series for OECD countries, based on the ILO's International Encyclopedia for Labor Law and Industrial Relations and offers country scores for 1950-2003 at the aggregate level.	OECD countries 1950-2003	Fact and Perception-based
Amable et al. (2007) Employment Performance and Institutions: New Answers to an Old Question. IZA Discussion Paper 2731.	EPL	They use the OECD data as a starting point. To fill the gaps, they look at the Social Reforms Database maintained by the Fondazione Rodolfo De Benedetti (FRDB) that collects information on labor market reforms and assesses their impact to see whether they have increased or decreased the flexibility of the system. The authors run OLS regressions with this data to predict the evolution of the EPL indicator between 1980 and 2004.	18 OECD countries 1980-2004	

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ILO <a href="http://www.ilo.org/global/What_we_do/Statistics/lang--en/index.htm">http://www.ilo.org/global/What_we_do/Statistics/lang--en/index.htm</a>	LABORSTA <a href="http://laborsta.ilo.org/">http://laborsta.ilo.org/</a>	Information on employment, unemployment, wages, hours of work, labor cost, consumer price indices, occupational injuries, strikes, lockouts, labor protection, worker living conditions.	200 countries Period 1969-2006	Fact-based  Policy and Outcome indicators
World competitiveness report <a href="http://www.imd.ch/research/publications/wcy/World-Competitiveness-Yearbook-2008-Results.cfm">http://www.imd.ch/research/publications/wcy/World-Competitiveness-Yearbook-2008-Results.cfm</a>		Data on Working hours, Labor relations, Worker motivation, industrial disputes and employee training are collected through a questionnaire. Data on costs and availability of skills are also available. The WCY uses different types of data to measure quantifiable and qualitative issues separately. Statistical indicators are acquired from international, national and regional organisations, private institutions and 52 Partner Institutes worldwide. An Executive Opinion Survey is also used to complement the statistics.	55 countries Since 1989 Updated every year	Fact and perception based indicators  Policy and outcome indicators
Gallup World Poll <a href="http://www.gallupworldpoll.com">www.gallupworldpoll.com</a>	Work Index	Items in this index focus on the degree of personal engagement at work -- whether it is paid labor or a part of day-to-day family subsistence. Questions in this index measure citizens' work and job classifications, their job satisfaction, and their ability to do what they do best every day.	140 countries The first round of data collection was carried out in late 2005 and 2006. Citizens are continuously surveyed based on a telephone or face-to-face interview	Perception-based  Outcome indicator
European Commission	LABREF database <a href="http://ec.europa.eu/economy_finance/db_indicators/db_indicators8638_en.htm">http://ec.europa.eu/economy_finance/db_indicators/db_indicators8638_en.htm</a>	LABREF covers nine broad policy areas: labour taxation, unemployment and welfare-related benefits, active labour market programmes, employment protection legislation, early retirement and disability schemes, pension systems, wage-bargaining framework, working time organisation, immigration and labour-mobility policies. LABREF compile difference databases from the OECD, the IMF, ILO, EIRO as well as questionnaires filled in by member states	25 EU Member States and the years 2000-2006 Annually updated	Perception-based  Policy and outcome indicator
Heritage Foundation	Index of Economic Freedom	It provides information on the relative degree of government control over wages and prices.	Annual data available since 1995 for 161 countries	Fact and Perception-based Policy Indicator

## PRODUCT MARKET

SOURCE	INDICATOR	SHORT DESCRIPTION	SCOPE	TYPE
OECD	Product Market Regulation index	These are economy-wide indicators. The indicators are based on qualitative information collected through an ad hoc questionnaire to OECD countries. This information is coded by assigning a numerical value to each of the possible responses to a given question. Quantitative information is divided into classes using a system of thresholds. The information is then normalised over a scale of zero to six, reflecting increasing restrictiveness of regulatory provisions for competition. These data are then aggregated into the 16 low-level indicators by assigning subjective weights to the various regulatory provisions. The aggregate indicator is then derived as a weighted aggregation of these sub-indicators, with weights coming from principal component analysis. The new vintage of this indicator uses constant weights.	OECD countries, India PMR for accession countries is planned for 2009. PMR for Chile was done in 2001 Period: Three years available 1998, 2003 and 2007 (will be available in 2009)	Fact-based Policy Indicators
	ETCR (old regreff)	These indicators have a more limited coverage of regulatory issues than the PMR, but are computed for a long time series. The indicators cover two groups of sectors: first, network sectors (energy, transport and communication; and second, retail trade and professional services. The methodology is similar than the PMR's one but the indicators are more based on external information and use equal weights.	OECD countries Period: Annual data, 1975 to 2007  Irregular update	Fact-based  Policy Indicators
OECD	Measure of entrepreneurship (being developed by the statistics Directorate)			Fact and Perception-based  Outcome indicator
Gallup World Poll <a href="http://www.gallupworldpoll.com">www.gallupworldpoll.com</a>	Entrepreneurship Index	The items comprising the Entrepreneurship Index accomplish two objectives: they measure the intent of citizens to be in business for themselves, and they assess the supportive nature of the community for entrepreneurial business initiatives. Questions in this index measure citizens' opinions about planning their own business and other entrepreneurial issues.	140 countries The first round of data collection was carried out in late 2005 and 2006. Citizens are continuously surveyed based on a telephone or face-to-face interview	Perception-based  Outcome indicator
World economic forum:	Business competitiveness index	This indicator focuses on the micro-economic factors of competitiveness. It is based on responses to the World	127 countries in the 2007-2008 report	Perception-based

<a href="http://www.gcr.weforum.org">http://www.gcr.weforum.org</a>		Economic Forum's Executive Opinion Survey of senior business leaders. The data are related to companies' operations and strategy as to the national business environment. Countries are divided in three groups according to their level of income and weights differ according to the country group. Weights are first calculated using principal factor analysis to compute two sub-indicators. These two indicators are then aggregated in one single measure using coefficients from a regression of GDP per capita.		Outcome indicators
World Bank	Enterprise survey	<p>The Enterprise Surveys capture business perceptions on the biggest obstacles to enterprise growth, the relative importance of various constraints to increasing employment and productivity, and the effects of a country's business environment on its international competitiveness.</p> <p>The core survey is organized into two parts. The first part seeks managers' opinions on the main constraints in the business environment. The second part focuses on productivity measures and is often completed with help from the chief accountant or human resource manager.</p> <p>The Enterprise Surveys sample from the universe of registered businesses and follow a stratified random sampling methodology. A small number of sectoral sub-samples are included to provide measures of productivity that can be compared to the same sectors in other countries. Because the distribution of establishments in most countries is overwhelmingly populated by small and medium enterprises, surveys generally over-sample large establishments. Sample sizes for recent enterprise surveys range from 250-1500 businesses.</p>		Perception-based Policy Indicators
World bank	Djankov S. , R. La Porta, F. Lopez-de-Silanes, A. Schliefer (2002)	Data for five measures: the number of regulatory steps, the number of work days required to register a new firm, the costs of registering a firm as a per cent of the per capita GDP, the time and costs of registering a new firm as a per cent of the per capita GDP and the absolute dollar value of time and cost of registering a new firm.	85 countries	Fact-based Policy Indicators

World Bank	Doing Business <a href="http://www.doingbusiness.org/Downloads/">http://www.doingbusiness.org/Downloads/</a>  2009 report: <a href="http://www.doingbusiness.org/documents/Press_Releases_09/DB09_Overview.pdf">http://www.doingbusiness.org/documents/Press_Releases_09/DB09_Overview.pdf</a>	The database covers the following areas : Starting a business, Dealing with licenses, Employing workers, Registering property, Getting credit, Protecting investors, Paying taxes, Trading across borders, Enforcing contracts, Closing a business. Data are based on survey administered through more than 5,000 local experts. The data from surveys are subjected to numerous tests for robustness, which lead to revisions or expansions of the information collected.	Updated every year	Fact and Perception-based  Policy Indicators
Hoj et al. (2007)	Indicator of competition policies	Main features of the regulatory institutions.	One-off study	Fact-based Policy indicator
Hoj et al (2007b)	Indicators of mark-ups	Computation of mark-ups for some OECD countries.	One-off study	Fact-based Outcome indicator

## TRADE

SOURCE	INDICATOR	SHORT DESCRIPTION	SCOPE	TYPE
OECD Golub (2003) and Koyama and Golub (2006)	FDI regulatory restrictiveness index	It measures different forms of discrimination against foreign firms. It covers: i)restrictions on foreign ownership, ii) obligatory screening and approval procedures that may increase the cost of entry into particular markets for foreign firms as compared to domestic firms; iii)operational constraints or controls for affiliates of foreign companies, including constraints to the mobility of foreign professionals working in the affiliates. The indicator is constructed using a bottom-up approach based on regulations. It is primarily based on external sources, GATS commitments and the OECD Codes of Liberalisation of Capital Movements and of Current Invisible Operations.	OECD countries Period:Two years are available: 2003 and Period:2007 Updated by DAF	Fact and Perception-based  Policy Indicators
Sach and Warner	Several indicators		Period:1995 and revised later	Fact-based  Policy Indicators
OECD	Tariff	Sectoral data on tariffs.	OECD countries 2004	Fact based Policy indicator
Wacziarg (2001)	Openness	Indicator of trade openness computed as a function of : import duty share, non-tariff barriers and liberalization status (taken from Sachs and Warner, 1995).	Period 1970-1989 (five-years average) 57 countries	Fact-based  Policy indicator
United Nations	United Nations Conference on Trade and Development Handbook of Statistics	The database covers the following subjects: International merchandise trade; Trade in services; Export and import structure by product and by regions of origin and destination; Volumes and terms of trade indices; Commodity prices and relevant indices; Foreign direct investment; International financial data, national accounts.	190 countries and territories and 50 economic or trade groups.	Fact-based  Outcome indicators
International Monetary Fund	Direction of Trade Statistics	It provides information on bilateral exports and imports.	283 trading partners since 1950	Fact-based  Outcome indicators
The World Bank Group, Institute of the Integration of Latin America and the Caribbean, Inter-American		Data on imports and exports, tariffs in the Americas.	30 countries	Fact-based  Policy and Outcome indicators

Development Bank				
<p>World Bank</p> <p><a href="http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRERESEARCH/0,,contentMDK:21051044~pagePK:64214825~piPK:64214943~theSitePK:469382,00.html">http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRERESEARCH/0,,contentMDK:21051044~pagePK:64214825~piPK:64214943~theSitePK:469382,00.html</a></p>	Data on Trade and Imports barriers	Data on tariff, and non-tariff barriers.	<p>174 countries from 1980-2007 (many missing) for tariff rates</p> <p>89 countries with different (single) data points between countries</p>	<p>Fact-based</p> <p>Policy Indicators</p>
*Heritage Foundation	Trade Freedom	<p>The trade freedom indicator score is based on two inputs; the trade-weighted average tariff rate and non-tariff barriers (NTBs). The weighted average tariff uses weights for each tariff based on the share of imports for each good. This is calculated by dividing the country's total tariff revenue by the total value of imports. Weighted average tariffs are a purely quantitative measure and account for the basic calculation of the score using the following equation:</p> $TF_i = \frac{Tariff_{max} - Tariff_i}{Tariff_{max} - Tariff_{min}} - NTB_i$ <p>where TF represents the trade freedom indicator. The minimum tariff is zero, and the maximum tariff was set at 50 percent. An NTB penalty is then subtracted from the base score. The penalty of 5, 10, 15, or 20 percentage points is assigned according to the following scale: 20% if NTBs are used extensively across many goods and services and/or act to impede a significant amount of international trade; 15% if NTBs are widespread across many goods and services and/or act to impede a majority of potential international trade; 10% if NTBs are used to protect certain goods and services and impede some international trade; 5% if NTBs are uncommon, protecting few goods and services, and/or have very limited impact on international trade. 0% if NTBs are not used as a means to limit international trade. The extent of NTBs in a country's trade policy regime is determined using both qualitative and quantitative information. The categories of NTBs considered are: quantity restrictions, price restrictions,</p>	<p>Annual data available since 1995 for 161 countries. The authors used the following sources to determine scores for trade policy, in order of priority: World Bank, World Development Indicators 2007 and Data on Trade and Import Barriers: Trends in Average Tariff for Developing and Industrial Countries 1981–2005; World Trade Organization, Trade Policy Reviews, 1995–2007; Office of the U.S. Trade Representative, 2007 National Trade Estimate Report on Foreign Trade Barriers; World Bank, Doing Business 2008; U.S. Department of Commerce, Country Commercial Guide, 2004–2007; Economist Intelligence Unit, Country Report, Country Profile, and Country Commerce, 2004–2007; and official</p>	<p>Fact-based</p> <p>Policy Indicator</p>



		regulatory restrictions, custom restrictions and direct government interventions.	government publications of each country.	
Fraser institute Economic Freedom of the World	Financial Regulation & Freedom	It provides an index that measures the freedom to exchange with foreigners.	Data is available on 5-year intervals since 1970 for up to 123 countries	Fact and perception-based Policy Indicator
*PWT	Trade Openness	A measure of trade intensity constructed as the GDP's share of total exports and imports.	81 countries	Fact-based Outcome indicator

**INFRASTRUCTURE**

<b>SOURCE</b>	<b>INDICATOR</b>	<b>SHORT DESCRIPTION</b>	<b>SCOPE</b>	<b>TYPE</b>
National Offices for Statistics OECD STAN database EU Klems database	Capital stock			
National Offices for Statistics	Measure of physical infrastructure	Examples are electricity generation capacity, road density, fixed line provision, connection rates to water supply.		Fact-based Outcome indicator
OECD	Public Private Partnership indicator	The indicator is based on qualitative information that is coded by assigning a numerical value to each of the possible responses to a given question or combination of questions that constitute a policy element identified as potentially affecting the success of PPPs. The coded information is then normalised on a scale of zero to six, reflecting practices that are increasingly likely not to lead to the best outcomes. The data is then aggregated into the low-level indicators by assigning equal weights to the various items of the indicator. Finally, the low-level indicators are aggregated into a higher-level (composite) indicator. In the absence of any theoretical guidance on their relative importance, equal weights were assigned to each lower-level indicator.	19 OECD countries Late 2007-early 2008	Fact-Based Policy indicators
OECD	Incentive regulation	The data is based on the answer to a questionnaire on whether a sector is subject to incentive price regulation, in general in a form of a price cap.	28 OECD countries Late 2007-Early 2008	Fact-based Policy indicator

**FINANCIAL MARKET**

SOURCE	INDICATOR	SHORT DESCRIPTION	SCOPE	TYPE
OECD bank profitability statistics In oecd.stat		Bank profitability statistics are based on financial statements of banks in each Member country and are presented in the standard OECD framework. Although the objective is to include all institutions which conduct ordinary banking business, namely institutions which primarily take deposits from the public and provide finance for a wide range of purposes, the institutional coverage of banks in the statistics available in this database is not the same in each country. Example of variables include the Structure of the financial sector, Bank income statement and balance sheets and Banks assets and liabilities.	26 countries Period:1995 to 2005	Fact-based  Outcome indicators
OECD	Insurance Statistics Yearbook	The dataset gathered official data such as total Gross Premiums, Market Share, Density, Penetration, Life Insurance Share, Direct Total Gross Premiums/Number of Employees, Retention Ratio, Ratio of Reinsurance Accepted, Market Shares.	OECD countries 1997-2006	Fact-Based Outcome indicators
OECD Main Economic Indicator		The dataset itself contains financial statistics on five separate subjects: Monetary Aggregates, Interest Rates, Exchange Rates, Reserve Assets, and Share Prices. The data series presented within these subjects have been chosen as the most relevant financial statistics in the MEI database for which comparable data across countries is available. In all cases effort has been made to ensure that the data are internationally comparable across all countries presented and that all the subjects have good historical time-series' data to aid with analysis. All data are available monthly, and are presented as either an index (where the year 2000 is the base year) or as a level depending on which measure is seen as the most appropriate and/or useful in economic analysis. Financial Indicators aim to capture in quantitative terms an important but heterogeneous and fast evolving area. Key factors driving this change are: globalization of the financial markets; maturing of national economies and therefore the structure of the markets required to service their needs; increased	44 countries (OECD+Brazil, China, India, Indonesia, South Africa, Russia) Updated every month	Fact-based Outcome indicators

		sophistication of the actors in these markets; rapid technological change; and evolving regulatory frameworks. Financial institutions react and adapt to these conditions by changing their strategies; by specializing, by diversifying or concentrating their activities, and by extending through mergers and acquisitions. As a consequence, there is almost constant evolution in the institutional structures in which financial markets operate.		
The World Bank	World Development Indicators	WDI 2008 includes approx. 800 indicators in 87 tables, organised in six sections: World View, People, Environment, Economy, States and Markets, and Global Links.	54 time series indicators for 207 countries and 18 groups, data from 1990 to 2006	Fact-based Policy and Outcome indicators
De Serres and al. (2007)	Set of indicators using the World Bank	Regulation indicators in banking and security markets.		Perception-based Policy Indicators
The World Bank	Global Development Finance	The database covers external debt stocks and flows, major economic aggregates, and key debt ratios as well as average terms of new commitments, currency composition of long-term debt, debt restructuring, and scheduled debt service projections.	136 countries	Fact-based Outcome indicators
International Monetary Fund	International Financial Statistics	Data related on international payments, inflation, exchange rates, international liquidity, international banking, money and banking, interest rates, prices, production, international transactions, government accounts, and national accounts.		Fact-based Performance Indicators
The International Finance Corporation & Standard and Poors	Emerging Markets Data Base	Three families of indices: the IFCI (Investable) index, which measures returns on stocks that are available to foreign investors; the IFCG (Global) indexes, which track the performance of the most active stocks in their respective stock markets even if the stocks are unavailable to foreign investors (the broadest indicator of market movements); and the IFCF (Frontier Markets) index of 20 smaller markets.	The EMDB provides daily coverage of 34 stock markets and weekly and monthly reports of another 20 less liquid "frontier markets."	Fact-based Outcome indicators
J P Morgan	The Emerging Market Bond Index	The Emerging Markets Bond Index Plus (EMBI+) tracks total returns for traded external debt instruments in the emerging markets.	Three major Latin American countries (Argentina, Brazil, and Mexico) and other emerging market countries (Bulgaria, Morocco,	Fact-based Performance Indicators

			Nigeria, the Philippines, Poland, Russia, and South Africa).	
*A New Database on Financial Development and Structure (2007); Beck et al . ( World Bank)	Set of indicators using the world Bank	Set of indicator measuring the size, concentration, efficiency of financial markets.	151 countries. For some countries data available since 1960.	Fact-based Policy and Performance Indicators
“The Regulation and Supervision of Banks around the World: A New Database (2008)” G. Caprio, J. Barth and R.Levine <a href="http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/0,,contentMDK:20345037~pagePK:64214825~piPK:64214943~theSitePK:469382,00.html#Survey_III">http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/0,,contentMDK:20345037~pagePK:64214825~piPK:64214943~theSitePK:469382,00.html#Survey_III</a>		The data cover such aspects of banking as entry requirements, ownership restrictions, capital requirements, activity restrictions, external auditing requirements, characteristics of deposit insurance schemes, loan classification and provisioning requirements, accounting and disclosure requirements, troubled bank resolution actions, and (uniquely) the quality of supervisory personnel and their actions.	143 countries. Three point in time: 1998, 2003, 2007. Previous versions: 2001 and 2003.	Perception-based Policy Indicator
BANKSCOPE		It provides information on over 28,600 (13,600 US) banks listed around the world including: 16 years of detailed accounts (country specific "as reported" and standardised), ratios, ratings and rating reports, ownership, country risk and country finance reports.		Fact-based Policy and Outcome indicators
International Monetary Fund	Balance of Payments Statistics	The Statistics Department of the IMF disseminates a wide range of information in the area of balance of payments and international investment position (IIP) statistics. This material includes: Data on international reserves and foreign currency liquidity, external debt, and balance of payments flows.		Fact-based Outcome indicators
International Monetary Fund	Exchange Arrangements and Exchange Restrictions Report	The report provides a detailed description of arrangements and restrictions on exchange rates, current account transactions, and capital transactions (qualitative data).		Fact and Perception-based Policy Indicators
OECD	International Direct Investment	This database gathers detailed historical statistics on international direct investment to and from OECD countries.		Fact-based Outcome indicators

		Data are broken down by country, geographical zone, and industrial sector for direct investment flows and stocks.		
OECD	Private Pensions Database	This database contains information on all aspects of the regulatory framework of private pension systems in OECD and non-OECD countries.		Fact-based Policy Indicators
The Financial Development Report 2008, World Economic Forum	Financial Development	Index of financial development standardized on a 1 to 7 scale. It considers different aspect of financial development: institutional environment, business environment, financial stability, banks, non-banks, financial –market, size, deepness and access.	52 countries	Fact and perception based Policy and Outcome indicators
BIS, Statistics	Banking, securities, derivatives, exchange rates, debt, payments.	The cross-border lending and borrowing of internationally active banks in key financial centers, including offshore centers; issuing activity in international and domestic securities markets; operations in over-the-counter and exchange-traded derivatives markets; effective exchange rate (EER) indices for 52 economies; operations in the global foreign exchange markets; external debt positions of individual countries based on BIS banking and securities statistics as well as on data from other international organizations; payment and settlement systems in major financial centers .		Fact- based Outcome indicators
ECB, financial statistics	Monetary and financial statistics	Statistics regarding monetary financial institutions (MFIs), investment funds, financial stability and financial markets, and payments within the euro area. This includes the monetary aggregates (See the ECB's definition of monetary aggregates), their counterparts and other monetary stocks and flows statistics, including minimum reserve and liquidity statistics and all seasonally adjusted statistics; statistics on securities issues (including quoted shares), investment funds and other financial intermediaries; statistics on yields and interest rates; banking statistics; financial market statistics; and financial integration indicators.	European countries	Fact based Outcome indicators
*“Financial Reform: What Shakes it? What Shapes it?” Abiad and Mody , (2005) This database has been extended	Financial Liberalisation	Financial liberalisation based on the following criteria: Credit control, Interest rate control, Entry barriers, Regulations, Privatization, International transactions.	36 economies from 1973 to 1996	Fact and Perception based Policy Indicator

and updated in Abiad et al. (2008)				
*Heritage Foundation	Financial Freedom	It measures the relative openness of a country's banking and financial system.	Annual data available since 1995 for 161 countries	Fact and Perception-based Policy Indicator
Fraser institute <i>Economic Freedom of the World</i>	Financial Regulation & Freedom	It provides an index of regulation of credit, which includes information on ownership of banks, competition from foreign banks, availability of credit to the private sector, avoidance of interest rate controls and regulations that lead to negative real interest rates. It provides an index that measures the freedom to exchange with foreigners	Data is available on 5-year intervals since 1970 for up to 123 countries	Fact and Perception-based Policy Indicator
*Lane and Milesi-Ferretti (2007)	Financial Integration	Indicators of financial liberalization and integration: the GDP's ratio of overall stock of external liabilities and assets, the GDP's share of portfolio equity and FDI, and the share of equity liabilities in total liabilities.	Annual data from 1970-2004	Fact based Outcome indicators
Laeven Valencia (2008)	Banking crises	The database covers all systemically important banking crises for the period 1970 to 2007, and has detailed information on crisis management strategies for 42 systemic banking crises from 37 countries. The authors also provide information regarding currency crises, sovereign debt crises and twin crises.	1970-2007	Fact based Outcome indicator

**COMPOSITE OR REFORM INDICATOR**

SOURCE	INDICATOR	SHORT DESCRIPTION	SCOPE	TYPE
Lora and Panizza (2002)	Indicator of reform progress	Measure of the progress of reform on a scale from 0 to 1. It's an average of 5 areas of reform: trade liberalization, financial reform, tax reform, privatization and labour code legislation. Disaggregated indicator by area is also available. Data have been first developed by Lora (2001) and updated using reviews of the IMF and The Economist Intelligence Unit.	10 Latin America economies Annual data Period:1985 to 1999 One-off study	Performance-based  Policy Indicator
Eicher and Röhn (2007)	Institutions Climate index	Composite index of 7 categories: constitutional system [democratic system, political stability, civil liberties, checks and constraints], social conflict potential [conflict, military in politics], administrative and judicial quality [basic institutional quality], economic institutions [optimal taxation, fiscal burden, trade openness, capital markets, labour markets, structure of government expenditure], Educational system [human capital efficiency], Social system [social expenditure, health system], Innovation potential [ patents and citations]. Aggregation is done using factor analysis and regression analysis on GDP per capita growth rates.	24 OECD countries Period: Annual data 1994 to 2006  One-off study	Fact and Perception-based  Policy Indicator
Hoj et al. (2006)	Indicator of reform effort	Simple average of labour (or product) market institutions for OECD countries.	OECD countries	Fact-based Policy indicator
European Commission (DG ECFIN)	MICREF	The database covers microeconomic reform measures in all EU Member States. Only reform measures that are likely to have a significant economic impact and to raise potential growth are included in the database. The database also offers information on the design and scope of reforms undertaken. Seven broad policy fields are covered: market integration; competition policy; sector-specific regulation; start-up conditions; business environment; R&D and innovation; and education; each policy field is subdivided into areas of policy intervention.	27 EU countries Data from 2004 to 2006 Data for 2007 and 2008 will be available soon	Fact and perception based  Policy indicator
World economic forum:	Global competitiveness indices	A global indicator with 3 components: basic requirement (institution, infrastructure, macro stability, health and primary	131 countries. (over 11,000 business leaders)	Perception-based

<a href="http://www.gcr.weforum.org">http://www.gcr.weforum.org</a>		<p>education), efficiency enhancers (higher efficiency and training, good market efficiency, labour market efficiency, financial market sophistication, technological readiness, market size). All the breakdown information is available on the website. Besides hard data from leading international sources, these indicators include the results of the Executive Opinion Survey carried out by the World Economic Forum annually. The Survey captures the perceptions of several thousand business leaders across the countries covered on topics related to national competitiveness.</p> <p>The rankings are calculated from both publicly available data and the Executive Opinion Survey, a comprehensive annual survey conducted by the World Economic Forum together with its network of Partner Institutes (leading research institutes and business organizations) in the countries covered by the Report.</p>	<p>First release in 2004 Annual update</p>	<p>Policy Indicators</p>
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