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A new database for "measuring" institutions

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- The pre-eminence of institutional themes in studies on long-term growth, since the mid-1990s, raises the question of how to measure them. Many indicators have emerged aimed at measuring the degree of economic freedom, observance of property rights, the level of corruption, press freedom, etc...

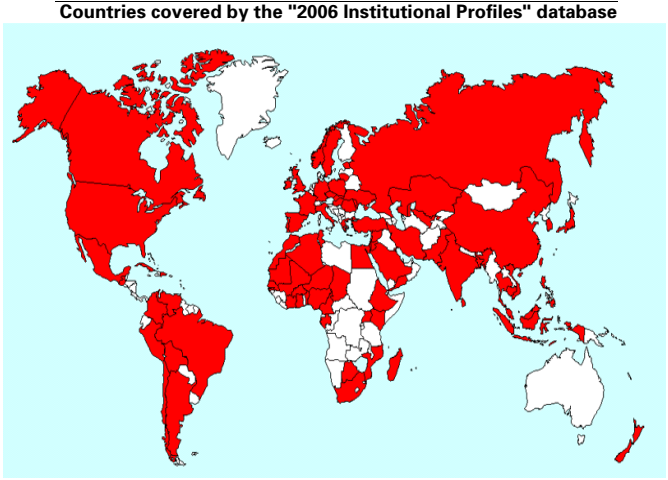
- The "2006 Institutional Profiles" database, compiled by the French Ministry of the Economy, Finance, and Employment (Minefe) and the French Development Agency (AFD), offers a battery of 356 variables for 85 developing and developed countries accounting for 90% of the world's GDP and population. The first version of the database, published in 2001, covered 51 countries. The third survey will take place in 2009. The present document sets out the method of compilation and findings of an initial statistical exploration of the database.

- "2006 Institutional Profiles" makes a number of choices distinguishing it from other institutional databases. Its prime focus is on analysing the linkage between institutions and development, supplying indicators serving to explore the mainsprings of economic take-off or impediments to growth.

- Its aim is to stimulate debate and inform decision-making, not to produce rankings. It covers a very broad range of institutional issues, looking beyond the question of "good governance". "2006 Institutional Profiles" is constructed transparently: the entirety of the component data can be accessed. Like any other database dealing with institutions, however, this one makes no claim to be perfectly objective, but potential biases are spelled out.

- An initial exploratory analysis of the data shows that two factors may serve to characterise a country's institutions, namely the degree of formalisation of rules and procedures, and the relative role of the State.

Countries covered by the "2006 Institutional Profiles" database



Source: DGTP, AFD.

DGTPE
DIRECTION GÉNÉRALE DU TRÉSOR
ET DE LA POLITIQUE ÉCONOMIQUE

1. Why build a new database?

1.1 Approaches to development have gone through many phases

Development policies have changed deeply in the past 60 years. Initially the emphasis was on the capital required to make up for low savings in the poor countries. Then, in the 1980s, macroeconomic equilibrium became the centrepiece of development strategies. That was followed by a third phase where the emphasis shifted to market opening and liberalisation; but this phase was halted by a wave of severe financial crises in the emerging countries and countries in transition.

Having pursued independent development strategies, the Southeast Asian countries then achieved spectacular economic take-off and recovery from the crisis of the late-1990s. The other continents, generally speaking, have experienced weak, unstable growth.

The question of the key role played by institutions came to the fore in the middle of the 1990s, ushering in a fourth phase in development policy, in which reforming governance came to be viewed as a priority for development strategies[1].

1.2 New avenues for economic research

Do institutions matter? If so, which ones? What institutional reforms are needed? How should they be implemented? That in turn raises the question of how to measure institutions and what instruments to use in order to evaluate a given country's institutional features with a view to reforming them?

Whereas macroeconomic policy has access to standardised measurement instruments, measuring institutions is still in its infancy. Until now there have been no standardised observational tools with which to study institutions, and there has been no normalised framework in order to "apprehend" institutions. Consequently a wide variety of actors, including the International Financial Institutions, rating agencies, foundations, and NGOs, etc., have devised a profusion of indicators.

1.3 The creation of a database

As part of this process, the French Ministry of the Economy, Finance and Employment (Minefe) set out to build an original database of institutional characteristics of a set of developing and developed countries. Its purpose was to inform thinking on development assistance policies. This database is freely accessible to development researchers and institutions on the web site http://www.cepii.fr/, and it also provides researchers with tools to study the linkage between institutions and development in greater depth.

The database covers the widest possible range of institutions. The variables have been constructed on the basis of indicators developed notably on the basis of a questionnaire completed by the Minefe's Economic Missions and, for certain countries, by the local agencies of the AFD[2].

1.4 Two editions of the database-2001 and 2006

The first survey was carried out in 2001, covering 51 developing and developed countries. The second survey, carried out in 2006, broadened its scope to cover 85 countries, while 80% of the themes covered were the same as for the first survey. The next survey is planned for 2009.

The geographic scope embraces all of the developed and developing regions and accounts for 90% of world GDP and population, thus representing a broad diversity of economic and institutional trajectories.

2. 2. Measuring institutions

2.1 Institutions occupy an awkward position in economics

Economists are genuinely perplexed when it comes to considering institutions, especially when it comes to measuring them, for a number of reasons.

First, the question calls upon disciplines other than economics, such as history, law, political science, sociology, anthropology, and so forth. Second, it refers to the political sphere, raising normative issues that need to be treated with special care. Faced with the difficulty of quantifying institutional phenomena, economists seek to build quantitative indicators on the basis of qualitative judgments involving a certain degree of subjectivity. Finally, and above all, unlike macroeconomics, which can draw on the instruments provided by the national accounts, there is no framework to ensure any consistency in the coverage of institutions. Here we have adopted an approach that seeks to quantity institutional phenomena.

The production of indicators capturing institutional characteristics implies adopting a definition of institutions and a global approach that results in a relevant analytical framework imposing a structure on the institutional coverage being observed.

(1) See in particular: Kaufmann D., A. Kraay and P. Zoido-Lobaton (1999): "Governance Matters", *World Bank WP no. 2196*.

(2) The database is presented in great detail in Meisel, Ould-Aoudia (2007) "Une Nouvelle base de données institutionnelles : profils institutionnels 2006", *DGTPE Working Papers No 2007-09*.

2.2 Institutional reform is a lengthy and complicated process

Public policy acts on both institutions and macroeconomic equilibria *via* reforms. However, there are two different kinds of reforms, entailing different approaches:

- The levers of macroeconomic policy, involving a relatively small number of players, are clearly identified (chiefly, monetary and fiscal policy). Where measurement is concerned, macroeconomic policy affects quantifiable variables such as deficits and inflation, etc. and its effects are therefore relatively easy to evaluate and interpret;
- Policies aimed at bringing about "institutional change", on the other hand, are far more complicated to design, decide on and apply, since they deeply change a society's socio-economic equilibria. Policies of this kind involve a large number of players; they have to grapple with a society's culture of change and the burden of its traditions; it often entails working through existing instruments in order to forge new ones, as in the case of getting a corrupt administration to enforce anti-corruption measures.

A good grasp of this complexity is needed in order to measure the quality of an institution or the implementation of an institutional reform and its effects, which are often diffuse and spread over time.

2.3 A broad definition of institutions

We have adopted the World Bank's definition of institutions[3], which is based on that of Douglas North, namely that institutions are constituted by a set of formal rules (a constitution, laws and regulations, a political system, property rights, etc.) and informal ones (a system of values and beliefs, customs, ideas, social norms, etc.) that govern the behaviour of individuals and organisations. Organisations, here, are entities that bring together individuals pursuing common goals, such as enterprises, trade unions and NGOs, etc. In this context, institutions shape the incentives affecting behaviour and provide a framework for economic exchanges[4].

2.4 A non-normative approach

The diversity of institutional frameworks within which economies have emerged suggests the need for a relativist approach. There is no single optimal institutional model that applies everywhere, regardless of a country's level of development and institutional heritage[5].

Examples abound of take-off within what would now be considered "non-orthodox" institutional frameworks (e.g. the US and Germany in the late-19th century, France during the 30 post-war boom years, post-war Japan, South Korea and Taiwan in the period between 1960 and 1980, China and Vietnam today). These examples are evidence that a very wide range of institutional configurations have been conducive to periods of lasting rapid growth. Nevertheless, not all institutional frameworks are equal. An empirical look at the data suggests that certain institutional configurations can hinder or on the contrary promote economic take-off.

3. The design of an analytical framework for institutions and the method used to construct the database

We designed our analytical framework for the "Institutional Profiles" on the basis of the foregoing considerations.

3.1 The structure of the institutional coverage

The institutional coverage is structured by the intersection of nine themes (describing the essential functions performed by a country's institutions) and four sectors (the space within which their functions are performed).

3.1.1 A database focusing on growth

From its conception, this database focused on the issues of long-term growth and development. The survey questions concern the effectiveness of institutional arrangements (a *de facto* approach), rather than their existence and precise legal form (a *de jure* approach). This is a fundamental feature of the database, concerning the question of observance of rules, which is central to the relationship between institutions and development, since the existence of rules does not in itself guarantee that they are effectively applied. The *de facto* quality of institutions depends on observance of those rules.

This focus on long-term growth explains why the range of themes adopted extends far beyond the question of governance alone.

3.1.2 A broad institutional coverage

The complete coverage is encompassed by 356 elementary variables, which are covered in the answers to the questionnaire. An initial aggregation of these variables yields 132 indicators, 110 indicators of the state of institutions (or "stock") and 22 indicators of reforms (or "flow").

To illustrate the extent of the institutional field covered by the database, we have compared it with the six governance indicators of the World Bank Institute (WBI) by means of two principal components analyses (PCA).

(3) World Bank (1998): "Beyond the Washington Consensus: Institutions Matter", *World Bank Latin American and Caribbean Studies, Washington D.C.*

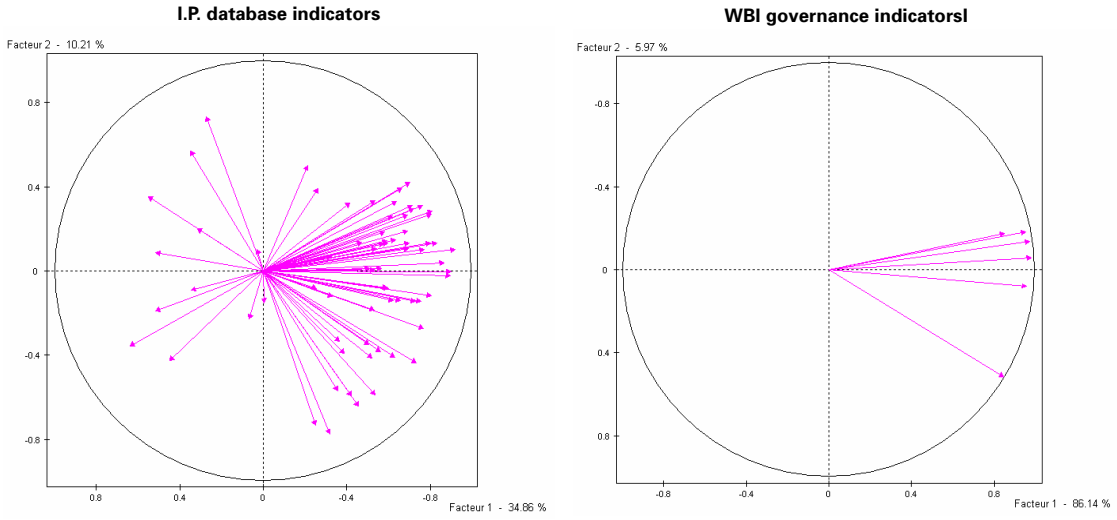
(4) North D. C. (1990): "Institutions, Institutional Change and Economic Performance", *Cambridge University Press, UK.*

(5) See Aoki M. (2001): "Toward A Comparative Institutional Analysis", *MIT Press.*

Table 1: Institutional sectors and institutional functions

		INSTITUTIONAL SECTORS			
		Institutional environment	Markets		
		-A- Public institutions, Civil society	-B- Market for goods and services	-C- Capital market	-D- Labour market
INSTITUTIONAL FUNCTIONS	1- Political institutions	public rights and freedoms			trade union freedom and pluralism
	2- Safety, law and order	safety of persons and goods			
	3- Functioning of public administration	transparency, corruption control, efficiency of administration, independence of the justice system	business start-ups		
	4- Markets' operating freedom		share of the private sector, privatisation, price distortions due to the government	share of the private sector, freedom of interest rates, independence of the central bank	share of public-sector employment, flexibility of the formal labour market
	5- Co-ordination of actors and anticipations	Government capacity for autonomous decision-making, co-ordination between public institutions, dialogue between actors, innovation and authorities' strategic vision	businesses' technological environment	venture capital	vocational training
	6- Security of transactions and contracts	security of property rights and contracts, commercial justice, bankruptcy laws	information on the quality of goods, the situation of firms, intellectual property	guarantee systems, disclosure requirements	observance of labour laws
	7- Regulations and corporate governance		regulation of competition, corporate governance	regulation of competition, prudential rules, supervision	social dialogue
	8- Openness to the outside world	circulation of persons and information	trade openness	financial openness	circulation of workers
	9- Social cohesion	social equilibrium, equality of treatment, social mobility, solidarity		micro-lending	market segmentation, social mobility

Chart 1: Projection of two sets of indicators onto the circle of correlation



Sources: "Institutional Profiles" and World Bank Institute. SPAD software.

In chart 1, the extent of the field covered by the "Institutional Profiles" database (I.P.) can be assessed from the fact that the arrows (each arrow represents an indicator) are pointing in almost all directions, whereas those in the WBI base are highly concentrated around a single direction. It should further be noted that five out of the six WBI indicators are very strongly correlated with each other (the angle formed between them by the arrows is an acute one). The information supplied by the I.P. database is highly diversified. Overall, the institutional field covered by the I.P. database is far wider than that of governance.

3.2 The organisation of the questionnaire and the grading system do not prejudge the relationship between institutions and economic performance

Generally speaking, the direction of the grading reflects the widespread perception of a linkage between a given institutional theme and growth (for example, it is generally assumed that greater openness goes hand-in-hand with growth, implying that greater openness will lead to a higher grading). However, adopting this approach does not prejudge the nature of the relationship between the institutional system as a whole and economic performance.

That is because we assume that it is above all the combination of institutions, rather than the characteristics of each institution treated individually, that influences economic performances. This means that a country's institutional profile cannot be interpreted by aggregating all of the elementary indicators into a single composite indicator capable of being placed in a single ranking. As instruments for characterising a country multi-dimensionally, institutional profiles are not strictly capable of being ordered as a whole and are not intended to rank countries. Because of this essential characteristic we have opted to call this database "Institutional Profiles".

3.3 The grading scale

Grading is from 1 to 4 when the question relates to assessment of a phenomenon (e.g. the level of corruption), or from 0 to 4 when the question relates to the existence of a mechanism (none = 0) and the quality of its implementation (if "yes", 1=poor quality implementation, 4=high quality implementation).

To limit the subjectivity of responses, questions were broken down into elementary variables that are as objective as possible. For example, the question on "transparency of public action in the economic field" is broken down into six elementary variables assessing the quality and accessibility of economic information pertaining to the Government Budget, extra-budgetary funds, the accounts of State-owned enterprises and banks, economic and financial statistics, and the willingness to publish the IMF report on its consultation under Article IV of its Articles of Agreement. The indicator of "transparency of public action in the economic field" finally chosen is obtained by aggregating the above 6 elementary variables.

The method used to aggregate the variables: this is applied to the elementary variables to compile relevant indicators based on the answers to the questionnaire. There is no universally agreed method of aggregation[6]. For this presentation of the database, we have preferred a method that increases the dispersion of the indicators in order to discriminate more accurately between countries. The aggregation operator used for this purpose is the sum of the elementary variables weighted by their respective standard deviations. This means that an elementary variable having an equal score for all the countries would have zero weighting in the aggregated indicator. Database users may adopt other methods of aggregation, depending on their research needs.

Database transparency: the database is freely available to researchers. All of the elementary variables that go into its construction are equally available.

3.4 Comparison of variables in the database with other existing indicators

We have carried out tests comparing the data in our database with a certain number of the available institutional indicators: with the 6 governance indicators of the World Bank Institute[7], with the Transparency International corruption indicator, with the *Reporters sans Frontières* freedom of the press indicator and with the Freedom House indicator of political freedom. These tests showed very considerable convergence between the data, as was already the case for the tests on data in the "Institutional Profiles 2001" database[8].

3.5 "Stock" variables and " flow" variables

The bulk of the questions relate to the state of institutions at the time of the survey (the 110 "stock" indicators). To these were added questions relating to the perception of institutional changes in the past 3 years (the 22 "flow" indicators).

3.6 A large number of new indicators can be created from the database by aggregating the elementary variables

New indicators can be constructed as required out of the 356 variables in the database. The two examples that follow illustrate how new indicators can be constructed from the variables in the database.

- Institutional proximities, constructed by Benassy-Quéré et al[9], as a determinant of bilateral FDI, on the basis of

(6) OECD (2005): "Handbook on Constructing Composite Indicators: Methodology and User Guide", Paris.

(7) Kaufmann D., A. Kraay and P. Zoido-Lobaton (2002): "Governance Matters II", *World Bank Working Paper no. 2772.*

(8) Berthelier P., Desdoigts A. and Ould Aoudia J. (2003): "Institutional Profiles: Presentation and analysis of an orignal database of the institutional caracteristics of Developing, in Transition and Developed countries", *Warking Paper of the Direction de la Prévision et de l'Analyse Économique, November.*

institutional differences between investing country and host country;

- Non-monetary capabilities, starting from Amartya Sen's "capability" concept[10], Ould Aoudia[11] has constructed an indicator of non-monetary capabilities that aggregates the indicators in the database relating to three sorts of freedom, namely political capabilities, social capabilities and capabilities for dealing with the administration.

3.7 As with all the other indicators, bias enters the measurement of institutions

By construction, assessments of institutional characteristics are subjective and may depend on the shifting views of the people responding to the questionnaire. This can give rise to two types of bias, namely:

- first, for a given country, the state of the economy, a surge or a impediment in the institutional reform process can introduce bias into the assessment of the state of the institutions: for example, rapid (or slow) growth in a given country may give rise to an over- or under-assessment of its institutional characteristics.
- a systemic bias can arise with regard to the dynamic analysis of the 2001-2006 panel. That is because development priorities evolve: between these two dates these priorities have shifted from market liberalisation to promoting "good governance". These therefore alter the perceptions of the questionnaires' respondents. This type of bias tends to distort assessments of all of the countries for a given year in the same direction. As a result, comparisons between countries for the said year remain valid, since the bias only appears in dynamic comparisons between the two dates. These reservations, together with those inherent in any attempt to measure institutions, are an invitation to exercise great caution in utilising the data in the databases, especially dynamic data.

Overall, the various choices made in our approach are designed to reduce the inherent bias in any attempt to measure institutions. As with all existing institutional indicators, those derived from the "Institutional Profiles" database are merely proxies allowing us access to assessments of the state of institutional phenomena in the light of a preordained objective-in this case long-term growth and development.

4. A preliminary exploration of the 2006 database

Consistent with our chosen options, in this preliminary exploration we employ a multi-criteria approach, letting the data "speak for themselves", with the aid of statistical data analysis tools.

4.1 Characterisation of institutional profiles

We start by analysing all the data in the database in such a way as to bring out the most significant institutional characteristics of the countries covered. This exploration is carried out using Principal Components Analysis (PCA) (Graph 2 next page).

The first factor discriminating between countries is the one distinguishing their systems of political, economic and social regulation, based on the foundations on which the rules in force are established, depending on whether they rest more on personal and informal ties (this concerns countries to the left on the horizontal axis), or more on written law in societies with highly formalised rules and procedures (to the right on the same axis).

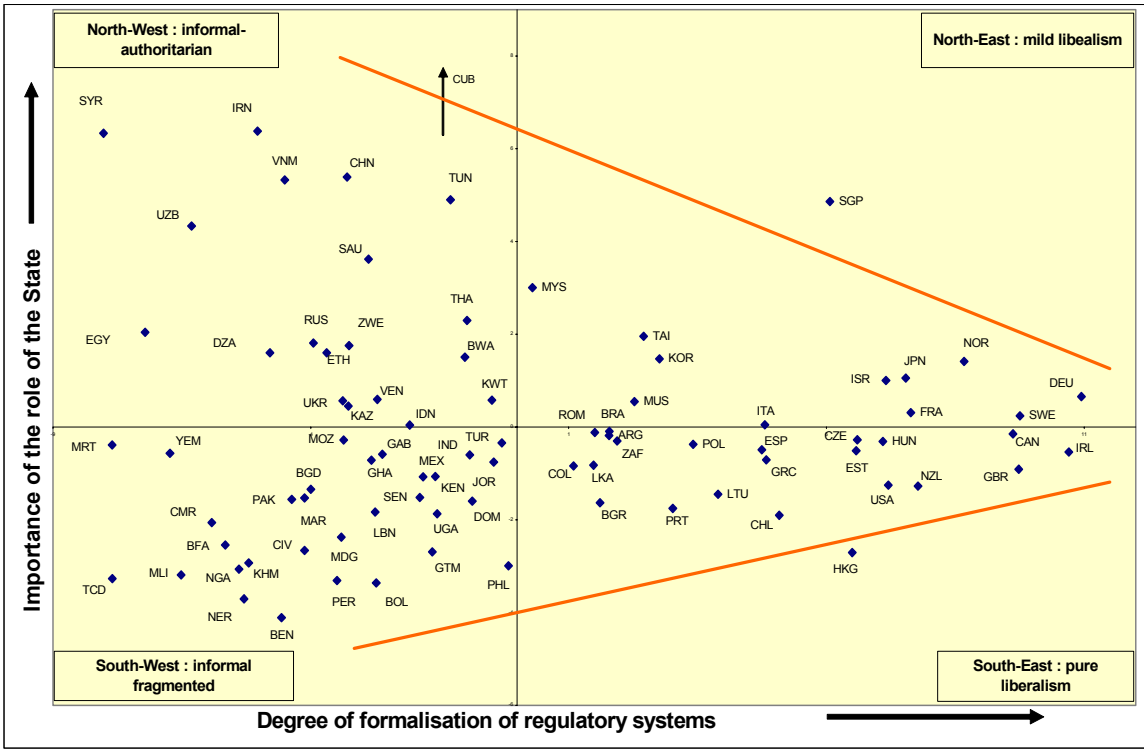
Societies that are now developed have also followed this long march from social systems in which confidence is built on interpersonal relations on a limited scale, to systems in which confidence is more systemic and governed by impersonal law-based relationships. For example, rights and status attached to birth (abolished on the night of 4 August 1789, at the time of the French Revolution), depend on personal ties and not on formal rules independent of individuals.

(9) Bénassy-Quéré A., M. Coupet, and T. Mayer (2005): "Institutional Determinants of Foreign Investment", *CEPII Working Paper no. 2005-05*.

(10) Sen A.: "Inequality Reexamined", *Oxford University Press 1992*.

(11) Ould Aoudia J. (2007): "Growth and Reforms in Mediterranean Arab countries", *Notes et Documents no. 28, Agence Française de Développement, Paris.*

Chart 2: Representation of the first PCA factorial plane



Source: Institutional Profiles 2006.

The second factor discriminates between countries depending on the relative influence of the State in the processes of social, economic and political regulation. The vertical axis opposes indicators reflecting States with a strong presence, or even authoritarian States, at the top, and those at the bottom with the most extensive economic and political freedoms, where the State is relatively inactive or even deficient.

Two general remarks flow from this representation:

- on the horizontal axis, there is a strong correlation between the degree of formalisation of rules and level of development: to the right of the graph we find all of the developed countries, and to left the developing countries.
- the cloud captured on this first plane is wide towards the left, where informal rules prevail, and narrow to the right, where rules are formalised and impersonal. This suggests that, with increasing wealth, there is a relative stabilisation of institutional profiles around systems of formalised and respected rules that are a feature of the developed countries. Conversely, we find an extreme diversity of institutional systems in the developing countries (to the left of the chart). Analysis of this institutional diversity should yield deeper insight into the factors conducive to, or impeding, development.

The representation of countries on the first two axes describes a distribution of countries in four families of institutional systems, as identified in the quadrants of the graph. The names given to the families roughly describe their extreme institutional features, for the sake of legibility:

- Nord-West: "**informal-authoritarian**" systems associate predominance of informal relations with a strong State role in society;
- South-West: "**informal-fragmented**" systems combine a low degree of formalisation of rules with wider areas of freedom-which may actually reflect State deficiencies;
- South-East: "**pure liberal**" systems combine a high degree of freedom with highly formalised rules;
- North-East: "**mild liberal**" systems associate a high degree of formalisation of rules with public provision for the protection of individuals.

Incidentally, the relative institutional stabilisation observed in the graph attenuates the differences between "mildly liberal" and "pure liberal" institutional systems.

4.2 Current reform trends

Alongside variables describing the state of institutions ("stock" indicators), which make up the great majority of indicators in the database, the latter also includes "flow" indicators comprising data measuring the evolution of a phenomenon (e.g. corruption) or a reform over the last three years (2004- 2006).

The countries belong in three groups: those that have implemented extensive reforms; those that, on the contrary, have proved highly resistant to change; and those, the vast majority, which have undergone average, relatively weak reforms.

In terms of the main thrust of reforms, the database reflects the gradual shift in emphasis from market liberalisation in the 1980s and 1990s to improved governance post-2000.

4.3 The evolution of the database

The first two versions of the Institutional Profiles database, in 2001 and 2006, sought to establish it as a leading source of available institutional indicators and contribute to the debate on the measurement of institutions. This database is concerned primarily with exploring the linkage between institutions and economic development. Thanks to the transparency of its methods of compilation, the free availability of its source data, the reduction of a large number of biases, and the extent of the institutional field covered, it represents an original tool for the research community and, more generally, for all producers and users of institutional indicators. The designers of the database welcome critical comment between now and the next version, due out in 2009.

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