

**INSTITUTIONNAL PROFILES**  
**Presentation and Analysis of an Original Database**  
**of the Institutional Characteristics of Developing,**  
**in Transition and Developed Countries**

Pierre BERTHELIER, Alain DESDOIGTS,  
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**Working document**

**November 2003**

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## **Presentation and Analysis of an Original Database of the Institutional Characteristics of Developing, in Transition and Developed Countries**

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**A more detailed version, in French only, is available on request.**

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**Economic Analysis and Forecasting Directorate  
Ministry of the Economy, Finance and Industry  
139, rue de Bercy –75 572 –Paris Cedex 12 -France**

*It was for its own economic policy purposes that the Ministry of the Economy, Finance and Industry (Minefi) first developed the institutional database presented here. It then wanted to open up this project to the academic world, first, by bringing together a Scientific Committee, chaired by Guy de Monchy and composed of development economists in order to monitor the progress of the work and, second, by making it possible for any Research Centre to use the database.*

*The comments from the Scientific Committee have provided invaluable help for directing and improving the approach as a whole. We are grateful to all those who have actively participated in these contributions, in support of Guy de Monchy: Patricia Augier, François Benaroya, Agnès Bénassy-Quéré, Hervé Bonnaz, Jean Cartier-Bresson, Jean-Raphaël Chaponnière, Jean-Pierre Cling, Benoît Coeuré, Denis Cogneau, Jean Coussy, Jean-Michel Debrat, Christophe Destais, Alexandre Draznieks, Béatrice Hibou, Irène Hors, Jorge de Macedo, Sarah Marniesse, Véronique Massenet, Gilles Nancy, Pascal Petit, Etienne Rolland-Piègue, Stéphane Saussier, Jean-Luc Schneider, Jérôme Sgard, Akiko Suwa-Eisenmann and Thierry Verdier.*

*This document constitutes an introduction to the utilisation of the database. Its prime purpose is to provide necessary information and benchmarks for the use by others of this set of figures, with a view to later studies in the field of development economics. It will serve not only as a gateway for future research but also as a reference document for all those who will be using this data in their work. Access to the database is regulated by a convention agreed between the Ministry and each of these Research Centres (contact: Jacques Ould Aoudia).*

Pierre Berthelier and Jacques Ould Aoudia are 'Chargés de Mission' in the Economic Analysis and Forecasting Directorate of the Ministry of the Economy, Finance and Industry. Alain Desdoigts is Professor at the Université de Bourgogne and research fellow at EUREQua (Université de Paris 1, Panthéon-Sorbonne) and LATEC (Université de Bourgogne). The authors remain solely responsible for the ideas set out below, as well as for any remaining errors and imprecision.

Pierre Berthelier: [pierre.berthelier@dp.finances.gouv.fr](mailto:pierre.berthelier@dp.finances.gouv.fr)  
Jacques Ould Aoudia: [jacques.ould-aoudia@dp.finances.gouv.fr](mailto:jacques.ould-aoudia@dp.finances.gouv.fr)  
Alain Desdoigts: [alain.desdoigts@u-bourgogne.fr](mailto:alain.desdoigts@u-bourgogne.fr)

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**Abstract**

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The disparity between the development paths followed by the economies of a limited number of countries, known as ‘emerging’, and the bulk of the other developing countries has shown the limitations of previous development strategies. As a consequence, at the beginning of the 1990s, the question of institutions has been propelled to the top of the economic agenda. The empirical literature has now solidly documented and validated the general relationship between ‘institutions’ and ‘development’.

With this as a starting point, attention is now being concentrated on the actual nature of the institutional mechanisms at work, the inter-relationships between them and their combined impact on development.

Whereas previous analysis of development had mainly drawn on the instruments derived from national accounts, there are not as yet internationally standardised observation instruments for tackling the questions now being raised. A few institutional indicators were created since the end of the 1990s but these cover only a limited part of the institutional domain.

This document attempts to fill the gap, putting forward an original database covering a broad and detailed field of institutional characteristics for 51 countries (developing, in transition and developed countries). The basic data were collected using a questionnaire completed in 2001 by the economic missions of the French Ministry of the Economy, Finance and Industry in the selected countries, enabling us to cover 80% of the world's GDP and population.

In this document, we set out the method used for the construction of our indicators. We then compare them with other existing indicators, noting the existence of convergence for elements that are common to the respective inquiries. On the basis of our indicators we confirm the causal relationship between institutions and levels of development. We then go on to explore the database using a non-inferential (data analysis) approach. We identify an ‘institutional core’ consisting of four major institutional characteristics (governance, security of transactions, innovation and regulations), leading us to draw up an initial typology of ‘institutional profiles’: ‘authoritarian-paternalistic’, ‘mild liberal’, ‘pure liberal’ and ‘informal’. This typology is then supplemented by a combination of both institutional and economic variables, highlighting the main thrusts providing the framework for the database : welfare and reform. The classification obtained aggregates countries by relevant sub-groups.

This approach, which was initiated by the Ministry for economic policy purposes, has since been opened up, first, to the academic world, by bringing together a scientific committee composed of development economists in order to monitor the progress of the work described here, and, second, by making it possible for Research Centres to use the database.

**Keywords:** institutions, development, indicators, database.

**JEL Classification Numbers :** C8, C13, O10, O17, O57, Z13.

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## Résumé

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La disparité des trajectoires économiques entre un nombre limité de pays, les ‘émergents’, et la plupart des autres pays du Sud, a marqué la limite des stratégies de développement antérieures et projeté, au début des années 90, la question des institutions au cœur des préoccupations économiques. La littérature empirique a maintenant solidement documenté et validé la relation globale entre institutions et développement.

Sur cet acquis, l’attention est désormais concentrée sur la nature même des mécanismes institutionnels à l’œuvre, leurs interrelations, leurs effets conjoints sur le développement.

Alors que l’analyse du développement avait jusqu’alors principalement emprunté aux outils de la compatibilité nationale, il n’existe pas encore d’instruments d’observation internationalement standardisés pour aborder ces nouveaux questionnements. Quelques indicateurs institutionnels ont été créés depuis la fin des années 90. Ils ne couvrent cependant qu’une partie limitée du champ institutionnel.

Ce document s’efforce de répondre à ce manque. Il présente une base de données originale qui couvre un champ vaste et détaillé de caractéristiques institutionnelles sur 51 pays en développement, en transition et développés. Les données élémentaires ont été recueillies à partir d’un questionnaire documenté en 2001 par les Missions Economiques du Ministère de l’Economie des Finances et de l’Industrie (France) dans les pays retenus, nous permettant de couvrir 80% du PIB et de la population de la planète.

Dans ce document, nous délivrons la méthode adoptée pour construire nos indicateurs. Nous les confrontons aux autres indicateurs existants, et constatons une convergence sur la partie commune couverte. Nous confirmons, à partir de nos indicateurs, la relation déterministe entre institutions et niveau de développement. Nous explorons ensuite la base de données à partir d’une approche non inférentielle (analyse de données) : nous révélons un ‘noyau institutionnel’ formé de quatre caractéristiques institutionnelles majeures (gouvernance, sécurité des transactions, innovation et régulations), et débouchons sur une première typologie de « profils institutionnels » : les ‘autoritaires-paternalistes’, les ‘libéraux tempérés’, les ‘libéraux purs’ et les ‘informels’. La combinaison des variables institutionnelles et des variables structurelles enrichit cette typologie et fait apparaître les grands axes qui structurent la base : l’axe du bien-être et celui des réformes. La classification obtenue regroupe les pays en sous-ensembles pertinents.

Cette démarche, initiée par le Ministère pour ses besoins de politique économique, a été ouverte sur le monde académique d’une part en réunissant un comité scientifique, regroupant des économistes du développement, pour suivre le déroulement des travaux ici présentés, d’autre part en offrant aux Centres de Recherche la possibilité d’utiliser la base de données.

**Mots clé** : institutions, développement, indicateurs, base de données.

**Classification JEL** : C8, C13, O10, O17, O57, Z13..

## **Introduction**

The progress of development economics in the past 50 years, in its theoretical aspects as well as in the economic strategies implemented, can be broken down into three main phases.

The first phase, involving all developing countries whether under 'socialist' or 'Western' influence, placed the accent on *capital*. In order to carry out the investment needed for development, abundant external financing made up for insufficient local savings. Very low real interest rates were an incentive for accumulation and directed financing towards highly capital-intensive investment.

The second phase, which emerged following the disorder created by the first (unproductive excess accumulation leading to a repayment crisis), placed *macroeconomic equilibrium* at the centre of concern. The early 1980s saw the beginning of a period of macroeconomic adjustments and the launching of the first measures for the liberalisation of markets. However, the economic growth that was meant to follow the restoration of the major equilibria has still not been seen in the countries that undertook these adjustments.

The third phase, speeded up by the geo-strategic upheavals that followed the collapse of the Soviet Union, marked a shift in the direction of *greater openness*. This opening up as regards trade and finance was described as a condition to be added to capital accumulation and macroeconomic equilibrium in order to inject added impetus into growth regimes. However, in the absence of adequate regulation, openness in some cases led to severe financial crises in the emerging countries and the economies in transition. These disturbances have led to greater attention to structural reform and a relative return to state intervention in development policies.

Having at their disposal a genuine development strategy, the countries of Southeast Asia went through the first period without going excessively into debt and achieved spectacular take-off by practising 'selective' opening up to the rest of the world, as well as a remarkable recovery following the crisis in the latter part of the 1990s.

The other continents, generally speaking, have remained characterised by weak and unstable growth. Apart from the Asian countries, levels of development in the countries of the South have in most cases failed to converge with those of the North, while those of sub-Saharan Africa have, in general, shown even greater divergence.

### **The move in favour of the institutional dimension**

This performance led, in the mid-1990s, to a calling into question of development strategies. This questioning was reinforced by the decline in official aid throughout the decade. 'Capital plus Equilibrium plus Openness' was insufficient to ensure takeoff for the economies of the South. It was necessary to add '*Good Governance*'. Attention then turned to the institutional aspect: "Institutions Matter!" (Boyer - 2001).

This awareness of the importance of institutions was common to developed and developing countries. It now lies at the heart of the questions being raised by all the economic organisations, from the OECD to the World Bank. What are the fundamental factors underlying growth? What are the obstacles to development?

As North emphasized, in a small, self-contained, rural community, where exchanges take place at personal level, transaction costs are low but production costs are high because the scale of division of labour and innovation is limited by the small size of the market. Conversely, in an economy that is large, complex and open, the high degree of specialisation leads to very low production costs but the transaction costs generated by the scale and the complexity of the exchanges carried out in an impersonal manner, together with the large number of players involved, are high. The

situation is more efficient if society manages to create institutions that can master the rise in transaction costs. The increase in the proportion of services in GDP reflects this evolution.

### **Institutions Matter! Yes, but which ones and how?**

The major role played by institutions in long-term growth is now recognised (see, in particular: World Bank – 1998, Rodrik – 2002 and, for an inside full survey, Aron – 2000), but other questions then arise. Which are the institutions that play a major role in development? How do they depend on each other? What institutional combinations favour (or impede) development?

At operational level, these questions range from the existence and state of the institutions (the ‘stock’) to the reforms (the ‘flow’), both these aspects having major implications. Which reforms are relevant? How should they be phased? How should their inter-relationships be organised? Why is there such resistance to reform? How can external pressures and conditionalities be optimised? At a more general level: how can development be the subject of re-thinking in a more specific manner that is better suited to each local configuration and at the same time multi-dimensional (Adelman – 2000)?

### **The classical instruments are inadequate to respond to these questions**

The three main themes set out above (capital, macroeconomic equilibrium, openness) have in common that for the observation of economic reality they require instruments borrowed mainly from the Keynesian inheritance of the 1940s: national accounts and a price vector. While these variables remain indispensable for macroeconomic steering of the economy, they remain impotent to explain long-term growth – and its bottlenecks – in the light of the institutional contribution.

Until now, therefore, the addition of the institutional aspect of analysis has been carried out without observation instruments, since there has been no comprehensive and standardised framework for ‘grasping’ institutions. The result has been a proliferation of institutional indicators, provided by a wide variety of sources (rating agencies, political foundations, NGOs, IFIs, etc), leading to a relative diversity of proposals in terms of objectives, construction modalities as well as rigour and reliability.

### **An original database for institutions: the ‘Institutional Profiles’**

The reflection carried out in the Ministry of the Economy, Finance and Industry (Minefi) took place in the framework of this convergence of views regarding the role of institutions in the development process. It took a stage further a study carried out in 1990-2000 regarding the dynamics of structural reform in the countries of the South and East of the Mediterranean (Massenet *et al* – 2000).

The Ministry therefore launched the construction of an original database to portray the institutional characteristics of the emerging countries and economies in transition (together with a reference group of developed countries). There is no intention that this database should lead to the construction of a unique indicator (of competitiveness, economic freedom, transparency of government, globalisation, etc) produced in order to establish a ranking, or a league table of countries. The database deliberately presents institutional characteristics in the form of ‘country profiles’ and these profiles, with their manifold institutional dimensions, *cannot strictly be ranked*.

The database that has been created covers the whole institutional field, starting from an economic approach. The variables were constructed on the basis of indicators worked out following a process that was controlled at every stage by a single working group, from the conception of the overall framework, through the steering of the decentralised collection of the raw data up to the central re-processing of these data.

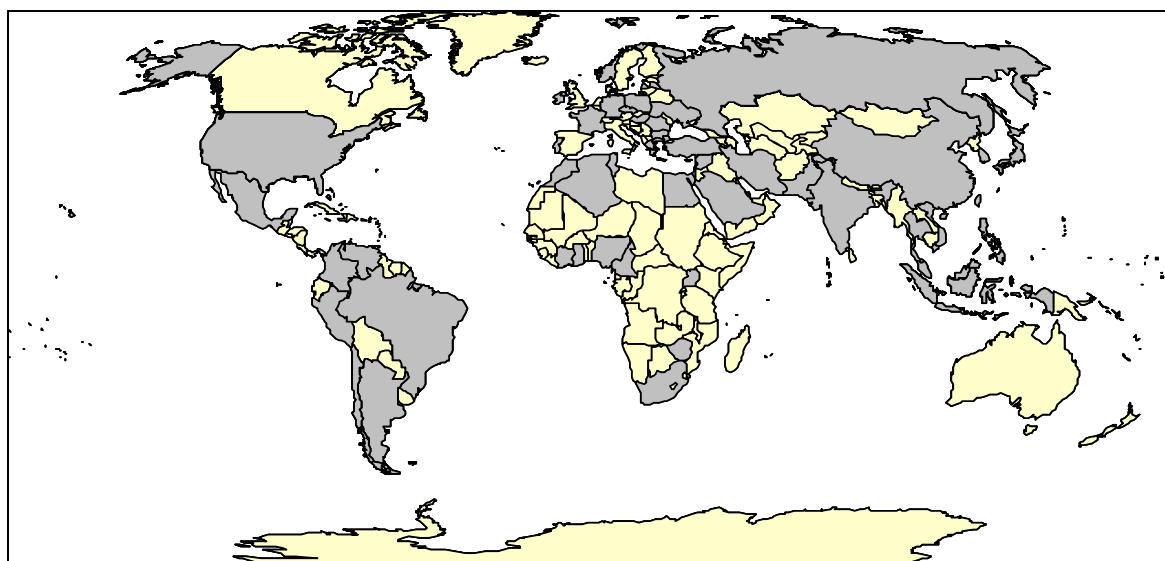
In practice, the data were compiled in 2001 by the Ministry's Economic Missions located in the countries concerned in response to a questionnaire. These responses were then centrally re-processed and were compared with existing institutional indicators with a view to validating the responses, evaluating possible distortions in the data collected and carrying out necessary adjustments. They were then supplemented by other institutional indicators emanating from other databases.

The database introduced here represents a contribution to the new approaches aimed at illuminating this dark corner of development policies constituted by the action of institutions. It provides a new instrument to assist in the reflection carried out by the French administration as regards official development assistance. In addition, it provides material on the basis of which, we hope, later research will make it possible to provide more information on the link between institutions and development.

### **The database covers a wide geographic field**

The geographic scope of the study was defined in order to cover all developing regions as well as certain developed countries (see [Appendix 1](#) for the list of countries). At present, it covers 51 countries, 43 developing and 8 developed, broken down as follows: Developing Asia (12), Latin America (7), Countries in Transition (8), Mediterranean and Gulf countries (9), Sub-Saharan Africa (7) and Developed Countries (8). These countries represent a wide diversity of economic and institutional paths. The sample as a whole accounts for 80% of the world's GDP and population.

*The countries covered are shown in grey*



### **Presentation, validation and exploration of the institutional database**

The aim of this document is to present the database with a view to its subsequent exploitation for research regarding the relations between institutions and development. For this purpose, we propose various points of entry to the database, relating to the overall framework, the variables and their structuring.

- In **Section 1**, we define *the assumptions and conceptual framework* used to capture the institutional characteristics of the countries in question. The approach adopted is deliberately non-normative. We make no *a priori* assumptions regarding the existence of an institutional norm.



- In **Section 2**, we introduce *the variables*. This is done first by setting out the schedule for the capture of the institutional characteristics in which they are to be inserted. This schedule is built around nine chapters (1- Political rights and civil liberties. 2- Security of goods and persons. 3- Public governance. 4- Markets' operating freedom. 5- Innovation, preparation for the future. 6- Security of transactions. 7- Regulation and corporate governance. 8- Openness. 9- Social cohesion). These nine chapters are then cross-tabulated with four sectors (A - Public institutions, civil society, B - Market for goods and services, C - Capital market, D - Labour market).

Most of the variables relate to the situation of institutions at a given moment, and are thus capable of being assimilated to stock variables. To these were added variables regarding institutional dynamics (reforms), capable of being assimilated to flow variables. It was on this structure that the questionnaire was drawn up. Its completion by the Economic Missions provided the principal source for the database. We later go on to specify the concrete modalities of this questionnaire: form of the questions and their breakdown in order to obtain responses as objective as possible and reduce interpretation biases; system of grading and coding the responses; methods of aggregating these basic replies; instruments used for constructing 'ad hoc' aggregates.

- In **Section 3**, we then present a comparison between the raw data collected using the questionnaire and other available indicators (covering only 30% of the questionnaire). This shows a high degree of convergence between these indicators and our own. However, this convergence reveals a small number of biases that we have adjusted using additional information. All in all, our data emerge as being *globally validated* by this initial comparison.

In sections 4 and 5, we carry out *the exploration of the database itself*, in order to determine its internal structure. In conformity with our initial assumption, for this exploration we mainly adopt analytical tools that are free of inference, i.e., Exploratory Data Analysis.

- In **Section 4**, we start by analysing the database through its breakdown into chapters. This analysis reveals the existence of an 'institutional core' formed by four main groups of variables: public governance, innovation, security of transactions and regulation. This core, which constitutes the country's institutional identity, appears to be capable of accommodating *widely differing* configurations in terms of political rights and civil liberties, security of people and goods, social cohesion and openness to the outside world. This result provides an initial validation of the database as a whole, corroborating, on a quantitative basis, recent developments in the literature on the subject.

We then go on to examine the strength of the link between these various institutional families (the 9 chapters) and an indicator of the level of economic development, eliminating, by means of suitable econometric instruments, the endogeneity bias that affects the relationship between institutional variables and levels of development. Like Hall and Jones (1999) and Kaufmann *et al* (1999) we finally arrive at strong and significant causal relationships between each of the nine institutional indicators and the indicator adopted for the level of development (GDP per capita).

- In **Section 5**, with the help of Exploratory Data Analysis we go on to explore our database through the combined analysis of the institutional field (Q), and the structural field (S), the latter consisting of a set of socio-economic data for the country in question. In a first stage, the analysis deals with the institutional field (Q), bringing out an initial typology of the countries broken down into four major institutional families: the 'authoritarian-paternalistic', the 'mild liberals', the 'pure liberals' and the 'informals'<sup>1</sup>. The same approach applied to the structural field (S) breaks the countries down into three families depending on the level and pace of their development. One again finds in this structuring of the field (S) the phenomenon of *convergence* that operates only where a certain threshold of development has been attained.

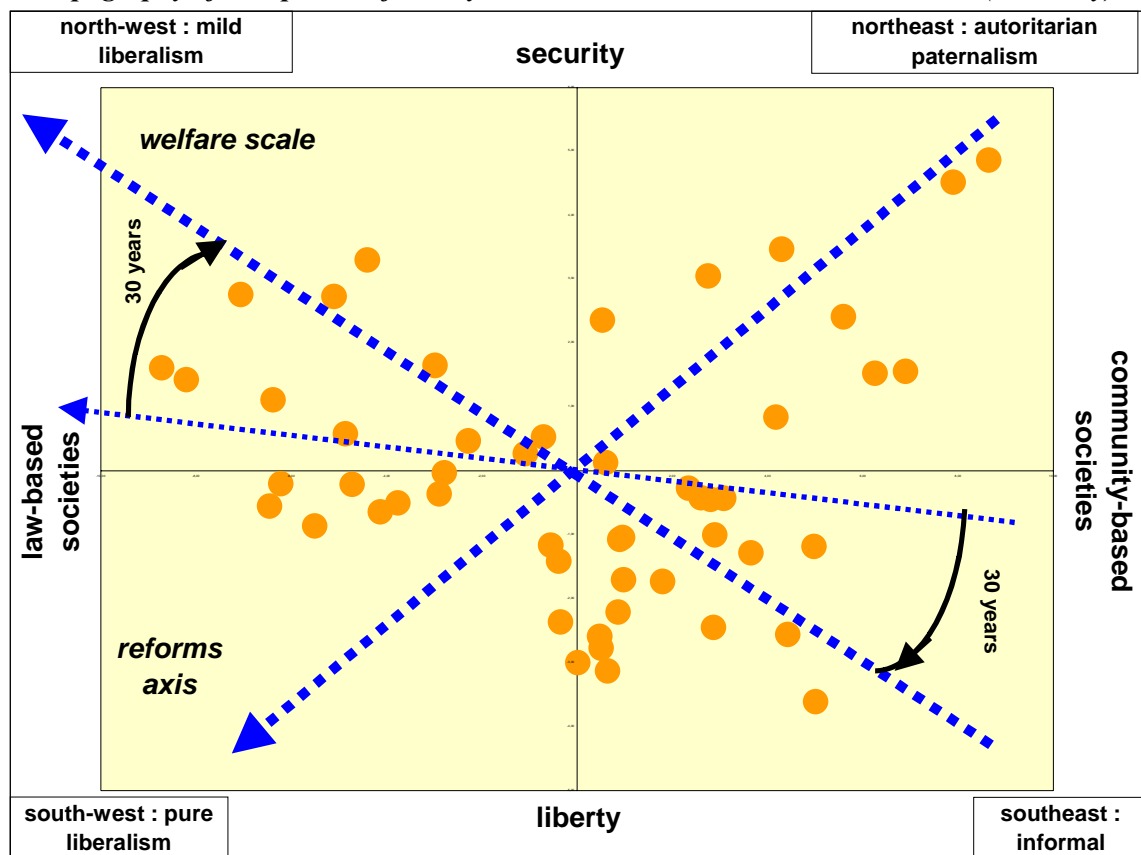
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<sup>1</sup> These condensed expressions inevitably involve an oversimplification.

The combination of the two institutional and structural spaces (Q, S) and the addition of dynamic institutional variables (the reforms) and lagged structural variables (by 30 years) adds two major axes to this initial structure: the 'welfare scale', which goes from the Southeast quadrant to the Northwest quadrant, brings together good governance, a high level of human development and security of the societies concerned. This axis is crossed by the 'reform axis', which moves in the direction of the space bringing together good governance and liberties (Southwest quadrant) and is strictly opposed to the direction of the oil rent (Northeast quadrant). The lagged structural variables show the long-term dynamics: the average evolution leading countries over thirty years to come closer to the welfare scale, which is indicative of the social and demographic transitions in operation (rising life expectancy, educational levels, income).

Finally, the following graph shows two main oppositions : the first (horizontally) between community-based societies and law-based societies, and the second (vertically) between security and liberty.

*Topography of the spaces defined by the institutional and structural variables (summary)*



Note : Representation of countries on the first factorial plane (each point stands for a country) obtained from the Principal Component Analysis (PCA) of institutional active variables (Q). Structural variables (S) are only illustrative.

In a final stage, we analyse the database with the aid of a classification instrument, looking for a more refined typology of 'institutional profiles' that can enrich the initial typology referred to above.

Eight classes of countries emerge from the analysis. One again finds the 'authoritarian-paternalistic', associating government control over society and the economy with redistribution of the oil rent. These are now distinguished from the 'authoritarian', which having no rent to redistribute are seeking the path of development, with varying fortunes (ranging from China all

the way to Egypt), while still maintaining control over their societies. The 'informals', with very weak public institutions, bring together all the sub-Saharan African countries in the sample (with the exception of South Africa). The countries bearing a strong imprint of Soviet policy also stand out ('retarded transition' countries). The 'emerging-fragile' countries have carried through rapid financial liberalisation but have lagged behind in introducing public regulation and are experiencing a certain social fragility. The two city-states (Hong-Kong and Singapore) stand out clearly as 'financial hubs'. Japan, Taiwan and South Korea form a group of their own. Finally, the last class brings together the European countries (including the countries in rapid transition), Israel and the United States.

Each of the analyses presented here throws a different light on the set of variables being examined. None of them claims to offer a definitive and immutable vision. They all provide partial information which in most cases, on what is now a quantified base, confirms common knowledge, *in so doing validating the database*. In addition to this validation, they shed a certain light on what are still dark corners of the economy.

Taken as a whole, this work will have fulfilled its task if it contributes both to providing new quantified instruments for expanding reflection on development and stimulating research leading to the production of further data in the institutional field.

### **Statics and dynamics**

The database set out here provides an instantaneous picture of the institutions existing in 2001. The inertia of countries' institutional characteristics means that this information holds for a relatively extended time, averaging around five years either side of the reference year.

The improvement in knowledge regarding institutions and the relationships between them and development makes it necessary to give a dynamic dimension to the information by regular repetition of the survey, every five years, for example. The quality of the research carried out on this first cross-section should make it possible to appreciate the utility of a fresh study.

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## SECTION 1. THE OVERALL APPROACH

The capture of the institutional characteristics of a group of countries implies the adoption of a definition of the institutions and a global approach leading to a relevant schedule giving the structure of the institutional field being observed. This structuring of the field is that of the questionnaire used to collect the raw information.

### §1.1. A BROAD DEFINITION OF THE INSTITUTIONS

We have adopted the definition of institutions generally used by the major international organisations, in particular the World Bank (1998), which takes up that proposed by D. North: "*Institutions are the humanly devised constraints that structure political, economic, and social interactions. They consist of both informal constraints (sanctions, taboos, customs, traditions, and codes of conduct), and formal rules (constitutions, laws, property rights)*"<sup>2</sup>. In this context, the institutions structure the incentives affecting behaviour and modelling the economy.

This definition covers a very broad field. Even so, we do not, *a priori*, include indicators relating to distinct disciplines within the economy (anthropology, law, history, etc.), such as religion, ethno-linguistic divisions or even the origin of the law. On the other hand, their inclusion would be perfectly conceivable for multi-disciplinary research groups, where actual knowledge of the quality of the data taken from these disciplines and of the direction of their causality on economic phenomena is ensured<sup>3</sup>.

### §1.2 . THE DIVERSITY OF THE INSTITUTIONAL FRAMEWORKS IN WHICH THE EMERGENCE PROCESS OPERATES CALLS FOR A RELATIVISTIC APPROACH

- **We do not assume *a priori* the existence of an institutional norm.** The approach adopted for drawing up the schedule for the capture of the institutions assumes that there is no unique optimal institutional model regardless of a country's level of development and institutional heritage. The recently-inspired models to which the developed economies are now tending are not necessarily to be transposed unchanged to economies whose institutional heritage and level of development are very different (North<sup>4</sup> – 1994, Aoki – 2001). Indeed, there are plentiful examples of takeoffs in institutional frameworks that would today be regarded as ‘non-orthodox’ (United States and Germany at the end of the 19th century, France in the 30 post-war boom years, post-war Japan, Korea and Taiwan in the period from 1960 to 1980, China today), showing that different institutional environments have been propitious to lastingly high growth rates.

We consequently have no *a priori* theoretical starting point for what constitute ‘good’ or ‘bad’ institutions. We let the data ‘speak for themselves’ through the analytical instruments used to explore the database. These instruments are *neutral*, implying *no norm of any kind* as to institutional profiles (see Sections 4 and 5 below).

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<sup>2</sup> Journal of Economic Perspectives – Volume 5, Number 1-1991.

<sup>3</sup> We therefore have doubts regarding the approach by La Porta *et al*, in “*The Quality of Government*” (Harvard 1998). On the basis of empirical evidence according to which ‘good institutions’ are favourable to growth, they try to identify the basic features of the formation of institutions. They adopt as a normative definition of good institutions an institutional framework of Anglo-Saxon inspiration, and then look for deep-seated factors that have influenced the constitution of institutions in a set of countries. They identify as explanatory variables for the formation of institutions ethno-linguistic fragmentation, the origin of the legal system (Common Law versus civil law and its variants) and the dominant religion. See also Delmas-Marty (2001).

<sup>4</sup> “*Economies that adopt the formal rules of another economy will have very different performance characteristics than the first economy because of different informal norms and enforcement. The implication is that transferring the formal political and economic rules of successful Western economies to third-world and Eastern European economies is not a sufficient condition for good economic performance*” (quoted by Rodrik - 2002).

- **But this does not mean that all institutional frameworks are of equal value.** While we do not presuppose the existence of a unique institutional optimum for all the countries in question, empirical examination suggests that certain institutional environments impede or, on the contrary, encourage economic takeoff.
- **The capacity of an institutional system to evolve in order to adapt to new risks and opportunities is of crucial importance.** The quality of an institutional environment is not characterised only by its relevance at a given moment, but also by *its capacity to be called into question or adapted* as takeoff proceeds or when difficulties arise (Acemoglu, Aghion and Zilibotti – 2002). The plasticity of institutions (aptness to implement reforms) constitutes an essential variable which also characterises a country's institutional situation (Brousseau – 2000).

**§1.3. INSTITUTIONAL DEVELOPMENT POLICIES ARE MORE COMPLICATED AND TAKE LONGER TO IMPLEMENT. THEY ARE ALSO MORE DIFFICULT TO MEASURE**

The levers for action as regards macroeconomic adjustment policies, which require for their application a limited number of players, are clearly identified (essentially, fiscal and monetary policy) and are relatively easy to implement in economic policy terms. The populations that will bear the burden are generally diffuse and unorganised. As regards measurement, the effects of macroeconomic policy involve quantitative variables (deficits, inflation, etc) and are hence relatively easy to evaluate and interpret.

Institutional development policy, on the other hand, is much more complicated to design, adopt and apply, since it implies far-reaching modifications in the society's socio-economic equilibria. Such a policy requires a high level of training on the part of its designers but also on the part of the public or private operators who have to follow it up. It requires the mobilisation of a substantial number of players; it has to confront the society's culture of change (weight of tradition); it often runs up against concentrated and organised interest groups; and it is often obliged to use old tools to forge new ones (for example, use a corrupt administration to apply anti-corruption measures).

This complexity is to be seen again at the level of *measurement*, both as regards the implementation of institutional reforms (since the passing of a law does not guarantee that it will be applied) and of their effects, which are by nature diffuse.

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## **SECTION 2. COMPILATION OF THE SCHEDULE SETTING THE STRUCTURE OF THE INSTITUTIONAL FIELD AND THE METHOD OF CONSTRUCTION OF THE DATABASE**

It was on the basis of the above reasoning that we compiled the reporting schedule for capturing the institutional characteristics.

### **§2.1. A REPORTING SCHEDULE STRUCTURING THE FIELD BEING EXAMINED AND DEFINING THE 'INSTITUTIONAL PROFILES'**

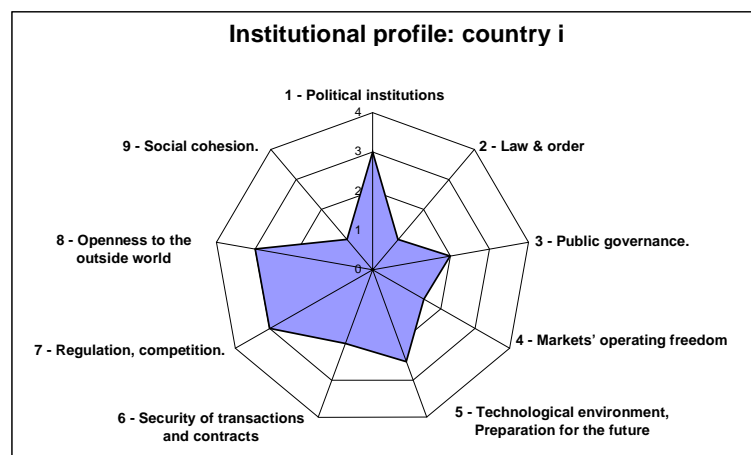
We proceeded to break down the institutional framework into several segments:

• In all, nine themes were selected:

1. **political institutions:** functioning of political institutions, public rights and liberties;
2. **law and order:** safety of persons and goods, management of conflicts within society and between the society and the government; external security;
3. **public governance:** transparency and effectiveness of action taken by the authorities, corruption, independence of the government from private actors (collusion, State capture), independence and level of application of justice;
4. **markets' operating freedom,** share of the private sector in the productive and financial systems, proportion of freely-set prices (including interest rates), degree of flexibility of the labour market;
5. **preparation for the future, absorption of technology, aptitude for reform:** modalities for the diffusion of technology, strategic view taken by the authorities, management of the environment;
6. **security of transactions and contracts:** respect for property rights, contract law, handling of commercial disputes;
7. **regulation:** competition on the markets for goods and services, on the capital market and on the labour market and arrangements regulating competition; corporate governance, supervision of the financial system, instruments for social dialogue;
8. **openness to the outside world:** freedom of circulation of goods and services, capital, persons and information;
9. **social cohesion:** social and regional balance, equality of treatment (by sex, ethnic group, etc....) in traditions and in the actual operation of formal institutions, social mobility, solidarity (traditional, institutional).

The 'Institutional Profiles' database is accordingly structured using a breakdown between the nine subject headings set out above. These data, when ordered and aggregated, depict the institutional profile of each country in a manner which can be represented as in graph 2.1.

***Graph 2.1. : Illustration of a possible institutional profile***



- We cross-tabulated these nine subject headings with four sectors: A. the general institutional environment (public institutions, civil society, social behaviour) - B. markets for goods and services – C. capital market (financial system) – D. labour market and social relations. The matrix obtained in this way for each country provides the structure for the questionnaire (see Table 2.1. below).

**Table 2.1. The capture of the institutions is carried out using the following analytical table (providing the structure for the questionnaire)**

<i>Institutional sectors shown in the columns</i>	INSTITUTIONAL ENVIRONMENT	MARKETS		
<i>Institutional themes in the rows</i>	A –Public institutions, Civil society	B –Goods and services	C –Capital market	D – Labour market and social relations
<b>1- Political institutions</b>	public rights and liberties			trade union freedom and pluralism
<b>2- Safety, law and order</b>	safety of persons and goods			
<b>3- Public governance</b>	transparency, mastery of corruption, efficiency of administration, independence of the justice system	collusion between the government and firms	collusion between the government and banks	informal labour
<b>4- Markets' operating freedom</b>		share of the private sector, privatisation, price distortions introduced by the government	share of the private sector, freedom of interest rates, independence of the central bank	flexibility of the formal labour market
<b>5- Technological environment, preparation for the future</b>	innovation and R&D, preparation for the future		venture-capital, access to credit	vocational training
<b>6- Security of transactions and contracts</b>	security of property rights and contracts, commercial justice, bankruptcy law	information on the quality of goods, the situation of firms, intellectual property	guarantee systems, obligation to provide information	respect for labour laws
<b>7- Regulations and corporate governance</b>	regulation of competition	competition, corporate governance	competition, prudential rules, supervision	social dialogue
<b>8- Openness to the outside world</b>	circulation of persons and information	trade openness	financial openness	circulation of workers
<b>9- Social cohesion</b>	social equilibrium, equality of treatment, social mobility, solidarity		micro-lending	market segmentation

## **§2.2. THE OPERATING CRITERIA ARE ARRANGED BY THEME BUT THIS LINK DOES NOT PREJUDGE A RELATIONSHIP BETWEEN INSTITUTIONS AND PERFORMANCE**

The data collected in the questionnaire in order to characterise the institutions have been arranged in order to be projected on each of these axes. Generally speaking, we have adopted an arrangement very close to that usually applied by international bodies and one that reflects the general perceptions regarding the links between the institutional theme and growth (for example, it is generally assumed that openness goes hand-in-hand with growth). Even so, the adoption of this approach does not prejudice a relationship between the institutional system as a whole and economic performance.

It is more the quality of the combination of institutions than their 'quantity' that is liable to influence performance: the institutional profile *is therefore not to be interpreted in additive fashion*. Typically, the aim of the exercise is not to add together the different variables such as openness, operating freedom for the markets, security of transactions, competition, etc, but to reason on the basis of the composition of these criteria. As instruments for the representation of the countries, the 'institutional

profiles' cannot strictly be ranked 5.

### §2.3. METHODS USED IN DRAWING UP THE QUESTIONNAIRE AND THE GRADING SYSTEM

The drafting of the questions in the survey requires a method that tends to minimise possible biases, as well as to obtain summable indicators on the basis of qualitative responses to the elementary questions.

- We have adopted the approach normally used to capture institutional characteristics. This approach generally draws on three methods:

a) the collection from experts of *assessments* regarding the institutional situation of the country in question. These assessments, which are necessarily subjective, are then ordered to form ranked qualitative variables, which can then be treated as quantitative variables.

b) *surveys* of a representative population in order to obtain responses to a battery of questions. In most cases, the questions posed concern the respondents' own situation or that of their firm, in contrast to the consultation of experts (see above) providing an assessment for the country as a whole.

c) supplementing these subjective indicators, the identification in the social and economic field of *quantifiable phenomena* as 'proxies' for institutional characteristics <sup>6</sup>.

Our data collection has mainly used the first method, calling also to a certain extent on the third (see also Nicoletti et al. (2000) for an interesting and parallel collection and analysis in most OECD countries of indicators of product market regulation with an extension to employment protection legislation).

- **The grading was carried out**

- either from 1 to 4 when the question concerned the assessment of a phenomenon (e.g. the level of corruption),

- or from 0 to 4 when the question concerned the existence of an arrangement (absence = zero) **and** the quality of its application (if so, graded from 1 = low quality of application to 4 = high quality of application – e.g., existence **and** efficiency of the application of the arrangements for regulation of competition).

- **In order to reduce the subjectivity of the responses**, whenever possible the questions were broken down into elementary items that were as objective as possible. For example, the question concerning 'transparency of public action in the economic field' was broken down into six elementary items (see Table 2.2.)

*Table 2.2.: Extract from the questionnaire*

transparency of public action in the economic field

If no publication, put 0

if publication, grade from 1=unreliable to 4=totally reliable

0 or grade from 1 to 4

1 Government budget		
2 Extra-budgetary funds	(if there are no extra-budgetary funds, put 4)	
3 Accounts of state-owned enterprises		
4 Accounts of public banks		
5 Basic economic and financial statistics (national accounts, price indices, foreign trade, money and credit, etc.)		
6 Is the IMF consultation under Article IV published ?	(no=0, yes, partially=2 yes, totally =4)	

The indicator for 'transparency of public action in the economic field' that we finally arrived at consisted of the *aggregation* of the 6 elementary items shown above.

<sup>5</sup> We have chosen to name the database 'Institutional Profiles' because of this essential characteristic.

<sup>6</sup> Example borrowed from the social field: Putman (1993) measures the 'social capital' of a population by taking the percentage of inhabitants reading newspapers, the number of members of sports and cultural associations, the percentage of those eligible voting in elections (application in a study comparing the institutions of the North and the South of Italy). An example in the economic field is that of the IMF's compilation of an indicator of financial openness through the aggregation of the results of responses to the existence or otherwise (coded as 1/0) of arrangements restricting capital movements.



● **The method for aggregating the variables.** In accordance with the previous point, the aggregations were initially made on the elementary items in order to compile relevant indicators based on the replies to the questionnaire.

There is no single authoritative solution regarding methods of aggregation. In this presentation of the database, we have chosen to give preference to obtaining, for each of the indicators, a variable having the widest dispersion, *in order to provide maximum discrimination between countries*. The aggregation operator used for this purpose was the sum of the elementary items weighted in each case by their standard deviation (for all the countries). As a result, elementary items having an equal grade for all the countries would carry zero weighting in the aggregated indicator<sup>7</sup>.

For weighting purposes, use was also made of the co-ordinates of the variables to be aggregated on the first axis of the Principal Components Analysis (PCA) carried out on these same variables (see Section 4). Temple and Johnson (1998) adopt this latter approach, stressing that it has the advantage of not introducing a subjective criterion into the construction of the aggregation (Aron – 2000), as is also the case for the method using weighting based on standard deviations.

If necessary, however, other aggregation methods can be used, taking the elementary data available in the database.

● **The aggregation of the variables is based on the assumption** that the elementary items are not substitutable, a condition which holds good for the questionnaire. Aggregation no longer has any meaning in the case of substitutable institutional characteristics, since it only takes one of them to be satisfactory (for example) for the aggregated indicator to be satisfactory. A mean in this case would give erroneous information.

#### §2.4. ‘STOCK’ AND ‘FLOW’ VARIABLES.

The bulk of the questions concerned the situation of the institutions (the ‘stock’) at the time of the survey in 2001. To these were added questions on the perception, over the past three years, of the ongoing dynamics (the ‘flows’). Three types of flow variables are included:

a) when the arrangements for reform involve clearly identifiable economic fields (tax reform, privatisation, trade openness, financial openness), detailed questions were asked concerning their various modalities in the form of a corresponding number of elementary items (Table 2.3.).

*Table 2.3.: Extract from the questionnaire*

<u>in the past 3 years, tax reforms aimed at...</u>	
if none, put 0	
if there has been reform, grade from 1= no impact to 4 = substantial impact	0 or grade from 1 to 4
... improving recovery within the framework of existing arrangements (strengthening of tax discipline)	
... reducing exemptions ( tax distortion)	
... broadening the income-tax base, the VAT base, etc.	
... simplifying arrangements	
Consistency, continuity and predictability of these tax reforms (from 1= low consistency etc, to 4= high)	

As previously, the indicator for tax reform would be arrived at by the aggregation of the five elementary items according to the method described above.

<sup>7</sup> In fact, the standard deviations of the elementary items are not widely dispersed: for the 330 elementary items, the standard deviation of the standard deviations is 0.2 for a mean of 1.03.

b) in the other cases, an attempt was made to measure recent changes *in overall fashion*: for example, concerning ‘public liberties and the autonomy of the civil society’ (Table 2.4.).

**Table 2.4.: Extract from the questionnaire**

in the past 3 years: do you consider that these liberties and this autonomy have in general ...	
... considerably improved (4), moderately (3), remained unchanged (2), deteriorated (1) sharply deteriorated (0)?	

c) finally, there are the indicators of policy environment and of the impact of reform. Since these variables concern reform, they are classified here as ‘flow variables’.

- *The policy environment indicators* identify the position of agents depending on whether they support or resist the reforms. The grading system adopted is consistent with that used in the rest of the questionnaire: the position in relation to the reforms is ranked from 1 to 4 on a rising scale of support for reform. A distinction is made between internal pressures (from national agents) and external pressures (role of international financial institutions or regional groupings). If appropriate, it is possible to construct, using some or all of the 9 available variables, an aggregated indicator of ‘support for reform’.

- *The indicators of the impact of reform* relate to two types of reform only and measure the perception of respondents concerning the impact of privatisation and greater trade openness in the previous 3 years.

• **In total**, the portion of the database relating to institutional variables comprises 330 elementary items (subjected to grading<sup>8</sup>) identified by the letter of the sector (A, B, C and D) and a 4-digit number in which the first digit denotes the theme (from 1 to 9): example: ‘A3101: *de facto* equality of treatment of foreigners in the justice system’. This variable belongs to sector A (general institutional environment) and Theme 3: public governance.

These 330 elementary items are combined by aggregation into 115 indicators, identified by the letter of the sector and a 3-digit number. Example: ‘A310: Effectiveness of public action: non-commercial justice’.

Of these 115 indicators, 85 deal with the situation of institutions (stock variables) and 30 with institutional changes (flow variables: reforms, policy environment and the impact of reform).

## **§2.5. THE DATABASE MAKES IT POSSIBLE TO CREATE NEW VARIABLES BY AGGREGATING THE INDICATORS**

• Depending on what is required, it is possible to work at different levels of aggregation of the indicators.

For example:

- The indicator of ‘level of corruption’ can be used as it stands.

- One might also want to construct a more global indicator of ‘quality of functioning of public action’, that would aggregate the following indicators: ‘Transparency of public action in the economic field’, ‘Transparency of economic policy’, ‘Level of corruption’, ‘Effectiveness of public action: decision-making capacity of the political authorities, coherence and continuity of government action, authority of the political powers over the administration’, ‘Efficacy of the tax administration’, ‘Efficacy of customs administration’ and ‘Efficacy of the justice system’.

- One might also want to construct an indicator of ‘Fluidity of trade’ by aggregating ‘Efficacy of customs administration’, ‘Convertibility for current transactions and adhesion to the WTO’ and ‘Rules for the granting of import licences’.

<sup>8</sup> At the level of these elementary items, there exist responses ‘empty cell’ and ‘Zero’ whose consistency with the questions in the questionnaire has been systematically checked. Following aggregation, there remains no empty cell at the level of the aggregated variables (3-digit) and all the zeros are meaningful.

- Several types of operator can be used to construct these aggregates; in all cases checks will be made to ensure that the variables are not substitutable (see §2.3. above).
- In practice, the database comes with a set of computer procedures that automatically carry out the aggregations of variables, using as operator the mean weighted by the standard deviations.

## **§2.6. ADJUNCTS TO THE DATABASE, ILLUSTRATIVE INSTRUMENTS FOR A DESCRIPTIVE EXPLORATION OF THE BASE**

Three other automated instruments make it possible to create other products from the data contained in the base :

- point-clouds  $y = f(x)$  in the 'NuagesXY' file, with country labels, and giving the regression line as well as its equation and the  $R^2$ .
- diagrammatic representations for a given country of the different variables in the 'Etoileprofils' file.
- country rankings for simple or aggregated variables in the 'Rankprofils' file. It is also possible to identify the countries in a geographic zone by a colour.

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### **SECTION 3. COMPARISON OF THE DATA IN THE ‘INSTITUTIONAL PROFILES’ BASE WITH OTHER INSTITUTIONAL INDICATORS**

In the case of the semantic fields, the replies to the questionnaire are *subjective by their nature* and may be biased as a result. In order to identify, evaluate and possibly reduce these biases, we compare the data collected through the questionnaire with other available institutional indicators. These indicators cover slightly more than 30% of the stock variables from the questionnaire.

#### **§3.1. NATURE AND SOURCE OF THE DIFFERENT INDICATORS**

The source and nature of these indicators are highly diverse.

a) Gradings by agencies in the political and economic fields: Business Environment Risk Intelligence (BERI), International Country Risk Guide (ICRG), Control Risks Group (CRG), Standard and Poor’s (DRI), The Economist Intelligence Unit (EIU), Political Economic Risk Consultancy (PRC), and Political Risk Service (PRS);

b) Publications by foundations defending ideological objectives and backed by universities or newspapers: The Fraser Institute, which promotes economic freedom in the world; Heritage Foundation (HWJ), which promotes conservative tendencies in partnership with the Wall Street Journal; Freedom House (FRH), which defends democratic values in the world; The Center for International Development (GCS), which organises the Davos Forum and publishes the ‘Global Competitiveness Report’; the Institute for Management Development, which since 1987 has published the ‘World Competitiveness Yearbook’(WCY); the magazine Foreign Policy, which every year since 2000 has published the ‘A.T. Kearney/Foreign Policy Globalization Index’;

c) Indicators produced by NGOs: Transparency International (TI), which provides an annual assessment of corruption for all countries; Reporters without Borders (RSF), which annually publishes an indicator of the freedom of the press in the world; Gallup Millennium Survey (GMS), which carries out wide ranging surveys on opinions and beliefs; and Latinobarometro (LBO) ;

d) Publications by research centres, such as the State Capacity Study by Columbia University (CUD) ;

e) Publications by private firms such as PricewaterhouseCoopers, which publishes the Opacity Index ;

f) The international financial institutions have also launched research programmes to compile institutional indicators. The EBRD, for example, deals with the theme of reform for the 26 countries in transition in its ‘Transition Report’, published annually since 1994. The World Bank, with the help of Stanford University, has compiled six aggregated governance indicators (Kaufmann, Kraay and Zoido-Lobaton – 1999 and 2002) and a set of corporate governance indicators (‘World Business Environment Survey’, WBES – 2000). Finally, the IMF has two indicators, one measuring financial openness (Capital Control Index), and the other trade openness.

These indicators are based either on the collection of assessments by country experts (as is the case for our own questionnaire), or on the results of surveys of representative samples. The data are then centrally reprocessed. The geographic fields covered are either the whole world or individual regions. It is with part of these indicators that we compare the grades resulting from the replies to the present questionnaire.

Among all these indicators, we single out the governance indicators produced by the World Bank (Kaufmann *et al.* – 1999 and 2001) from all the rest. This is because these authors compiled their indicators on the basis of the aggregation of indicators emanating from 15 different sources among the indicators listed above. On the assumption that the biases affecting these different indicators are in part independent, the indicators resulting from the aggregation of these elementary indicators must be more robust than the elementary indicators themselves. Moreover, the sample of countries at their disposal covers the totality of the 51 countries in our questionnaire. For these reasons, we took a particular interest in the results of the comparisons of our indicators with those of Kaufmann *et al.*

- Our comparisons were also made on the basis of elementary indicators, whether these were included among those used by Kaufmann *et al.* (WBES, Freedom House, Heritage Foundation, WCY, and PWC) or not (IMF, Transparency International, Reporters without Borders, and Fraser Institute).

In this comparison of indicators, our initial aim was to assess the degree of convergence between those derived from our questionnaire and the other indicators available. When this convergence was not to be found, we analysed the differences between indicators and carried out, on certain conditions described in detail below, the adjustments made to the initial replies to the questionnaire.

### **§3.2. CONVERGENCE BETWEEN OUR INDICATORS AND THOSE OF THE WORLD BANK**

Kaufmann *et al.* break the notion of governance down into six basic concepts :

- a) the process by which the government is appointed, controlled and replaced (Voice and Accountability, K1),
- b) the possibilities for destabilisation of the government by non-legal means (Political Stability, lack of violence, K2),
- c) the government's capacity for formulating and implementing its policy (Government Effectiveness, K3),
- d) the burden of public regulation on the markets (Regulatory Quality, K4),
- e) respect by the citizens and the government for the institutions that regulate their interactions (Rule of Law, K5) ;
- f) the level of corruption (Control of Corruption, K6).

- We carried out a comparison between these six indicators and those indicators in our database that best correspond to the definitions adopted by these authors. This comparison took the form of linear regressions for all the 51 countries present in our database. The results obtained are shown in Table 3.1. below.

**Table 3.1. (n=51)**  
**Comparison of the 6 Kaufmann indicators (columns)**  
**with the variables in the "Institutional Profiles" database (rows)**

	<sup>a</sup> <b>K1</b>	<sup>g</sup> Student's t	<sup>b</sup> <b>K2</b>	<sup>g</sup> Student's t	<sup>c</sup> <b>K3</b>	<sup>g</sup> Student's t	<sup>d</sup> <b>K4</b>	<sup>g</sup> Student's t	<sup>e</sup> <b>K5</b>	<sup>g</sup> Student's t	<sup>f</sup> <b>K6</b>	<sup>g</sup> Student's t
Constant	0.86	(6.45)	1.15	(7.16)	1.38	(9.39)	1.37	(4.14)	0.70	(4.14)	1.60	(18.09)
A100	0.37	(4.75)										
A103	0.22	(2.32)										
A200			0.50	(10.06)					0.24	(4.54)		
A305					0.14	(2.12)						
A307					0.20	(3.46)						
B801					0.18	(3.06)						
B301							0.13	(2.74)				
B405							0.24	(3.77)				
C702							0.10	(2.73)				
A603									0.26	(3.00)		
A605									0.17	(2.60)		
A3030											0.26	(5.42)
A3031											0.17	(3.03)
<sup>h</sup> $\overline{R^2}$	0.77		0.55		0.73		0.48		0.73		0.72	

Notes :

- a. 'Voice and accountability' (K1) is regressed using OLS on the variables 'political right and functioning of public institutions' (A100) and 'public liberties and autonomy of civil society' (A103).
- b. 'Political stability, lack of violence' (K2) is regressed using OLS on the variable 'public security' (A200).
- c. 'Government effectiveness' (K3) is regressed using OLS on the variables 'efficacy of the administration in general' (A305), 'efficacy of the tax system' (A307) and 'efficacy of the customs service' (B801).
- d. 'Regulatory quality' (K4) is regressed using OLS on the variables 'formalities for enterprise creation' (B301), 'administered prices' (B405) and 'regulation of banking competition' (C702).
- e. 'Rule of law' (K5) is regressed using OLS on the variables 'public security' (A200), 'security of transactions between private individuals' (A603) and 'efficacy of commercial justice' (A605).
- f. 'Control of corruption' (K6) is regressed using OLS on the variables 'petty corruption' (A3030) and 'major corruption' (A3031).
- g. All the standard deviations are corrected for the possible presence of heteroscedasticity using the method proposed by White (1980).
- h. adjusted R<sup>2</sup>.

● It turns out that the quality of the correlations depends essentially on the degree of similarity between the concepts defined by Kaufmann *et al* and those used in our database. Four of the six regressions (K1, K3, K5 and K6) show a good match between the contents of the explained and the explanatory variables and have a strongly significant relationship. The two least significant regressions (K2 and K4) relate to concepts for which the match between the two sets of variables is less precise.

All in all, this initial comparison indicates a high degree of convergence between our data and the aggregated data from Kaufmann *et al*.

### §3.3. THE IDENTIFICATION OF BIASES LEADS TO A LIMITED NUMBER OF ADJUSTMENTS

In addition to the indicators from Kaufmann *et al.*, we compared the replies to the questionnaire with indicators from nine other sources.

These were the indicators proposed by: (i) Fraser Institute; (ii) Freedom House; (iii) Heritage Foundation; (iv) Institute for Management Development; (v) Transparency International; (vi) Reporters without Borders; (vii) PricewaterhouseCoopers; (viii) IMF; (ix) World Business Environment Survey.

The comparisons were made for all the items appearing both in our questionnaire and in the various available sources.

- By way of example, we show the regressions for the item ‘property rights’. This item appears in three different external sources. These were then compared with the following replies to our questionnaire: ‘security of contracts between private agents’ (A603), ‘efficacy of non-commercial justice’ (A310), ‘security of formal property rights’ (A601) and ‘independence of the commercial justice system from the parties involved’ (A6051). The results will be found in Table 3.2. below.

**Table 3.2.: Identification of a bias on the item ‘property rights’**

	Fraser Institute	<sup>b</sup> Student's <i>t</i>	Heritage Foundation	<sup>b</sup> Student's <i>t</i>	Institute for Management and Development	<sup>b</sup> Student's <i>t</i>
<i>Constant</i>	0.68	(2.22)	0.56	(2.27)	1.09	(4.58)
<sup>a</sup> A603	0.63	(5.90)			0.33	(3.55)
<sup>a</sup> A310			0.24	(1.90)*		
<sup>a</sup> A601			0.37	(2.25)	0.26	(2.67)
<sup>a</sup> A6051			0.19	(1.63)**		
<i>Number of observations</i>	n = 51		n = 51		n = 37	
<sup>c</sup> $\overline{R^2}$	0.41		0.68		0.66	
<sup>c</sup> ‘Outliers’	<u>LIT</u> , SAR		COL, <u>LIT</u> , ZIM		<sup>d</sup> IND, POL	

**Notes:**

- a. The independent variables are: ‘security of contracts between private individuals’ (A603), ‘efficacy of non-commercial justice’ (A310), ‘security of formal property rights’ (A601) and ‘independence of commercial justice from the parties involved’ (A6051).
- b. All the standard deviations are corrected for the possible presence of heteroscedasticity using the calculation method proposed by White (1980). \*, \*\* correspond to a probability of wrongful rejection of the non-significance of the coefficient corresponding to 6% and 11% respectively.
- c. An outlier is an observation (country) for which the residual of the regression estimated by OLS is greater in absolute value than 1.96 times the standard deviation of the estimated residuals.
- d. Lithuania is not included in the IMD indicator.
- e. Adjusted  $R^2$ .

When countries show several ‘outliers’ carrying the same sign, we are faced with a strong presumption of a bias in our questionnaire. This is the case, here, for Lithuania (LIT), which has a grading in our questionnaire that overestimates the respect for property rights in relation to the two indicators recorded for this country. The grading of Lithuania is therefore the subject of an adjustment in our database.

- Even so, we have not adopted this criterion systematically for carrying out adjustments. In practice, we have chosen to take account also of a country's general position in relation to all the comparisons before modifying an initial grading. In fact, the sum of the biases taking all items and all sources together makes it possible to separate out six countries presenting biases that can be called systematic: Egypt, Indonesia, Russia, Singapore, Venezuela and Zimbabwe. Consultation with the Economic Missions that completed the questionnaire and taking into consideration, yet again, the commentary accompanying the reply, together with a search for supplementary information, made it possible to decide whether or not an adjustment should be made.

In all, it was possible to compare 29 stock variables (out of 85) with indicators that were external to our database, by means of 49 regressions<sup>9</sup>. The adjustment of gradings in a questionnaire nevertheless remained marginal, affecting only 4% of the variables that were compared with the various other sources<sup>10</sup>. It will be noted that only the stock variables were matched by corresponding items in the external bases and were therefore liable to comparison.

- This comparison provides us with an initial verification<sup>11</sup> of the data in our base. The qualitative indicators show strong convergence with the most robust of the other indicators available (those of Kaufmann). Furthermore, the comparison with the other indicators enabled us to identify one-off or systematic biases that we were able to adjust thanks to the supplementary information provided. It is interesting that no geo-strategic biases could be identified on the basis of the comparison of the biases obtained (the residuals of the regressions) with American and French official development assistance.

Even so, these researches fail to identify biases that would be common, for certain countries, to all indicators, including our own.

Furthermore, it is noteworthy that there is a virtual absence of possible comparisons for variables concerning the labour market<sup>12</sup>. This field is in fact less comprehensively covered by the other institutional indicators than those concerning property rights, corruption or the hold of the government over the markets. [Appendix 2](#) shows the scope of the variables in the base that are covered by these comparisons and its dispersion in the table capturing these institutions. This clearly brings out the size of the field covered by our database in comparison to the other sources of institutional indicators.

### §3.4. VALIDATION OF THE QUANTITATIVE QUESTIONS

Finally, five questions in the survey call for a quantitative response: ‘Percentage share of public-sector enterprises in GDP’, ‘Share of private banks in the banking system as a whole expressed as percentage of bank assets’, ‘Share of the five largest banks, private or public, in total bank assets’, ‘Percentage share of informal employment in the labour force’.

Given the difficulties of measuring these variables, the questionnaire provides for two possible types of response: either a percentage or a grading from 1 to 4. A certain number of the responses took the form of an interval. For some countries, the questions were not answered.

<sup>9</sup> It was possible to compare certain variables in our database with more than one external indicator (an example being ‘corruption’, which is covered by 6 of them).

<sup>10</sup> 61 country-variables were adjusted out of the 1479 country-variables concerned (29 variables x 51 countries).

<sup>11</sup> Following the work on the variables taken individually, the exploration of the base itself through exploratory data analysis (on the data taken as a whole) was to provide another type of verification.

<sup>12</sup> Only 2 regressions (out of 49) were performed on these data. Furthermore, their quality turned out to be fairly low.



For these quantitative variables, the aim was to harmonise and above all to complement the information gathered from the questionnaire, rather than to evaluate convergence with other indicators. External sources<sup>13</sup> made it possible to attain this objective. The quantitative data were in the end coded from 1 to 4 in steps of one half (by an arrangement in sextiles) in order to standardise the variables in relation to the qualitative data. *A priori*, this operation leads to a loss of information, but the precision of the original quantitative data is not high, given the measurement difficulties referred to above.

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<sup>13</sup> The information was collected from 'Economic Freedom of the World 2001' ('Fraser Institute'), the 'Transition Report' (EBRD), from 'A New Database on Financial Development and Structure' (Beck, T., Demirgüç-Kunt, A. and Levine, R. – June 1999 – World Bank, Minnesota University), from "Dodging the Grabbing Hand: The Determinants of Unofficial Activity in 69 Countries" (Friedman, E., Johnson, S., Kaufmann, D. and Zoido-Lobaton, P. - Journal of Public Economics - June 2000) and from 'World Development Indicators' (World Bank).

**EXPLORATION OF THE INSTITUTIONAL DATABASE  
AND ANALYSIS IN COMBINATION WITH SOCIO-ECONOMIC DATA**

Having described the overall approach (Section 1) and then the variables (Sections 2 and 3), we now go on to deal with the *exploration* of the database itself (Sections 4 and 5).

Our aim in the following sections is twofold: 1) to reveal *the internal structure* of the set of data, their consistency, the interrelationships revealed, the types of institutional profiles that can be derived and 2) to place these institutional data in relation to economic variables so as to present, in summary fashion, *some of the specific contributions by the database* to the analysis of the interactions between institutions and economic development.

To carry out this exploration, we used various instruments of Exploratory Data Analysis (EDA) and econometrics, in an attempt to extract the particular information provided by each of them, then to cross-tabulate this information in order to present a first set of results. As an instrument of multi-criterion analysis, free of inference, exploratory data analysis is particularly well suited to this preliminary exploration work. A similar approach is adopted by Nicoletti *et al.* (2000) to analyse market regulation in a set of OECD countries.

In this presentation of the database, our approach has been conceived as an introduction to more in-depth research on the links between institutions and development, a research which, we hope, can be carried out in a wide number of locations.

- In a first stage, we look for the ways in which the main groups of variables (the 9 chapters) are organised in relation to each other, in order to bring out their structure in terms of potential institutional complementarities. These groups are then compared with indicators of economic performance, in order to have an initial idea of their respective influences on development (Section 4).
- We then go on to make a detailed analysis of the variables themselves. We first analyse separately the institutional variables and the socio-economic variables of the countries concerned. We then go on to combine the two sets of variables to bring out, step by step, the families of 'institutional profiles' (Section 5).

**Instruments of exploratory data analysis, nature of the variables, size of sample:**

- The EDA instruments used here are Principal Component Analysis (PCA) and Multiple Factorial Analysis (MFA), which is an extension of PCA. These instruments measure the *linear* form of the dependence between the variables. In order to capture possible non-linear relationships, users of the database can turn in particular to Multiple Correspondence Analysis (MCA) using discrete variables: elementary items or aggregated variables, reclassified into qualitative characters by being put in disjunctive form.
- Data analysis in this case has been carried out using three-digit variables, derived from aggregation of four-digit qualitative variables given gradings of discrete values ranked from 0 to 4 (or from 1 to 4). The combination of the aggregation (which tends to smooth the variables) with their ordering makes it possible to assimilate these three-digit variables to *continuous quantitative* variables. The quality and stability of the results obtained using PCA and MFA confirm the applicability of this approach.
- All the analyses have been carried out taking the complete sample of 51 countries in the database (analysis on a sample excluding the developed countries gave very similar results).

**SECTION 4. THE ANALYSIS OF ‘GROUPS OF VARIABLES’ REVEALS THE EXISTENCE OF AN INSTITUTIONAL CORE AND CONFIRMS THE INFLUENCE OF INSTITUTIONS ON THE LEVEL OF DEVELOPMENT**

Restructuring of the institutional field into nine families of variables was the main constituting element, at the earliest stage, in the construction of the database: these nine groups (or chapters) in fact provide the structure of the questionnaire for the collection of data. We now put forward two methods for analysing the database structured in this way.

- A first analysis of the information contained in the base can be carried out using a factorial method suitable for a set of data structured into groups: this is multiple factorial analysis (MFA) which makes it possible to deal with the various chapters simultaneously and in combination.
- The institutional characteristics are then compared with the level of economic development in order to determine the strength of the statistical link between these two types of variable. However, it is known that these two families of variable are affected by an *endogeneity bias*: comprehensive and properly-functioning institutions are favourable to economic development, which in turn permits and leads to the development of new institutions (Aron – 2000). The comparison of the data is as a result performed using a convergent estimation method making it possible to interpret the estimated relationships according to causal rules: this is the ‘two-stage least squares method’ (2SLS), a title which refers to the instrumental variables.

**§ 4.1. ANALYSIS OF THE GROUPS USING MFA REVEALS AN ‘INSTITUTIONAL CORE’.**

Multiple factorial analysis (MFA) is generally interpreted as an analysis in terms of principal components, apart from the fact that it brings in a third type of object alongside the individuals (countries) and the variables, namely the *groups of variables*, in other words in the case shown here the 9 chapters of ‘stock’ variables that provide the structure for the database. These constitute the active MFA variables, while the dynamic variables are introduced as a group of illustrative variables<sup>14</sup>. The aim of this analysis is to try to find a unique set of representations of which it can be said that it constitutes a global summary, or again a ‘compromise’ between all nine chapters.

In an MFA, the variables in each group are weighted in such a manner that each group has the same weighting as the others<sup>15</sup>. MFA is therefore particularly suitable for this part of the research since it provides specific results regarding the structure by groups that has been adopted.

The aim of MFA is therefore to make inter-comparisons between the different chapters. In order to make these comparisons, one has to have an idea of proximity between two chapters and then try to find a graphic representation making it possible to identify chapters that resemble each other and chapters that differ from each other. This proximity can be captured initially on the basis of

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<sup>14</sup> In the various kinds of factorial analysis, those variables that participate in the definition of the axes are known as *active variables*. The *illustrative* (or *complementary*) *variables* do not meet this definition and are projected on the space created by the active variables.

<sup>15</sup> To be more precise, an MFA consists of a principal component analysis (PCA) for the groups: each variable of a single group is weighted by  $1/\sqrt{\lambda_1^k}$  where  $\lambda_1^k$  is the first eigen value of the PCA carried out on the variables of group  $k$  of variables. All the variables in the same group then carry the same weight and the maximum axial inertia of each point sub-cloud  $k$  is then equal to 1. This weighting method means that no group on its own can generate the first axis. Taking these groups into consideration provides a more detailed interpretation than a standard PCA, in other words one that is not normalised. The originality of MFA is in fact that it can identify factors that are at the same time common to groups of variables and representative of the directions of strong inertia of these groups. See, for example, Escofier and Pagès (1990).

the RV coefficient of comparison that is in some ways similar to a coefficient of vectoral correlation.

Table 4.1. below shows the coefficients linking the various groups, active and illustrative, in pairs. On the MFA row of the table, the RV coefficient measures the proximity of each of the groups to the set of variables (for example, the group that best ‘represents’ the set of variables is group 6, with a coefficient of 0.844 in the MFA row).

**Table 4.1: MFA on 9 active groups (85 variables)  
and 1 illustrative group (30 variables)**

*RV coefficients between institutional indicators and with the MFA*

	Ch. 1	Ch. 2	Ch. 3	Ch. 4	Ch. 5	Ch. 6	Ch. 7	Ch. 8	Ch. 9	(Ill. Group)	MFA
Ch. 1	1										
Ch. 2	0.216	1									
Ch. 3	0.408	0.300	1								
Ch. 4	0.439	0.174	0.495	1							
Ch. 5	0.398	0.300	<b>0.816</b>	0.371	1						
Ch. 6	0.414	0.237	<b>0.803</b>	0.554	<b>0.756</b>	1					
Ch. 7	0.472	0.264	0.608	0.531	0.620	0.691	1				
Ch. 8	0.585	0.142	0.377	0.588	0.329	0.469	0.503	1			
Ch. 9	0.353	0.305	0.591	0.368	0.592	0.554	0.467	0.341	1		
(Gr. Ill.)	(0.384)	(0.234)	(0.477)	(0.467)	(0.429)	(0.492)	(0.556)	(0.538)	(0.399)	1	
AFM	0.657	0.461	<b>0.830</b>	0.703	<b>0.795</b>	<b>0.844</b>	<b>0.801</b>	0.669	0.708	(0.616)	1

Note: The chapters of ‘stock’ variables 1 to 9 were chosen as the active group, while the group of ‘flow’ variables was introduced as an illustrative group (figures shown in brackets). Correlation coefficients greater than 0.75 are shown in bold.

- First of all, it will be seen, as shown by the matrix of RV coefficients for the comparison of groups, that the most strongly interlinked chapters are 3 (public governance), 5 (innovation, technology, preparation for the future), 6 (security of transactions), and, to a small extent, 7 (regulation, corporate governance, social dialogue). This initial result suggests that these four major themes constitute the *structuring core* of the countries’ institutions, within which there should exist the strongest institutional complementarities. This result is confirmed by looking at the liaison coefficients between the structure derived from MFA and each of these chapters (figures in bold in the MFA row of the table): these four chapters are those that best represent the institutional identity of the countries as measured by all the variables.

On the other hand, the other themes: 1 (Political institutions), 8 (Openness), 9 (Social cohesion) and especially 2 (Security and law and order), show a looser relationship to the themes in the core. Chapter 2 in fact shows RV coefficients with the other chapters that are the lowest of all (0.461 in the MFA row of the table). In other words, the point-cloud obtained by PCA on chapter 2 is very different from the overall point-cloud derived from MFA, signifying that a given level of security can co-exist with highly diverse institutional configurations. On the other hand, for each of the other chapters, the representativity is fairly good (above 0.65 in all cases).

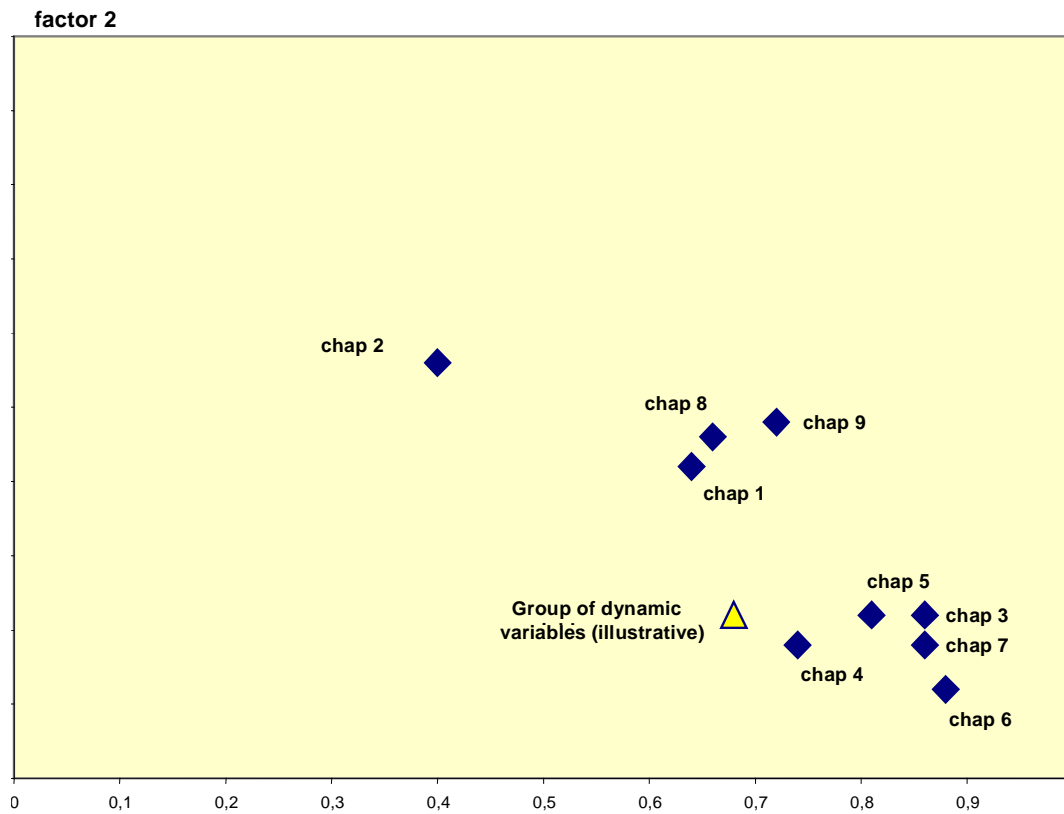
These initial results, placing Public Governance, Innovation, Security of transactions and Regulation (forming the ‘institutional core’) at the centre of the major characteristics of institutional development, provide support, on the basis of a quantified evaluation, for the developments in the literature regarding the *respective importance* of different institutions in the

development process, without however showing the direction of causality (Burkhart *et al* – 1994, Mauro – 1995, Knack and Keefer – 1995, 1997, Barro – 1996).

- Lastly, in the space defined using MFA on the nine groups of active variables, the group of ‘flow’ variables, making it possible to capture in a global manner the dynamics of reform, is projected as an illustrative group. This group is the one most closely linked to Chapters 7 (regulation, corporate governance, social dialogue) and 8 (openness to the outside world) albeit with RV coefficients below 0.6. Then come Chapters 6 (security of transactions), 3 (public governance), 4 (markets’ operating freedom) and 5 (innovation, technology, preparation for the future) with RV coefficients of between 0.4 and 0.5.

On average, the fact that the RV coefficients of these flow variables are lower than for the stock variables was to be expected: countries with a high level of institutional development have, *a priori*, experienced in the past three years a slower rate of reform than a number of emerging countries where the markets for goods and for capital are in the course of being liberalised.

**Graph 4.1: MFA of the institutional variables (9 active groups, 1 illustrative group)**  
*Interstructure: A representation bringing out similarities between the different chapters.*



Ch. 1: Political institutions and civil liberties.	Ch. 2: Security of persons and goods.	Ch. 3: Public governance.
Ch. 4: Markets’ operating freedom	Ch. 5: Innovation, preparation for the future	Ch. 6: Security of transactions.
Ch. 7: Regulation.	Ch. 8: Openness	Ch. 9: Social cohesion.

Note: Representation of groups on the basis of the cumulative inertia of the variables in each group on the first MFA plane.

- Graph 4.1. above, on which are represented on the MFA first plane the nine groups of ‘stock’ variables as well as the ‘flow’ group as illustrative variables, complements the results of the previous table.

– **The first factor emanating from MFA (axis 1)**, on which 38% of the total variance is projected, turns out indeed to show strong commonality between Chapters 3, 5, 6 and 7, with RV coefficients associated with each of these chapters higher than 0.9. However, it is also strongly present in Chapters 1 (political rights and civil liberties), 4 (freedom of functioning of markets), 8 (openness) and 9 (social cohesion), with correlations between this first factor and each of these groups higher than 0.8. Only Chapter 2 (law and order, security of goods and of persons) makes a smaller contribution to the formation of axis 1. This result is corroborated by the high values of the co-ordinates of groups 3, 5, 6, and 7 along the first factor, showing that the latter is strongly linked to a large number of variables in each of these chapters.

In other words, there exists a very similar direction of dispersion in these four chapters and particularly between Chapters 3 (public governance) and 7 (regulation, corporate governance). On much the same lines as the RV coefficients shown in Table 4.1, the co-ordinates of these groups along the axes can in fact be considered as measures of the linkage between the various groups and the corresponding factors.

– **The second factor (axis 2)**, which captures 8% of the total variance, is, for its part, the most strongly correlated with Chapter 2 -which therefore makes a strong contribution to the formation of the second axis- together with Chapters 9, 8 and 1 at levels of 19.5%, 16.8%, 16.2% and 15% respectively. These two first axes contribute to a cumulative percentage of inertia of around 46%.

#### §4.2. A MEASURE OF THE LINK BETWEEN INSTITUTIONS AND ECONOMIC DEVELOPMENT.

Like Hall and Jones (1999) and Kaufmann *et al* (1999), we next tried to see whether there exists a significant causality link between institutional development as measured and structured in the present database (Chapters 1 to 9) and the level of economic development.

For this purpose, we start by aggregating the information present in each chapter, retaining only what is taken into account by the first principal component emanating from the original point-cloud in each of these chapters<sup>16</sup>.

- By way of illustration, it is interesting, as a first step, to show, as in Graph 4.2, the simple linear relationships obtained by ordinary least squares (OLS) between the nine institutional indicators calculated in this way and the variable chosen to measure the level of economic development: log GDP per capita, expressed in PPP, in 2000. Leaving aside differences in the position of each of these countries in the nine graphs shown, there are seen to be substantial differences in the quality of the regressions – as shown by the  $R^2$  – of the chosen indicator of economic development with regard to the various institutional themes.

Themes 3 (public governance), 5 (innovation, technology, preparation for the future), 6 (security of transactions) and 9 (social cohesion) are those most closely linked to the development indicator, a result which in the case of the first three themes ties in with the conclusions of, among others, Mauro (1995) and Knack and Kiefer (1997). Conversely, themes 1 (political rights and civil liberties) and 2 (security of goods and persons) turn out to be more weakly linked to the levels of economic development (Alesina and Rodrik – 1994). Economic history makes it possible to provide at least a partial picture of the complex link between these factors. For example, the economic takeoff of South Korea took place under an authoritarian regime, as was the case for Turkey. Theme 8 (openness) also turns out to have only a weak link, at least linearly, with the level of development, a result that is consistent with those of Rodrik (2002).

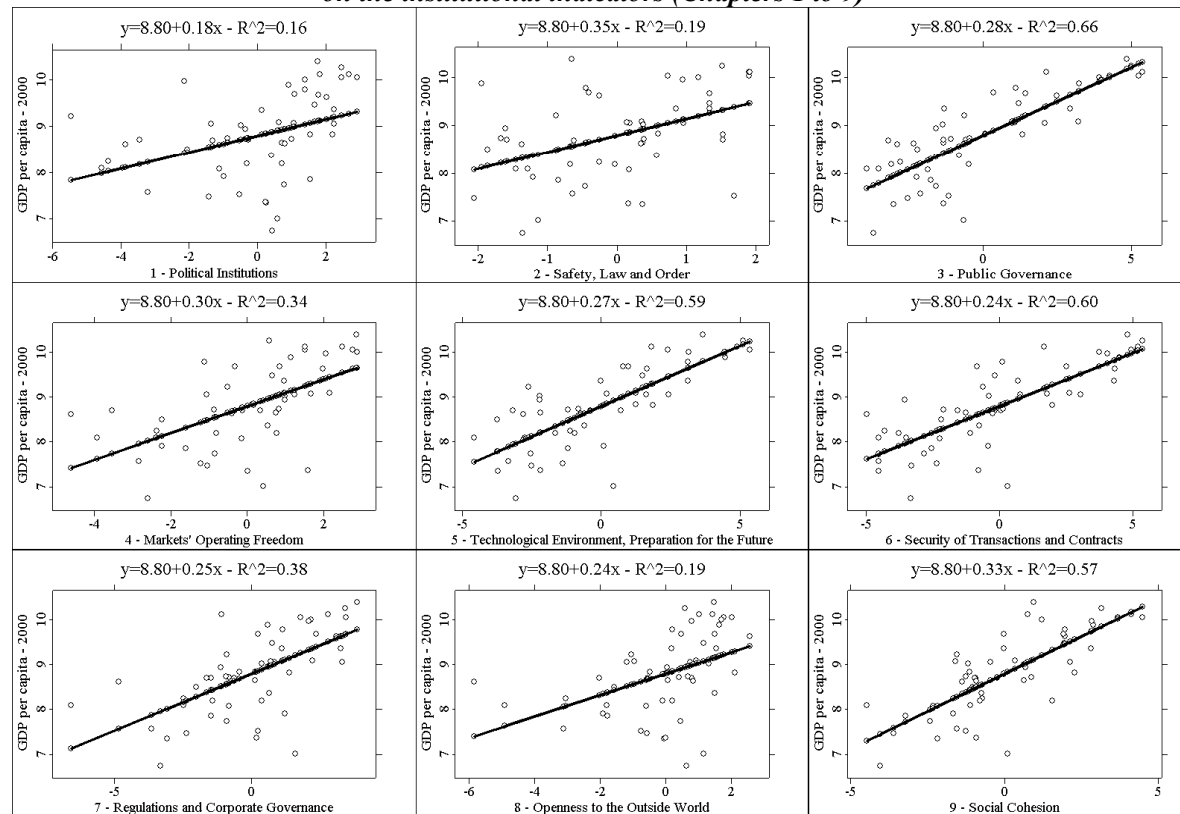
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<sup>16</sup> Empirically, we find that this method of aggregation leads to results close to that adopted for aggregating the elementary items (mean weighted by standard deviations).

In between these two families of variables, themes 4 (markets' operating freedom) and 7 (regulation, corporate governance, social dialogue) have intermediate  $R^2$ . And it is precisely in these fields that a substantial part of the economic reform is concentrated: liberalisation of markets (for prices and interest rates), introduction of regulation, etc, whose results are not as yet clearly established in terms of the impact on the level of development.

**Graph 4.2: Institutional indicators and levels of income per head**

**OLS regressions of log income per capita (GDP p.c. expressed in PPP) in 2000 (Source: Chelem) on the institutional indicators (Chapters 1 to 9)**



- These relationships enable us to summarise the strength of the *linear* statistical link between our two variables. However, they do not allow us to bring out a causal relationship between the various institutional indicators and the level of development. This is because the models are estimated on the basis of explanatory variables (the 9 institutional chapters) that are themselves influenced by the explained variable (the level of development in 2000) and this introduces an endogeneity bias into the estimates.

In order to establish a deterministic relationship between institutional and economic development, we now apply the instrumental variable estimation procedure. To be more precise, this is the two-stage-least-squares (2SLS) method as described, for example, in Robin (1999).

For this purpose we have adopted the instruments used by Hall and Jones<sup>17</sup>, to which we have added other instruments : the logarithm of the number of years of independence and the literacy rate in 1970<sup>18</sup>.

<sup>17</sup> Hall and Jones (1999) used as instrumental variables the following: the fraction of the population speaking English, the fraction of the population speaking a European language, the latitude and the Frankel-Romer index representing the logarithm of the share of external trade in the economy. The latter had to be eliminated because of too many gaps in the data for our sample of countries. The choice of the first two, for their part, is justified by the fact that this influence is generally accompanied by institutional and cultural links.

In order to express a country's level of development, we have taken GDP per capita on a PPP basis in 2000<sup>19</sup>. The results are presented in recapitulative Table 4.2 below.

**Tableau 4.2: 2SLS regressions of levels of income per head (n=51)**

Dependent variable: log income per head (GDP p.c. in PPP) in 2000 (source : Chelem-CEPII)					
	<sup>c</sup> 2SLS		<sup>c</sup> F-test	<sup>a</sup> p-value	<sup>a, b</sup> Instruments
	$\beta$	<sup>a</sup> Student's t	(Instrumental regression)	(Test of exogeneity)	(Test of invalidity)
1. <sup>d</sup> Political rights and civil liberties (70.5%)	0.524	8.239	9.033	0.000	Z <sub>1</sub> Z <sub>3</sub>
2. Law and order, security of persons and goods (64.0%)	1.356	8.802	3.725	0.000	Z <sub>1</sub> Z <sub>2</sub>
3. Public governance (61.5%)	0.418	10.048	7.459	0.005	Z <sub>1</sub>
4. Markets' operating freedom (45.0%)	0.583	8.599	8.042	0.000	Z <sub>3</sub>
5. Innovation, technology, preparation for the future (61.5%)	0.392	8.773	8.227	0.001	Z <sub>3</sub>
6. Security of transactions and contracts (47.5%)	0.328	9.174	9.512	0.004	Z <sub>3</sub>
7. Regulation, corporate governance and social dialogue (35.0%)	0.480	8.731	7.363	0.000	Z <sub>3</sub>
8. Openness to the outside world (57.0%)	0.669	7.886	7.612	0.000	Z <sub>1</sub> Z <sub>3</sub>
9. Social cohesion (42.5%)	0.412	7.828	14.944	0.047	-

**Notes:**

a. All the standard errors of estimate are corrected for the possible presence of heteroscedasticity according to the calculation method proposed by White (1980).

b. This column gives the list of non-valid instrumental variables at the 5% significance level. The complete list of instrumental variables used in the first stage is as follows: Z<sub>1</sub>, fraction of the population speaking English, Z<sub>2</sub>, fraction of the population speaking a European language (Source: Hall and Jones), Z<sub>3</sub>, latitude (Source: CIA), Z<sub>4</sub>, literacy rate in 1970 (percentage of the population aged more than 15 -- Source: WDI), Z<sub>5</sub>, logarithm of the number of years of independence (source: CIA).

c. Fisher statistics of the instrumental regression as well as the augmented regression are obtained uniquely on the basis of validated instrumental variables.

d. The variable used in the instrumental regression is the first principal component calculated from the variables making up the original point-cloud of the corresponding chapter. Figures between brackets show the inertia percentage of this component.

The results shown in the fourth column confirm our assumption regarding the presence of an endogeneity bias. Indeed, none of the first principal components associated with each of the institutional indicators chosen can be considered as exogenous at the 5% threshold.

<sup>18</sup> It is worth pointing out here that the (logarithm of) the number of years of independence can be considered as a variable that is complementary to the variables indicating European influence, such as the shares of the population speaking English and/or a European language. It is in fact an increasing function of the country's aptitude to produce influence as in the case of European countries or, on the contrary, to resist this influence by its 'cultural strength', as, for example, in the case of China and Japan.

<sup>19</sup> Analysis based on mortality before the age of five gives similar results which are available on request.



The probability of wrongly rejecting the assumption of exogeneity is nil or virtually nil for all the indicators. It is highest for the social cohesion indicator and this is in fact the one that comprises the most disparate information regarding complex realities. The last column of each table lists the instruments that have to be rejected after application of a combined admissibility test, in other words for exogeneity, of the instrumental variables.

In this respect and after taking account of the possible presence of heteroscedasticity, it should be noted that the shares of the population speaking English and/or a European language do not in most cases constitute valid instruments. This is also the case of the latitude, which has often to be excluded, on the lines of the results obtained by Kaufmann *et al* (1999). The two instrumental variables that we have introduced (literacy rate in 1970 and the log of the number of years of independence) are never invalidated, by contrast. The use of these variables as instruments seems to be appropriate, given the relatively high values taken by the Fisher statistics of the various instrumental regressions (column 3).

In view of the results shown in the first two columns, the results of the estimation by 2SLS are clear. There exists, as found by Hall and Jones and Kaufmann *et al*, a strong and significant causality relationship, i.e. a deterministic relationship, between the nine institutional indicators chosen and the two dependent variables measuring the level of development achieved by the various countries making up our sample.

A subsequent stage of research might consist of identifying, within a *multiple regression*, the marginal impact of each of these chapters on the two development indicators chosen, in other words – all other things remaining equal – within the other chapters. It would be advisable beforehand to find a space of instrumental variables of dimension greater than or equal to that of the explanatory variables (the 9 chapters).

In the light of the definition provided by Ernst (2003) of institutional complementarities, this further work could in fact constitute a first approach to the *combined effect* of the various institutional components on the level of economic development.

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**SECTION 5. ANALYSIS OF THE INSTITUTIONAL VARIABLES COMBINED WITH THE SOCIO-ECONOMIC VARIABLES REVEALS THE EXISTENCE OF ‘INSTITUTIONAL PROFILES’**

We continue the exploration of the database with a combined analysis of the institutional field (Q) and the structural field (S), the latter being formed of a set of variables describing the socio-economic characteristics of the countries concerned.

The aim of this section is to analyse the structures that can be discerned within each of these two sets of data, followed by those resulting from taking them into account *simultaneously*.

Given the large number of variables in each of the two sets, we choose to constitute two new smaller bases, one institutional (Q) and the other structural (S).

The reduction of the two bases is carried out by applying Principal Component Analysis (PCA) to the initial data. For the institutional variables (Q), we proceed to carry out an *aggregation* of the data in the base, respecting the structuring into 9 chapters as previously, but also the breakdown into 4 sectors. The aggregation is carried out, in the same way as for the elementary items in the questionnaire, by weighting the variables by their standard deviations. In the case of the structural variables (S), we proceed rather by *selection*, also using PCA. The variables selected are those whose contribution to the inertia of the point-cloud is greatest.

***In total, the breakdown of the different variables on which a combined analysis (Q,S) is carried out is the following:***

	<i>Original bases</i>	<i>Reduced bases</i>
<i>in Q:</i>		
<i>Q1</i>	85 institutional ‘stock’ variables	45 ‘stock’ variables
<i>Q2</i>	30 institutional ‘flow’ variables	13 ‘flow’ variables
<i>in S:</i>		
<i>S1</i>	78 socio-economic variables	31 socio-economic variables
<i>S2</i>		10 socio-economic variables lagged by 30 years

Taking the bases reduced in this way, we first carry out an analysis of each of the Q and S fields (§5.1. and §5.2., respectively), before going on to merge the two sets of variables Q and S using two procedures: projecting illustrative S onto active Q (§5.3) and then analysing the point-cloud formed by active Q and S (§5.4.). The data analysis instrument used here is PCA.

**§5.1. ANALYSIS OF THE INSTITUTIONAL VARIABLES (Q) LEADS TO A FIRST TYPOLOGY OF COUNTRIES BY MAJOR INSTITUTIONAL FAMILIES: THE ‘AUTHORITARIAN-PATERNALISTIC’, THE ‘MILD LIBERALS’, THE ‘PURE LIBERALS’ AND THE ‘INFORMALS’.**

Taking a stage further the analysis of institutional variables carried out in Section 4, which highlighted the correlations *between the 9 families of variables*, we now chose to work on the basis of a table of data reduced to 45 variables and not structured according to chapters (cf. [Appendix 3](#) for the list of variables).

PCA on Q takes as *active* variables the 45 ‘stock’ variables (Q1), the 13 ‘flow’ variables (Q2) being *illustrative*. Fifty per cent of the variance of the point-cloud is concentrated on the first two axes. One can therefore see the two major institutional tendencies taking shape.

- **The first axis, which accounts for 41% of the total variance**, brings into opposition two families of social regulation: those where it is taken care of by the government and modern institutions, providing a high degree of security of contracts, and those where it is ensured by traditional bodies within society.

In fact, the variables best represented on this first axis are, towards the left<sup>20</sup>:

- the transparency of public action, the efficacy of administration, the mastery of corruption, these three variables forming part of *public governance*, Chapter 3;
- formal property rights, security of commercial and financial transactions, these variables forming part of *security of transactions*, Chapter 6;
- regulation of competition on the markets for goods and services and in the financial sector, these two variables forming part of *regulation of markets*, Chapter 7;

and, towards the right:

- traditional types of solidarity and subsidies for basic products, the latter constituting an elementary form of social safety net in the absence of formal types of solidarity. These two variables form part of *social cohesion*, Chapter 9.

- **The second axis, which captures 9% of the total variance**, contains two opposing types of social organisation: those that give preference to individual liberties and those that favour collective security.

On this second axis, the variables that are best represented are, towards the bottom:

- freedom of circulation of persons and of information, trade union freedom, pluralism of the media;
- micro-lending and,

towards the top:

- internal security of persons and goods, security of employment contracts, efficiency of labour dispute tribunals, low proportion of informal labour, social mobility on merit.

Finally, the first axis opposes clearly two types of social organization : community-based societies and law-based societies. The second axis illustrates another opposition between security and liberty. Security can be provided by the rule of law or by an authoritarian State. Liberty can be protected by formal laws or organised by informal rules.

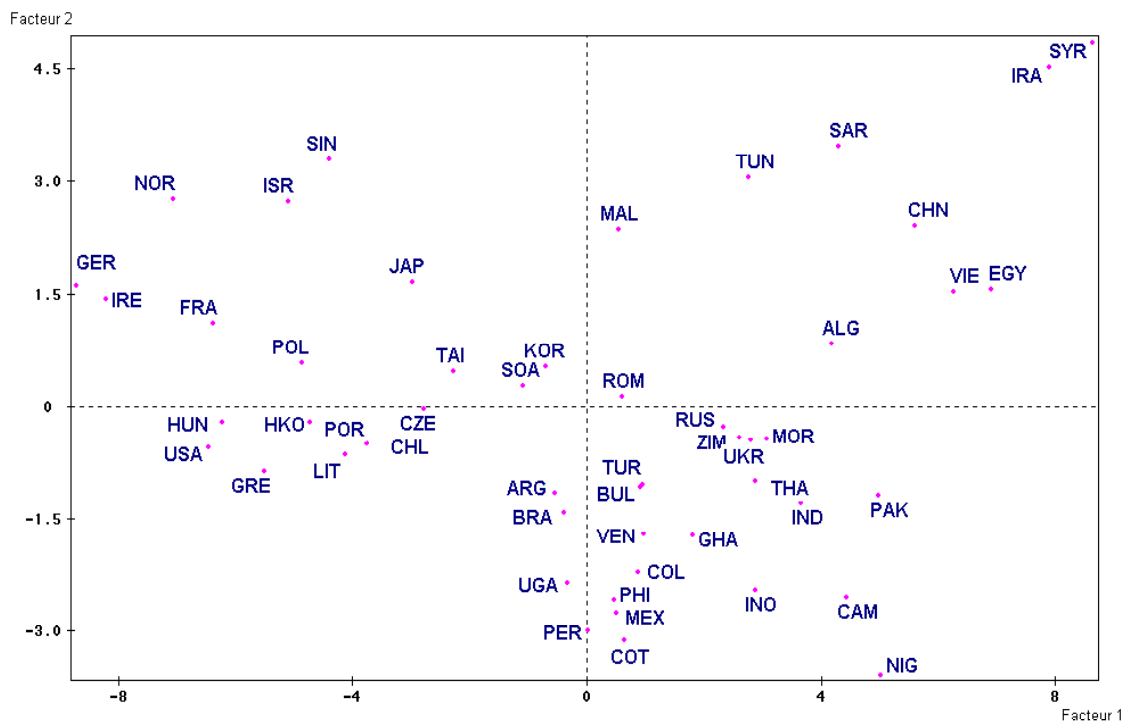
It should be noticed that community-based societies provide strong traditional solidarity but freeze initiatives. Breaching the laws is frequently more accepted than breaking the community links.

The representation of countries in this first factorial plane makes it possible to illustrate this analysis (Graph 5.1 below).

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<sup>20</sup> The projection of the variables or individuals on the positive or negative parts of the axes is totally arbitrary, with the programme choosing the direction of the axes in unguided fashion.

**Graph 5.1.: FOUR MAJOR INSTITUTIONAL FAMILIES**  
**PCA on (Q1) (45 institutional 'stock' variables).**  
**Projection of 51 countries on the first factorial plane**



By analysing the positions of countries (and of variables) in each of the quadrants, it is possible to sketch out a preliminary typology of institutional profiles making it possible to corroborate and to take a stage further the notion of 'structuring core' introduced above and especially the relative influence of the various chapters on the formation of the first factorial plane as shown in Graph 5.1.

- **The institutional profiles in the Northeast quadrant can be termed 'authoritarian-paternalistic'.**

The institutions combine strength of tradition and security for the inhabitants with public action of low efficacy. Not that government is weak. On the contrary, it exerts close control of its citizens or its subjects: civil society has very limited autonomy; the circulation of persons and the plurality of information sources are severely reduced. The government also controls the functioning of markets, which remain relatively unopened. However, it derives its legitimacy from other sources than those of culture and efficiency, in some cases through the redistribution of the oil rent. Tradition places serious curbs on social mobility.

The countries that are most characteristic of this institutional type are Syria, Iran, Saudi Arabia, Vietnam, Egypt and China, where the one-party system seems to be not just a simple survival from the past but to be consistent with a specific institutional combination.

- **The institutional profiles of the North-west quadrant correspond to 'mild liberalism'.**

In this case governments are involved and free of corruption. They ensure, more or less adequately, the security and protection of their citizens through proper application of the law. Social mobility on merit prevails. Security of transactions and of property rights goes hand-in-hand with an efficient public administration. Society looks to the future and invests accordingly.

This corresponds to the European social model (France, Germany, Norway), but also to different profiles such as those of Japan, Israel and Singapore. Countries as diverse as Taiwan, Poland and South Korea come close to this model.

- **The institutional profiles in the South-west quadrant correspond to ‘pure liberalism’.**

In these cases, the societies are open to the outside world and have high-quality public institutions. These characteristics are combined with individualistic social behaviour and ones that are relatively unprotective. But this quadrant is special in that most of the countries are concentrated close to the axes: no country has both these characteristics simultaneously and to a high degree – as if it were difficult to combine government performance with societies that are highly open, individualistic and pluralistic.

The countries lying in this quadrant are very heterogeneous, ranging from those that are efficient and provide little protection (such as the United States, Chile and Hungary) to ones that are much less efficient within societies where the opportunities are relatively open but the risks are high (such as Peru and Uganda), given the weakness of traditional forms of solidarity.

- **The institutional profiles in the Southeast quadrant can be termed ‘informal’.**

In this case governments are relatively absent from economic life and inefficient, while traditional forms of society are active for those countries furthest to the right of the quadrant, providing security (but also rigidities) that partly make up for the public deficiencies. Political, economic and social rights are not guaranteed to citizens, but the most dynamic of them can benefit from openness, opportunities and areas of freedom. This is the case, in particular, of Nigeria, Indonesia, Thailand and Cameroon.

The countries in this quadrant lying closest to the vertical axis (Turkey, Bulgaria, Venezuela, Colombia, Philippines, Mexico, Cote d'Ivoire) nevertheless experience high social risks: traditional forms of solidarity have been eroded while institutional forms are very limited. They mainly share this characteristic with the countries close to the axis in the Southwest quadrant (Argentina, Brazil, Uganda, Peru).

**§5.2. ANALYSIS OF THE STRUCTURAL VARIABLES (S) MAKES IT POSSIBLE TO IDENTIFY THREE MAJOR GROUPS OF COUNTRIES ACCORDING TO THEIR LEVEL OF DEVELOPMENT AND THEIR GROWTH RATE, BUT PERMITS LITTLE DISCRIMINATION AMONG MOST OF THE INTERMEDIATE COUNTRIES.**

We proceed along similar lines with the structural variables (S), within which we denote by (S1) the contemporaneous values of the institutional variables and by (S2) those of the variables lagged by 30 years in order to capture the trace of long-term evolutions.

- **The results of PCA for the S1 variables** (the S2 variables being illustrative) bring out the following main lessons.

– **The first axis, accounting for 36% of the total variance**, opposes incomplete demographic transition to human development. Social and demographic variables are much better represented along this axis than the economic variables. Axis 1 discriminates between countries according to their *levels* of development.

– **The second axis, accounting for 12% of the total variance**, opposes economic structures of countries with a temperate climate – and whose development goes back a long way – to the

economic structures of the emerging countries, which are more dynamic. The internal economic variables are particularly well represented along this axis. Axis 2 discriminates between countries according to the *pace* of their development (growth).

– **The third axis, which accounts for 10% of the total variance**, characterises the modes of insertion in the international economy: on the one side the large economies with more manufacturing and on the other countries enjoying economic rent, where huge structural surpluses on the public and external accounts are combined with substantial domestic inequalities.

**The examination of the projection of the countries** on the factorial planes completes this analysis (Graph 5.2 below):

– **On the first factorial plane (axes 1 and 2):** the first axis opposes countries with a high level of development, notably in Europe and Asia, to countries of sub-Saharan Africa. Countries in Latin America, the Middle East and the Mediterranean area are in an intermediate position. The second axis opposes the countries of Western, Central and Eastern Europe to countries in Asia whose development has been more recent and which enjoy rapid growth, such as Singapore, Hong Kong, China and Malaysia.

The ‘flight of the wild geese’, led by Japan, gives an image of the ongoing convergence movement. The first ring of countries (Korea, Taiwan) lies just behind Japan, the second (Hong Kong and Singapore) lies very high on the axis for economic dynamism. Then comes a third ring: Thailand, Malaysia and China. Finally we have Indonesia, the Philippines and Vietnam. This disposition corresponds fairly closely to successive movements in manufacturing FDI over more than 30 years, starting with Japan and then with the countries in the first ring and finally the other countries. It is notable that the socio-economic characteristics of Ireland place this country at the heart of the ‘flight’, close to Korea and Taiwan.

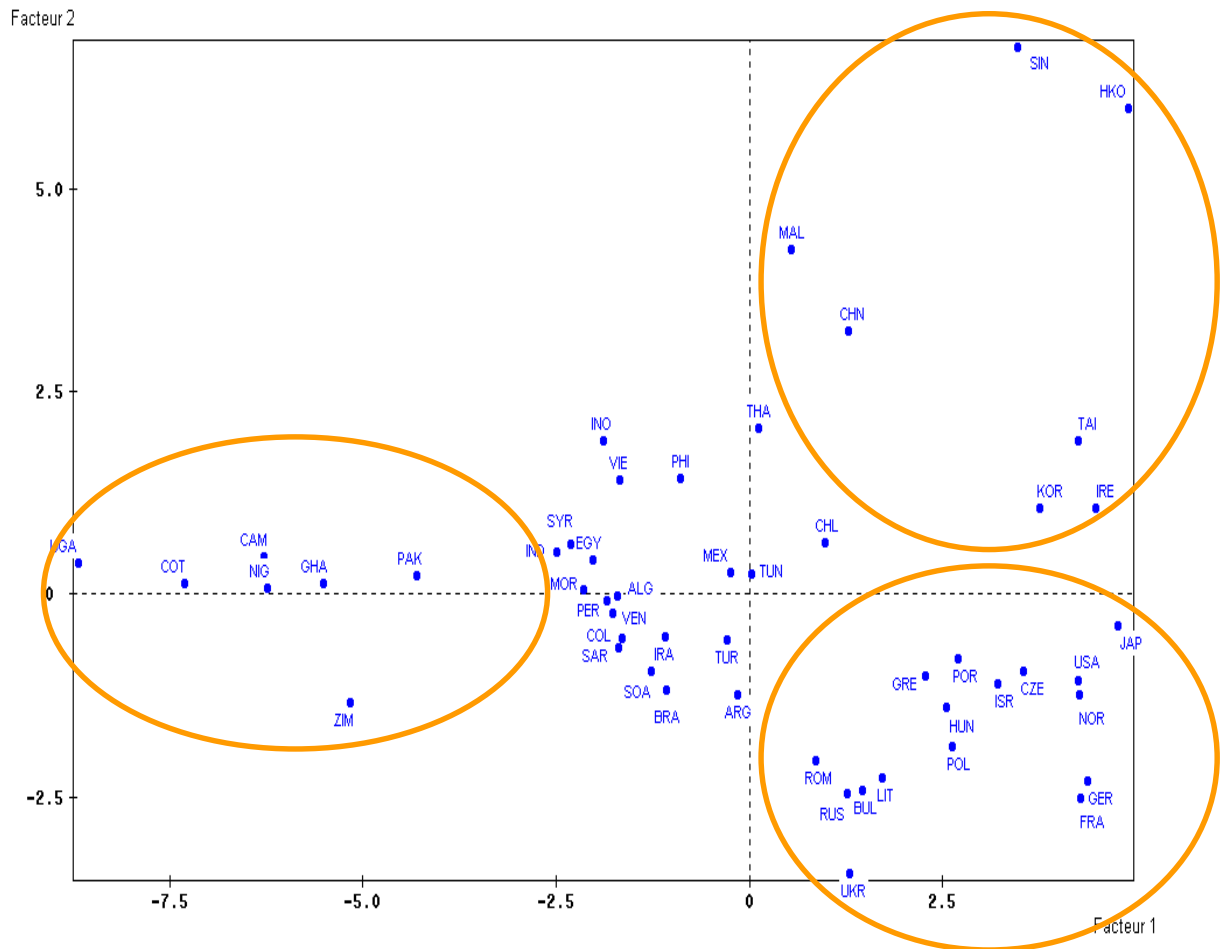
The countries of Central and Eastern Europe are fairly close to each other (in terms of projection on this plane), but it is possible to discern a progression, albeit faint, leading from Romania, Russia and Bulgaria towards Poland and then the Czech Republic.

The African countries also lie along a fairly distinct trajectory as regards human development, from Uganda to South Africa, through Zimbabwe. However, this trajectory is directed towards the bottom of the second axis, and hence runs counter to economic dynamism.

The opposition between level and pace of development, which emerges as a major characteristic on the first factorial plane, takes us back to the phenomenon of *convergence*. The developed countries grow less rapidly than certain countries with a lower level of economic development once the latter have attained a certain threshold, for which the UNDP's human development index provides a good approximation (Desdoigts - 1997).

- **From the factorial plane defined by axes 1 and 3** (not shown), it emerges that the third axis is transversal to the continents and mainly opposes the countries exploiting a natural rent – Saudi Arabia, Algeria, Iran, Nigeria and Venezuela – to the large manufacturing economies of the South, such as China and India. The former, moreover, are much more inegalitarian than the latter.

**GRAPH 5.2.: PCA on (S1) (31 structural variables).  
Projection of countries on the first factorial plane.**



PCA applied to the structural variables therefore reveals three major groups of highly distinctive countries (circled) that almost perfectly correspond to the continents:

- **The countries of sub-Saharan Africa** with low levels of economic and human development on the left, along the first axis.
- **The countries of Asia (together with Ireland), enjoying rapid growth**, in the Northeast quadrant. Thailand and Chile are approaching them.
- **The longstanding industrial countries in the Southeast quadrant**, including the European countries in transition.

Reflecting the close link between the levels of institutional and economic development (cf. Section 4), these results are fairly similar to those derived from the analysis of the institutional variables (Q) in § 5.1. We shall bring out common points and differences in the following section, by projecting the structural variables into the space of the institutional variables.

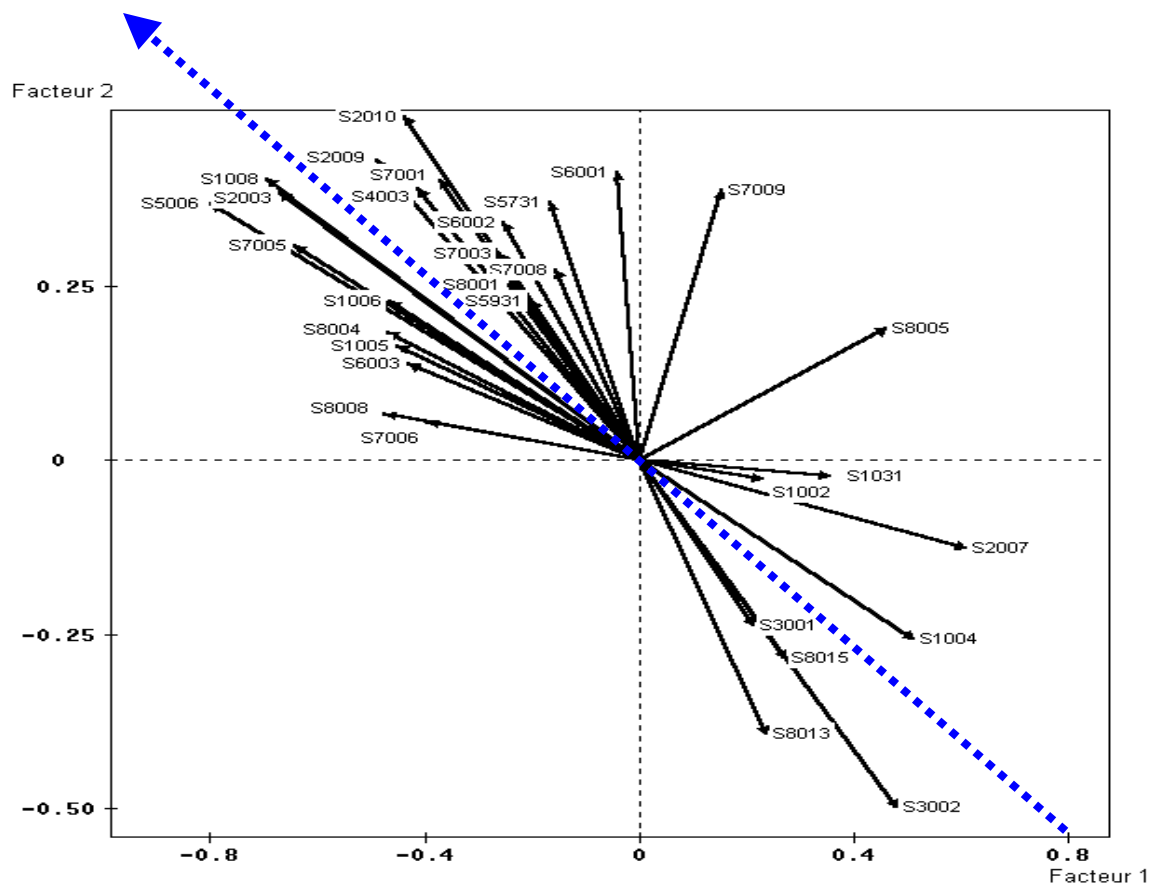
**§5.3. THE PROJECTION OF THE STRUCTURAL VARIABLES (S) INTO THE SPACE OF THE INSTITUTIONAL VARIABLES (Q) REVEALS TWO MAJOR DIRECTIONS: THE ‘WELFARE SCALE’ AND THE ‘REFORM AXIS’.**

We then proceed to the projection of the structural variables (S1) and (S2), as well as the dynamic institutional variables (Q2), as illustrative variables, in the space defined by the variables in (Q1). The analysis of these projections is carried out on the corresponding circles of correlation.

- **The structural variables in S1** are all, with two exceptions, situated in the North-west and Southeast quadrants, for the most part concentrated around the second bisectrix. This represents a sort of ‘welfare scale’, that opposes human development (in the direction of the North-west quadrant) to mortality and inequalities (in the direction of the Southeast quadrant). It can in fact be seen that the variables to the second bisectrix are, towards the top, life expectation, school enrolment, GDP per head (these are the factors making up the HDI), and towards the bottom, infant mortality before age 5 and inequalities as measured by the Gini coefficient (Graph 5.3.).

*Graph 5.3.: THE WELFARE SCALE*

*PCA of the structural variables in 1999-2001 (S1), projected as illustrative variables on the first factorial plane of the active institutional variables (Q1).*



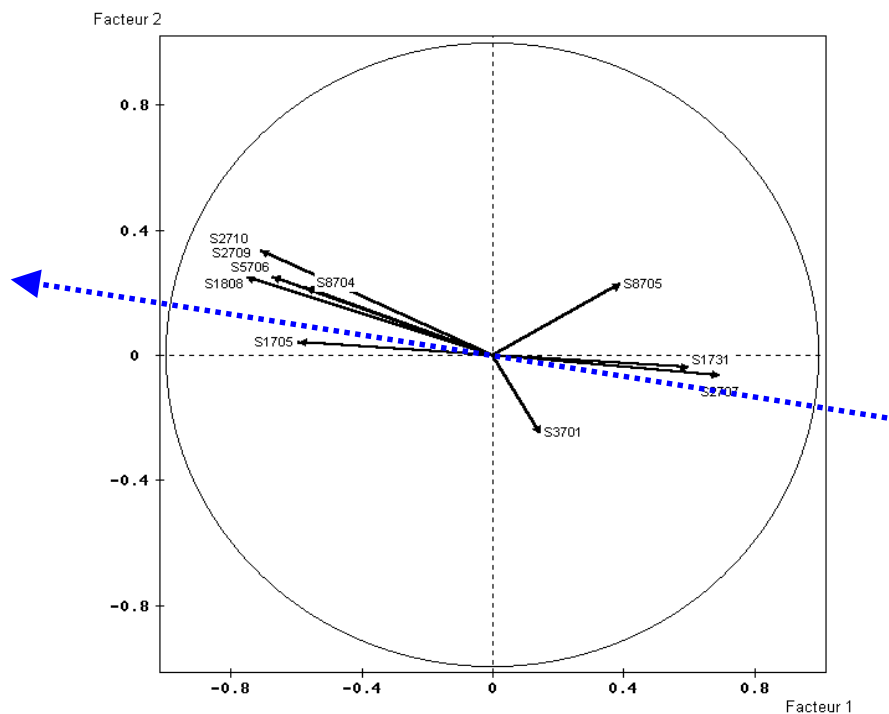
- **The structural variables in S2** (structural variables with a lag of 30 years) are also situated in the Northwest and Southeast quadrants, but lie further from the second bisectrix than the current variables S1. This means that the average evolution in the structural variables over the



past 30 years has led these countries in generally favourable directions. But the average evolutions along axis 1 and the ‘welfare scale’ seem somewhat uncertain (see Graph 5.4.)<sup>21</sup>.

Two variables stand out because of their position and their very slight evolutions: the share of exports of hydrocarbons in 1970 (in the Northeast quadrant) and the Gini coefficient<sup>22</sup> in 1970 (close to axis 2, in the Southeast quadrant). It would therefore seem as if the most rentier and inegalitarian societies have great difficulty in extracting themselves from these configurations and that this type of initial endowment is associated with institutional profiles in which government has been slow in achieving efficiency. Depending on individual cases, these profiles will be either ‘paternalistic-authoritarian’ (first quadrant) or ‘informal’ (fourth quadrant), but such endowments provide little incentive to liberalism, in either its pure or its mild form.

**Graph 5.4.: PCA of the lagged (30-year) structural variables (S2), projected as illustrative variables on the first factorial plane of the active institutional variables (Q1).**



- **The variables in Q2 (reforms)** were also projected onto the factorial plane of the institutional ‘stock’ variables (Q1). Reflecting the liberal orientation of reforms, these, with two exceptions, are located in the Southwest quadrant, which associates government efficiency, openness and liberties. The package of reforms generally follows the first bisectrix (the ‘reform axis’), and is hence perpendicular to (i.e. independent of) the ‘welfare axis’ revealed in the structural variables. The most typical variables in this median direction are privatisation and financial openness (graph 5.5.).

<sup>21</sup> Moreover, there is a need to use caution in interpreting this projection on the current institutional space (Q1) of the variables with a lag of 30 years (S2), during which time institutions can evolve considerably.

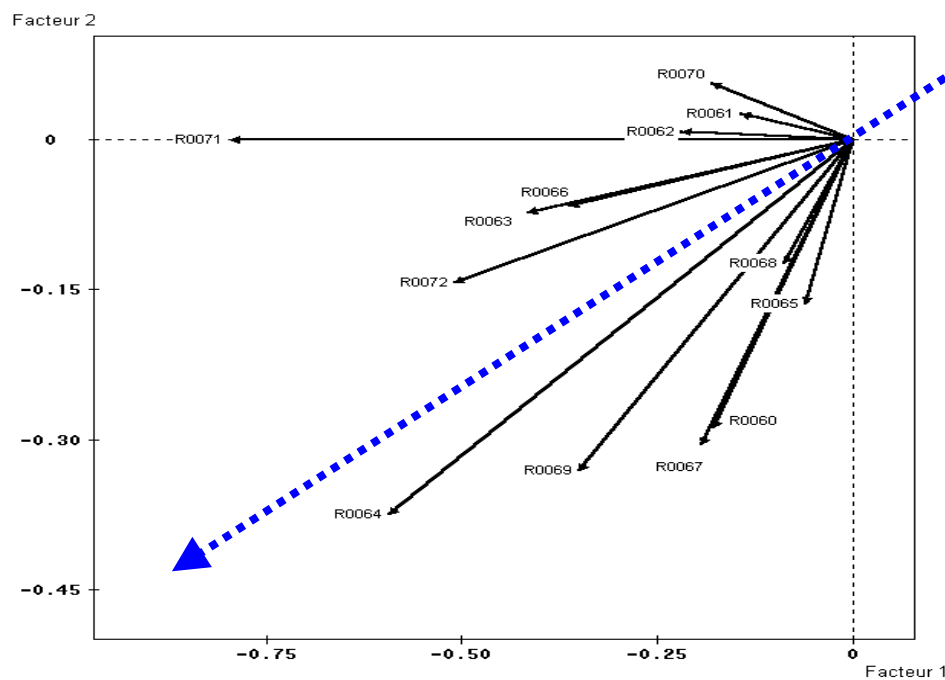
<sup>22</sup> In order to cover all the countries, we use data emanating from the different sources listed by the World Institute for Development Economic Research (WIDER), giving preference to the distribution indicators (Gini coefficients) derived from income surveys.

The apparent paradox consisting of independence between the ‘welfare axis’ and ‘reform axis’ results from the fact that the developed countries *a priori* have a rate of reform that is slower than that for some of the other countries, notably most of the countries in transition in Central Europe.

It will be noted that this direction taken by reform is *opposed* to (i.e. inversely correlated with) the variable representing the oil rent. Similarly, this direction of reform corresponds to the least populated quadrant of the institutional profiles. It would seem as if reform policies correspond to new institutional profiles, located in uncharted territory, where historical experience has not yet demonstrated long-term viability for the countries being analysed.

### Graph 5.5.: REFORM AXIS

*PCA of the dynamic institutional variables (Q2) projected as illustrative variables on the first factorial plane of the active institutional variables (Q1).*



**§5.4. FINALLY, THE ANALYSIS TAKING THE TWO MERGED FIELDS (Q, S) PROVIDES A TYPOLOGY OF PROFILES BROKEN DOWN INTO CLASSES THAT REFINE AND COMPLEMENT THE PRECEDING ONES. IT NEVERTHELESS PROVIDES LESS DISCRIMINATION REGARDING THE DEVELOPED COUNTRIES.**

We now go on to tackle the final phase of our exploration through analysis of institutional profiles, taking as a starting point *the merger of the two sets of variables*, institutional (Q) and structural (S).

The merger of the two fields is justified by the fact that some of the structural variables in fact reflect the institutional characteristics in the broad sense in which we have defined them (for example, the financial depth that can be considered as a partial indicator of the institutionalisation of an economy, as well as the share of public spending in GDP, the school enrolment rate, the fertility rate which can be an indicator of families’ attitudes to the future, etc). Apart from the difference in the statistical nature of the variables, quantified qualitative indicators for the

institutions versus quantitative variables for the economic and social structures, the distinction between the two fields is therefore not clear-cut, these being taken *in a continuum* ranging from the most deep-rooted characteristics in social behaviour (such as discrimination based on membership of certain groups) to economic performance (such as the level of GDP or its growth).

In this analysis the (Q and S) variables<sup>23</sup> therefore have the same status since both are active. The analysis is carried out using PCA, then by an ascending hierarchical classification which aims, by letting the data ‘speak for themselves’, at highlighting classes of countries through groupings of ‘similar’ countries.

In the PCA of the (Q1, S1) variables, the first two axes account for as much as 44% of the total variance of the point-cloud<sup>24</sup>.

- **The first axis, which accounts for 34% of the total variance**, opposes two types of society: on the one hand, those with high levels of human development, enjoying rights and civil liberties as well as well-developed internal security, effective government action, good security of transactions, competitive market functioning, substantial commercial openness, a high degree of social cohesion ensured by modern institutions as well as social mobility and attentive to the future ; on the other, those where high levels of fertility, illiteracy and infant mortality prevail.

Consistent with the results of MFA on the basis of groups (see Section 4), one again finds on axis 1 the variables of the ‘central core’: public governance (Chapter 3), security of transactions (Chapter 6) and competition and regulation (Chapter 7). These three families of variable in (Q) are associated with the human development variables in (S): life expectancy, school enrolment and level of monetary income.

- **The second axis, accounting for 10% of the total variance**, brings together and opposes, in contrast to axis 1, variables that are at first sight contradictory: human development, GDP growth and subsidies for basic products, on the one hand, ODA, openness and liberty on the other.

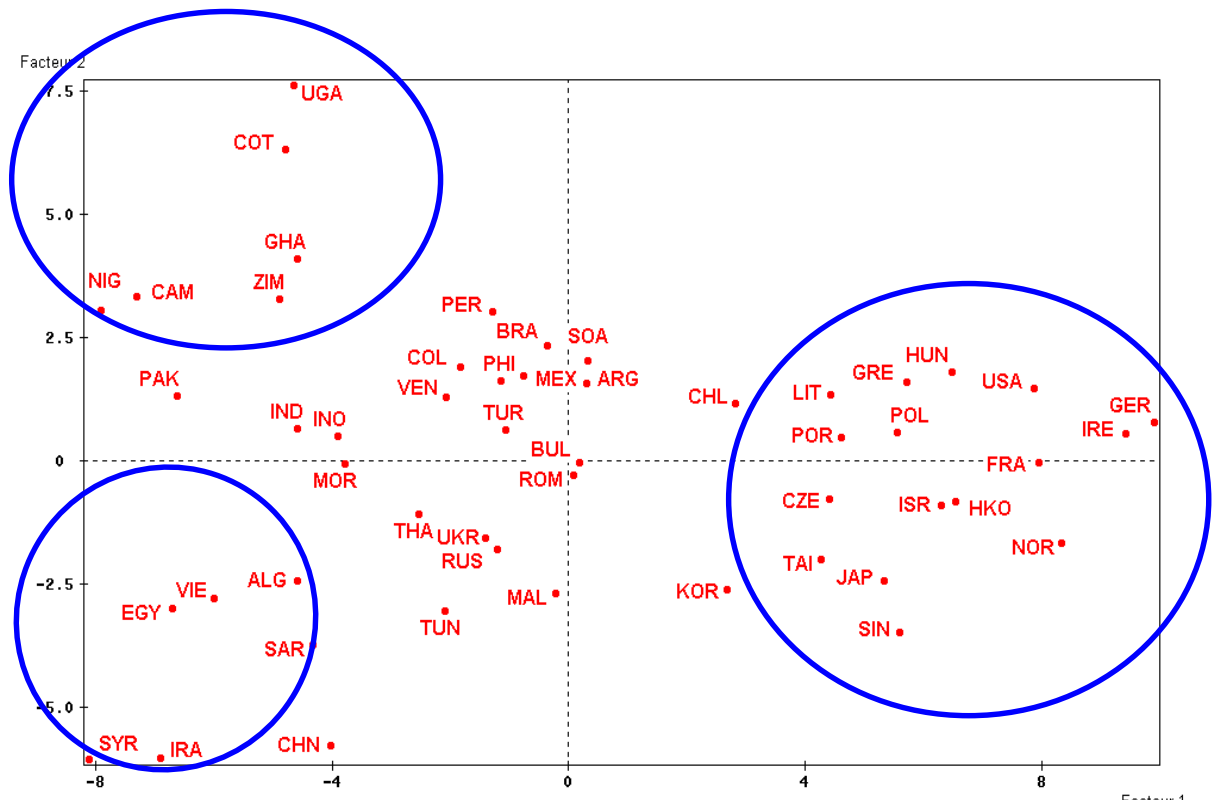
This contradiction stems from the position of the countries on the factorial plane, in the form of a trumpet, dispersed along the left-hand side, but concentrated on the right-hand side around axis 1. This means that the left-hand part of the design brings together countries sharing characteristics of mediocre public governance, but with substantial differences in terms of human development and economic dynamism, like China in the Southwest quadrant, Uganda and Cote d'Ivoire in the Northwest (Graph 5.6.).

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<sup>23</sup> The analysis covers two reduced sets of Q1 variables (45 ‘stock’ variables) and S1 variables (31 contemporaneous variables), making 76 active variables. No illustrative variable is introduced.

<sup>24</sup> The increase in the number of active variables (and hence in the dimensions of the point-cloud) reduces, everything else remaining unchanged, the inertia captured by the first axes.

**Graph 5.6.: TWO CONTRASTING TYPES OF INSTITUTIONAL WEAKNESS**  
**PCA on (Q, S): first factorial plane of countries on axes 1 and 2**



The countries with the most distinctive characteristics (those furthest from the intersection of the axes), have been grouped into three circles on the graph. The two circles on the left are illustrative of the two very distinct types of *institutional shortcomings* owing to:

- the weakness of formal institutions in the case of the circle bringing together, in the Northwest quadrant, the countries of sub-Saharan Africa (countries of the ‘informal’ type described in the analysis of the institutional field in § 5.1.).
- a mode of governance of the ‘authoritarian-paternalistic’ type in the Southwest quadrant (cf. § 5.1.).

The third circle generally covers the developed countries, with Chile and Korea not far off.

Compared with the two preceding analyses, this one is much more discriminating regarding most countries in Latin America and sub-Saharan Africa, which were relatively close in the space containing just the institutional variables (Q). The rapid-development countries in Asia that are grouped within a single quadrant in the space of structural variables (S), are in this case dispersed in the two lower quadrants (pace of development), but are distinguished from each other along the horizontal axis (levels of development). Finally, the countries in transition that are most backward in their evolution are clearly distinguished from the more developed countries.

- The following **classification into 8 classes** (derived from an ascending hierarchical classification<sup>25</sup>), makes it possible to refine this summary typology, especially for the least differentiated countries (those closest to the intersection of the axes). The exemplar<sup>26</sup> countries in each class are shown in italics.

**class 1:** *Algeria*, Iran, Saudi Arabia, Syria (4 countries),

**class 2:** China, Egypt, India, Indonesia, *Morocco*, Pakistan, Thailand, Tunisia, Vietnam (9 countries),

**class 3:** Cameroon, *Cote d'Ivoire*, Ghana, Nigeria, Uganda, Zimbabwe (6 countries),

**class 4:** Bulgaria, Romania, Russia, *Ukraine* (4 countries),

**class 5:** Argentina, Brazil, Chile, Colombia, Malaysia, Mexico, Peru, *Philippines*, South Africa, Turkey, Venezuela (11 countries),

**class 6:** *Hong Kong*, Singapore (2 countries),

**class 7:** Japan, *South Korea*, Taiwan (3 countries),

**class 8:** Czech Republic, France, Germany, Greece, Hungary, Ireland, Israel, Lithuania, Norway, *Poland*, Portugal, United States (12 countries).

The analysis of the classes is carried out here in the light of and in complement to the initial typology based on only institutional variables in § 5.1..

- The characteristics of **Class 1** complement and add detail to the profile of this group of countries as depicted by taking only the institutional variables in the 'authoritarian-paternalistic' quadrant. In this case, the oil rent, through its partial redistribution (notably via subsidies on basic products), makes it possible to establish a certain legitimacy without great accountability, while it gives a relatively opaque government the means of exerting a tight hold on an inefficient economy and of resisting reform. Circulation of persons, ideas and goods is limited and markets are uncompetitive.
- **Class 2**, which brings together countries that are generally rural and densely populated, shares with the preceding class certain 'authoritarian' traits centred on common characteristics (limited political rights, considerable involvement of the State in the functioning of the economy, low level of security of rights and transactions and limited openness), but the absence of rent-derived resources limits the 'paternalistic' dimension. The government is inefficient and corruption is relatively widespread, informal labour remains substantial, regulations are uncertain. These countries could be said to be of the '*authoritarian*' type.
- All the sub-Saharan African countries in the sample, with the exception of South Africa, belong to **Class 3**. These countries are experiencing a retarded demographic transition and a low level of human development in all its three components (education, health and monetary income). These are the countries receiving the most substantial ODA. Tradition curbs social mobility and the weakness of public administrations, added to the absence of institutional solidarity systems and the large share of the non-official economy, ranks these countries in the category of countries of the '*informal*' type.

<sup>25</sup> The principle of the algorithm of a hierarchical classification consists of creating, at each stage, a breakdown obtained by aggregating, two by two, the most similar elements. See, for example, Lebart, Morineau et Piron, *Statistique exploratoire multidimensionnelle*, 1997, Dunod.

<sup>26</sup> Exemplar: the individual country closest to the centre of gravity of its class.

- **Class 4** brings together, in addition to Russia itself, the countries most marked by the Soviet legacy and are lagging furthest behind in their political social and economic transition. This class could be termed the '*retarded transition*' type.
  - Countries in **Class 5** include several of the so-called 'emerging' countries that have carried through financial liberalisation but without their public institutions being capable of implementing the necessary regulation, because they have to cope with a low degree of consent to taxation. As a consequence, they show substantial external financial fragility, on top of internal social fragility. This class brings together, in particular, all the countries of Latin America, but also Turkey and the Philippines, the latter in fact being the exemplar of the group. This class is of the '*emerging-fragile*' type.
  - The two city-states making up **Class 6** are sufficiently distinct from the other countries to constitute a class of their own. They owe their status of '*financial hub*' to the quality of their public institutions.
  - Countries in **Class 7** stand out from the rest through a voracious appetite for technology coupled with a high degree of security of labour contracts.
  - **Class 8** brings together, apart from the developed countries in the sample (which does not include Japan), countries in rapid transition, Israel, and the European countries that have achieved convergence after their accession. Standing out clearly from the others, this class nevertheless brings together countries with widely differing institutional and socio-economic characteristics.
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**APPENDIX 1: THE 51 COUNTRIES EXAMINED**

<b>List of countries by region</b> (with abbreviations used)			
China	CHN	Argentina	ARG
Hong Kong	HKO	Brazil	BRA
India	IND	Chile	CHL
Indonesia	INO	Colombia	COL
Korea South	KOR	Mexico	MEX
Malaysia	MAL	Peru	PER
Pakistan	PAK	Venezuela	VEN
Philippines	PHI		
Singapore	SIN	Algeria	ALG
Taiwan	TAI	Egypt	EGY
Thailand	THA	Iran	IRA
Vietnam	VIE	Israel	ISR
		Morocco	MOR
Bulgaria	BUL	Saudi Arabia	SAR
Czech Rep	CZE	Syria	SYR
Hungary	HUN	Tunisia	TUN
Lithuania	LIT		
Poland	POL	Cameroon	CAM
Romania	ROM	Cote d'Ivoire	COT
Russia	RUS	Ghana	GHA
Turkey	TUR	Nigeria	NIG
Ukraine	UKR	South Africa	SOA
		Uganda	UGA
		Zimbabwe	ZIM
France	FRA		
Germany	GER		
Japan	JAP	Ireland	IRE
Norway	NOR	Greece	GRE
United States	USA	Portugal	POR

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**APPENDIX 2: VARIABLES THAT WERE THE SUBJECT OF A COMPARISON,  
SITUATED IN THE SCHEDULE FOR THE CAPTURE OF INSTITUTIONS**

Each of the 85 shaded squares represents a variable in the database. Among these 85 variables...

c	... 29 variables were compared with other indicators.
cK	Of these 29 variables, 11 were compared with the Kaufmann indicators.
	The remaining 56 variables had no equivalent in the other databases available.

	A – Public institutions, civil society				B – Market for goods and services			C – Capital market			D – Labour market	
1- Political institutions	cK		cK									
2- Security, law and order	cK	cK										
3- Public governance	cK		cK	cK		c						
	cK	c	cK									
4- Markets' operating freedom						c		c	c			
5- Technological environment, preparations for the future										c		
6- Security of transactions and contracts		c	c	cK	c		c			c		
		cK			c							
7- Regulation and corporate governance										c		c
									c	c		
8- Openness to the outside world								c				
9- Social cohesion				c								

**APPENDIX 3 : THE 2 REDUCED DATABASES, (Q) AND (S):**  
**1 / (Q): INSTITUTIONAL VARIABLES (Q1) AND (Q2)**

	chapter/ sector	<b>Q1 = (45 stock variables)</b>	code
1	1/A	Political rights and civil liberties	R0015
2	1/A	Media pluralism	R0016
3	1/D	Trade union freedom	R0017
4	2/A	Internal security	R0018
5	2/A	External security	R0019
6	3/A	Transparency of action by the authorities	R0020
7	3/A	Mastery of corruption	R0021
8	3/A	Efficacy of public administration	R0022
9	3/B	Formalities for enterprise creation	R0023
10	3/C	Collusion between government and banks	R0024
11	3/D	Informal labour	R0025
12	4/B	Operating freedom for markets in goods and non-financial services	R0026
13	4/C	Operating freedom for banking system	R0027
14	4/D	Labour market flexibility	R0028
15	5/A	Preparation for the future	R0029
16	5/B	Technological environment of non-financial firms	R0030
17	5/C	Sophistication of financial system	R0031
18	5/D	Vocational training	R0032
19	6/A	Traditional property rights	R0033
20	6/A	Formal property rights	R0034
21	6/B	Security of transactions on markets in goods and non-financial services	R0035
22	6/C	Traditional credit	R0036
23	6/C	Security of transactions in the financial system	R0037
24	6/D	Labour law	R0038
25	6/A	Labour tribunals	R0039
26	6/D	Security of employment contracts	R0040
27	7/B	Public regulation of competition on the market for goods and non-financial services	R0041
28	7/B	Competitive functioning of the market for goods and non-financial services	R0042
29	7/C	Competitive functioning of the banking system	R0043
30	7/C	Public regulation of the usury rate	R0044
31	7/C	Regulation of the financial system	R0045
32	7/D	Level of wage bargaining (national, branch, firm, individual)	R0046
33	7/D	Social dialogue	R0047
34	8/A	Circulation of persons and ideas	R0048
35	8/B	Convertibility for current transactions, WTO, import licences	R0049
36	8/B	Tariff and non-tariff barriers	R0050
37	8/C	Financial openness	R0051
38	8/A	Openness to foreign workers	R0052
39	9/A	Social cohesion: Equality of treatment	R0053
40	9/A	Social cohesion: Traditional forms of solidarity	R0054
41	9/A	Social cohesion: Institutional forms of solidarity	R0055
42	9/B	Social cohesion: Subsidies for basic products	R0056
43	9/C	Micro-lending	R0057
44	9/A	Social mobility	R0058
45	9/A	Unemployment among young graduates	R0059
	chap./sect.	<b>Q2 = (13 flow variables)</b>	code
46	1/A	Evolution of political rights and civil liberties	R0060
47	2/A	Evolution of public security	R0061
48	3/A	Evolution of efficacy of administration	R0062

49	3/A	Reform of administration	R0063
50	4/B	Reform: Privatisation of non-financial firms	R0064
51	4/C	Reform: Liberalisation of the banking system	R0065
52	6/B	Evolution of security of transactions	R0066
53	7/C	Reform of banking regulation	R0067
54	8/B	Reform of external trade tariffs	R0068
55	8/C	Reform of financial openness	R0069
56	4/D	Reform: desegmentation of the labour market	R0070
57	A	Political environment : support from players for reform	R0071
58	A	Political environment : stimulus for reform from external pressures	R0072

**2 / (S) : STRUCTURAL VARIABLES: (S1) AND (S2)**

<b>S1 = (31 current variables)</b>		code
1	Total population, millions - 2000 - Chelem	S1002
2	Fertility rate, total (births per woman) - 1999 - WDI	S1004
3	Population aged 15-64 as % of total - 2000 - WDI	S1005
4	Urban population as % of total - 2000 - WDI	S1006
5	HDI (Human Development Indicator)- 1999 – RDH	S1008
6	Growth in total population - 2000 - Chelem	S1031
7	School enrolment, secondary (% growth) - 1999 - WDI	S2003
8	Illiteracy rate, adult total (% of people aged 15 and above) - 1999 - WDI	S2007
9	Life expectancy at birth, female (years) - 1999 - WDI	S2009
10	Life expectancy at birth, male (years) - 1999 - WDI	S2010
11	Income distribution: Gini coefficient (all) - 1999 - WIDER	S3001
12	Mortality rate before age 5 (per 1,000 live births) - 1999 – RDH	S3002
13	Latitude : co-ordinates (N-S) in absolute value - CIA	S4003
14	GDP volume (PPP) / head (1995 US\$) - 2000 - Chelem	S5006
15	GDP volume growth (PPP) / head (1995 US\$) - 2000/1970 - Chelem	S5731
16	GDP volume growth (PPP) / head (1995 US\$) - 2000/1995 - Chelem	S5931
17	Investment ratio (GFCF/GDP) - 1999- WDI	S6001
18	M2/GDP - 1999 - WDI	S6002
19	Stock market capitalisation/GDP - 1999- BDL	S6003
20	Current-account income, excluding grants (% GDP) - 1999 - WDI	S7001
21	Public consumption/GDP (proxy gen. gov't wage bill/GDP) - 1999 - WDI	S7003
22	R&D: composite indicator - 1999 - WDI	S7005
23	Infrastructure - composite indicator - 1999 - WDI - CIA	S7006
24	Overall budget deficit, including grants (% of GDP) - 2000 - WDI, IMF	S7008
25	Current-account balance (% of GDP) - 2000 - Chelem	S7009
26	Commercial openness ratio (X+M/GDP) (%) - 1999 - WDI	S8001
27	Manufacturing exports (% of total exports) - 1999 - WDI - Chelem	S8004
28	Hydrocarbon exports (% of total exports) - 1999 - WDI - Chelem	S8005
29	FDI inflow/GDP - 2000 - IFS	S8008
30	External debt service /exports of goods and services - 1999 - WDI	S8013
31	Net ODA received (% of GDP) - 1999 - WDI	S8015
<b>S2 = (10 lagged variables)</b>		
32	Population aged 15-64 as % of total - 1970 - WDI	S1705
33	HDI - 1980 - RDH	S1808
34	Total population growth - 1970 - Chelem	S1731
35	Illiteracy rate, adult total (% of people ages 15 and above) - 1970 - WDI	S2707
36	Life expectancy at birth, female (years) - 1970 - WDI	S2709
37	Life expectancy at birth, male (years) - 1970 - WDI	S2710
38	Gini (All) - 1970 - WIDER	S3701
39	GDP volume PPP / head (1995 US\$) - 1970 - Chelem	S5706
40	Manufacturing exports (% of total exports) - 1999 - WDI - Chelem	S8704
41	Hydrocarbon exports (% of total exports) - 1999 - WDI - Chelem	S8705