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A COMPOSITE INDICATOR OF REGULATORY CAPACITY

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Not everything that counts can be counted, and not everything that can be counted counts.
(sign hanging in Albert Einstein's office at Princeton)

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SECTION A. INTRODUCTION

I have to confess that I have a weakness: I find that the most interesting challenge for economists, political scientists and public lawyers is to understand how that complex machine called "state" works and how it can be improved. States have an enormous impact on everybody's lives and on the functioning of the economy. I am not very interested in the often ideological debates about how much a state should intervene, but I think that whatever the degree of intervention, the state has to well do its duty. To this aim, there are neither quick answers nor "one-size-fits-all" solutions. On the contrary, it is necessary to enter into the "public black box" and to observe the mechanisms at work, the available and employed resources, and the output that is delivered. To carry out this task, a helping hand may come from cross-country comparisons, allowing an in-depth analysis of the difference and the similarities among states and exploring the links between each situation and its outcomes.

In particular, **this thesis will focus on how states and their sub-branches formulate, monitor and enforce regulation**. Regulation is intended in a wide sense, covering every normative intervention of a public body. This encompasses every normative intervention by the state in a sector, both through incentive-based mechanisms and command-and-control, in market and non-market sectors. The concept is not limited, as usually happens in the literature, to the acts of the so-called "regulators", that is bodies committed to regulate market-based sectors, such as energy or telecommunications.

To perform their tasks, states need to be endowed with a sufficient level of regulatory capacity. **Regulatory capacity is defined as the combination of individual competence, organisational capabilities, assets and relationships that enable a political entity to formulate, monitor and enforce regulation**.

The level of regulatory capacity of a given system depends on the presence (or absence) of certain inputs and processes to be employed in formulating, monitoring and enforcing regulation. The term regulatory capacity is not widespread in the relevant literature. It is defined to indicate all the assets and features which contribute to a public body well performing its duties when issuing normative acts influencing the quality or quantity of goods/services it supplies or the functioning of the market it is committed to supervise/regulate.

This thesis aims analysing the possibility of building an aggregate indicator concerning the regulatory capacity. While several indicators measuring the outputs and the outcomes of regulation already exist, a regulatory capacity index would provide information about how regulation is formulated, enforced and monitored, focusing on inputs and processes.[1] The analysis will proceed by taking into consideration on the one hand the versatility and the usefulness of this would-be-created indicator and on the other hand the difficulties to be overcome to create a sound and realistic index.

A close look to the state-of-the-art of indicators of governance and regulation is needed as starting point. The WGI indicators of governance and Doing Business indicators of regulation are the benchmarks in this field. Therefore they will be analysed[2] to identify their strengths, which must be included in the index of regulatory capacity, and their weaknesses, that need to be overcome in the construction of the new indicator. A survey of the existing economic and econometric literature about the relationship between public policy, institutions and growth is also carried out, in paragraph B.3, to provide a general framework of the problems to be investigated. Although the existing literature does not analyse the links between regulatory capacity and other

[1] The flux of governance input – process – output – outcome which will be used throughout the paper is based on OECD project "Government at glance". See, among others, Manning *et al.*, 2006 or OECD, 2007.

[2] Cf. paragraphs B.1 and B.2 for WGI; cf. paragraph D.2.1 for Doing Business.

variables, this aspect is surveyed to understand the relationships between quality of institutions, regulation or governance, and economic outcomes, such as *per capita* incomes or growth.

In Section C, the concept of a composite indicator of regulatory capacity is introduced, dealing with the advantages and the statistical and ontological difficulties of its construction. After this brief overview, the following sections will deal with the two major problems: **context-awareness** and the **actual content of the indicator**.

Section D starts from the belief that a good index must be context-aware and open to the different aims pursued by the regulatory systems. Furthermore, it must not be based upon a "one-size-fits-all" model, as many other indicators are. Epistemological and consensus-building reasons supporting the need to include diversity in the indicators are given. Two proposals are made for the construction of the index: a crossword-style proposal, to deal with the fact that different legal systems regulate different sectors and/or with different tools; and the adoption of the Data-Envelopment Analysis (also called, *nomen omen*, Benefit Of Doubt) approach to perform the aggregation and weighting of the variables. The main added value of this approach is that it lets "data speak for themselves", basing the aggregation weights upon them. That is, it takes account of the different objectives pursued by the regulatory system and measures the efficiency given the objectives. It (mostly) refrains from ordering the aims of the system according to the value judgments of the index creator.

Section E is the heart of the thesis. It deals with the definition of regulatory capacity and the operationalisation of the concept, that is, the list of variables to be measured. It is discussed after the theoretical chapters to underline the need of keeping in mind all the hints deemed to be relevant for the construction of the index before actually building it. Drawing upon research fields close to the

one analysed in the present thesis, an attempt is done to define the concept of regulatory capacity and to operationalise it in **five sub-indicators: resources and competence; independence; regulatory governance; coherence; and judicial framework**. As far as each sub-indicator is concerned, an analysis is carried out basing on the specifically relevant literature to identify the variables to be included within it. This has been the most challenging part of the work, since it was not sufficient to define what regulatory capacity is, but it was necessary to study in depth each area the concept was split into. The most important fields of research concerned were public management, analysis of regulation and of the regulatory state, behavioural economics, studies on better regulation, public sector labour management, general public law, and administrative law.

The present thesis will suggest that there are many problems to be solved, but that **a meaningful and comprehensive indicator of a country's regulatory capacity can be built**. To be useful and "actionable", **a set of smaller aggregate indicators has to be added**. These indicators could analyse the regulatory capacity of a country in a specific sector (e.g. the energy sector), or concerning a specific phenomenon (e.g. the issue of entry licences), or could regard a specific regulatory technique across several sectors (e.g. the use of Regulatory Impact Analysis – RIA).

However, the most important lesson that I would like to share is that there is the **necessity to open the "public black box" of the state to look for the factors needed to produce good regulation**. The composite indicator of regulatory capacity is the proposed tool for this aim. It can be built and be useful if the lessons drawn from the use and construction of existing indicators are well-learnt and employed in its design.

SECTION B. AN INTRODUCTION TO GOVERNANCE INDICATORS AND TO THE RELATIONSHIP BETWEEN INSTITUTIONS AND GROWTH

B.1. Producing and using governance indicators

When analyzing for the first time a governance indicator, you almost feel as the old colonel Aureliano Buendìa felt when his father took him to discover ice in his village of Macondo. A governance indicator conveys the sensation of providing an astonishing quantity of information in a single-digit number, so much that you suspiciously ask "where's the dirty trick?". As any other powerful and synthetic instrument, the use of governance indicators divides scholars, businessmen, donors and international institutions in two categories: lovers and haters. Of course, there are fool and careful lovers, as well as different levels of hate. Nevertheless, every author we will refer to has his strong opinion about the usefulness or the impracticability of this instrument.

The governance indicators, either composite or simple, are a much debated tools, but in any case are more and more widespread across scholars, international organisations and medias. Several reviews of existing indicators exist,[3] but the most comprehensive available picture is given by the list of sources used by the Worldwide Governance Indicators (WGI), also known as the Kauffmann index.[4]

Governance indicators can be classified according to several criteria:

[3] Cf. *i.a.* Arndt and Oman, 2006: 21-29; cf. Undesa, 2007; cf. Radaelli and De Francesco, 2008
[4] Cf. Kauffmann *et al.*, 2007a: 39-69.

1) **who develops the indicator**: international institutions, non-governmental organisations, universities, commercial entities (such as risk-rating agencies, information providers, survey firms), and governmental bodies;

2) **type of data**: indicators may be based upon both objective (or fact-based) data, such as laws or quantifiable inputs or outputs, and subjective (or perceptions-based) data, such as expert assessment or survey, of either the general population or selected groups, such as households or firms.

   In general, objective data are clearer, reproducible and cannot be dismissed as (biased) opinions, but are not always available and their collection can be expensive and complicated. Furthermore, what is written in objective and official sources may be different from the real situation.[5] Subjective data are easily collectable and may produce a more accurate picture of reality, but are criticized because they are "just an opinion", or vague and open to interpretation.[6] Besides, perception-based data are supposed to be subject to the "halo effect" (see Box 1). Both types of data, therefore, have advantages and disadvantages. In any case, objective and subjective data are considered by Kauffmann and Kraay "imperfect, but complementary proxies for the aspects of governance they purport to measure"[7] and we do agree with this approach.[8]

   As for subjective data, expert assessments are less costly and usually designed to ensure cross-country comparability, but are accused of being too correlated among each other and biased towards the views of

[5] This is the case especially for developing countries. Cf. Kauffmann and Kraay, 2007a: 11.
[6] Cf. Undesa, 2007a: 12-13; cf. Kauffmann *et al.*, 2005a: §4.1.
[7] Kauffmann and Kraay, 2007a: 7.
[8] Cf. paragraph C.1, item 7)

the business community or any other ideological orientation. Surveys are an important instrument because stakeholders' views are collected, but can be vague and open to interpretation.[9]

Box 1: ***The "halo effect"***

The "halo effect" is an "upward bias in perceptions of governance in rich countries simply because they are rich."[10] This effect would imply that perceptions-based data are biased because respondents take the overall level of welfare and richness of a country as evidence of good governance and consequently give better responses. The "halo effect" debate is part of the wider debate on the direction of causality between good governance and economic growth[11], but regards only subjective data. Kauffmann *et al.* argue that a "halo effect" may be present in objective data, but that it is not strong enough to make the data substantially biased.[12] Furthermore, there may be other factors offsetting the "halo effect", such as the tendency to apply higher standard to richer countries.[13] Other scholars, such as Glaeser *et al.*, consider that subjective measurements of political outcomes naturally rise sharply with the economic growth and it is not possible to separate the effect of governance on growth from its reverse and the "halo effect".[14]

3) **the aspect of governance measured**: indicators may measure inputs, processes, outputs and outcomes of governance, or a combination of them. Output and outcome indicators are the most widespread and are used by people in need of knowing the situation of a given country. Indicators measuring governance inputs and processes are more useful in indicating to policymakers where reforms are needed.[15]

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[9] Cf. Kauffmann and Kraay, 2007a: 16-23.
[10] Kauffmann *et al.*, 2005a: §5.
[11] Cf. paragraph B.3.1.
[12] Kauffmann *et al.* demonstrate that the halo effect would have to be implausibly strong to significantly account for the correlation between incomes and measured governance, given the values of correlation between measured governance and *per capita* income and hypotheses concerning the variance of the error term, of the unobserved governance, and the statistical features of the model. Of course, the results are sound, but the hypotheses may be questionable.
[13] Cf. Kauffmann *et al.*, 2005a: § 5.1.
[14] Cf. Glaeser *et al.*, 2004: 273, 279.
[15] Kauffmann and Kraay use a different typology: *de jure* and *de facto* indicators. The former are rule-based and the latter are outcome-based. We have preferred to introduce a more complex categorisation, using both the type of data they are based upon (objective and subjective) and

There is no single governance indicator which has reached a consensus about the theory and the data underpinning it, its aggregation method and its results. Every single indicator is, to say the least, debated and debatable. Nevertheless, the use of governance indicators and their appearance on the media are growing and growing, even against their authors' warnings and guidelines. According to Arndt and Oman's analysis, four categories of subjects are likely to make an extensive use of governance indicators: journalists, international investors, international donors, and academics.

Journalists and medias seem to go crazy over governance indicators, since they simplify to the maximum extent complicated debates about quality of different governments through single-digit numbers or crystal-clear standings. Furthermore, journalists are usually not interested in the theoretical and statistical problems underlying any index and take everything as gospel truth, exalting the best-scorers and condemning the worst. The widespread use made by journalists of governance indicators is one of the best reasons to build one: it will reach a much larger audience than showing the same results with other means.[16]

International investors and donors extensively use governance indicators, because it is a common belief, supported by experience and economic studies,[17] that investments and aids are more productive in well-governed country. For investments, especially foreign direct investments and bank loans, a high quality of governance is also a signal of safety, that is of a lower probability of, e.g., illegal expropriation by the government or severe political distress. This is

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the aspect of governance measured (input, process, output and outcome). This categorisation shows that there may be input- or process-measuring indicators which are not *de jure*, but are based on subjective data. Cf. Kauffmann and Kraay, 2007a: 3; see *infra* paragraph E.2.4.4 for an example.

[16] Cf. paragraph C.1, item 4).

[17] Cf. *i.a.* Thomas, 2007: 3

why many firms consider an assessment not only of the "sovereign risk", but also of the "country-risk" and, consequently, there are quite a lot of private companies performing cross-country evaluation of governance.[18] Aid donors as well have been paying a lot of attention in recent times to the quality of governance.[19] The most striking example is the use of the Kauffmann index in the U.S. development assistance programme called "Millennium Change Account", which is endowed with up to $5 billions per year. The eligibility for this program is based on sixteen indicators, five of which are part of the Kauffmann index. In particular, one of the WGI indicators, control of corruption, plays a key role: only country scoring over the median of eligible countries on this indicator may receive funds.[20] Kauffmann, Kraay and Mastruzzi warn, unheard, that, given the margin of error of their scores, this clear-cut criterion risks misclassifying countries close to the median.[21] Nevertheless, the possibility of having a clear-cut and "scientific" criterion to split the worlds between well-governed and corrupt nations was too tempting, although the tool was not entirely fit for the purpose.

Last but not least, academic scholars usually employ governance indicators in econometric studies, using them as proxy, or quantification, of otherwise non-measured variables, such as "quality of governance", "effectiveness of government" or "institutions" *tout-court.* Governance indicators usually enter in regressions as explanatory variables, usually with the variable to be explained being economic growth/welfare.[22] The WGI, since they are probably the most carefully constructed and most "scientific-appearing" indicators and given their nature of "composite indicators of indicators", are by far the most employed indexes. Their use is contested either

[18] E.g. the International Country Risk Guide. Cf. Arndt and Oman, 2006: 35-39; cf. Glaeser *et al.*, 2004: 276.
[19] Cf. *i.a.* DFID, 2007.
[20] Cf. Arndt and Oman, 2006: 42.
[21] Cf. Kauffmann *et al.*, 2005b: 8-9.
[22] For a non-exhaustive list, cf. Thomas, 2007: 6.

because of the flaws of the underlying methodology, as we will see *infra*, or because they are not a correct proxy of the phenomenon to be studied. Glaeser *et al.*, on the basis of the North's definition of institution as "permanent constraints", consider the WGI as not fit for the purpose of representing the institutional context of a country. For them, the WGI primarily measure the quality of transient political decisions.[23]

Given their diffusion and importance, a paragraph will be devoted to a deeper analysis of the WGI, focusing on the underlying theory and statistical model and on the results. It is necessary to carefully and thoroughly look at the state-of-the art of governance indicators before trying to propose a new one. A short review of the controversies arisen about WGI flaws will follow.

B.2. The Worldwide Governance Indicator (WGI) in depth

In brief, the Worldwide Governance Indicators are six composite indicators measuring six dimensions of governance. To date, they are calculated each year and normalised, so that each indicator has a mean of 0 and a variance of 1. The six indicators are:[24]

1) Voice and Accountability: measuring civil and human rights and the extent to which a country's citizens are able to participate in selecting their government;
2) Political instability and Violence: measuring the likelihood of violent threats to, or changes in, government, including terrorism;
3) Government Effectiveness: measuring the competence of the bureaucracy and the quality of public service delivery; measuring the

[23] Cf. Glaeser *et al.*, 2004: 276-277.
[24] Kauffmann *et al.*, 2005b: 4. Regulatory Quality was called Regulatory Burden in this edition, but the label has been subsequently changed. Cf. Kauffmann *et al*. 2007a: 1.

independence, quality and credibility of policy formulation and enforcement;

4) Regulatory Quality: measuring the ability of the government to formulate and implement sound policies and regulation that permit and promote private sector development;
5) Rule of Law: measuring the quality of contract enforcement, the police and the courts, as well as the likelihood of crime and violence;
6) Control of Corruption: measuring the extent to which public power is exercised for private gain.

The authors provided for a definition of "governance", although this is not present in every annual edition.[25] Since there is no consensus on a single definition of governance and the debate risks focusing only on this aspect of the project, the authors refrain from getting into what they call "endless terminological tussles"[26] and adopt a broad, non-operationalised definition:

> *We define governance broadly as the traditions and institutions by which authority in a country is exercised. This includes the process by which governments are selected, monitored and replaced; the capacity of the government to effectively formulate and implement sound policies; and the respect of citizens and the state for the institutions that govern economic and social interactions among them.* [27]

Kauffmann *et al.* do not "correct" the different definitions of governance adopted by the underlying sources, because their statistical models consider each of them as a different measurement of the same broad phenomenon of governance. Even though these definitions differ from each other, the underlying sources are "interpreted as a noisy, or imperfect, *proxy* for some unobserved broad dimension of governance."[28] This is a case almost unique in the field of governance indicators, and it is possible because the authors do not

[25] E.g. there is not in the 2006 edition (Kauffmann *et al.,* 2007a).
[26] Kauffmann *et al.*, 2007c: 555.
[27] Kauffmann *et al.*, 2008: 7.
[28] Kauffmann *et al.*, 2007a: 2 (italic by the authors).

need to operationalise the concept of governance to collect the data, since they rely upon the work done by the data sources' providers.

The WGI are "based on several hundred individual variables measuring perceptions of governance, drawn from 35 separate data sources constructed by 32 different organisations".[29] Such an amount of data sources (and the lack of a direct data collection process) enable the indicators to cover 212 countries and territories, virtually the whole globe. The data sources provide information on perceptions of governance and consist of surveys of firms and individuals, and of the assessments of experts belonging to commercial risk rating agencies, non-governmental organisations, multilateral aid agencies, and public bodies. The sources are claimed to represent a very diverse group of respondents.[30]

The six indicators summarise the amount of information included in these data sources and allow the calculation of explicit margins of error, another feature which is almost unique to the WGI and makes them more accurate than most of their peers.[31] The existence of an explicit margin of error allows the users to verify whether the differences in governance, both across countries and over time, are statistically significant and at which level of significance.

B.2.1. The Unobserved Component Model (UCM)

The core of the WGI is the statistical technique adopted for its construction: the Unobserved Component Model. [32] A deep analysis of this

[29] Kauffmann *et al.*, 2008: 1.
[30] Cf. Kauffmann *et al.*, 2007a: 4-5; cf. Kauffmann *et al.*, 2005a: 4-5.
[31] "*Users of governance data should not confuse the absence of explicitly disclosed margins of error with actual accuracy*: all approaches to measuring corruption, and governance more broadly, will involve margins of error an element of inaccuracy, whether transparently disclosed, or not. " Kauffmann *et al.*, 2006: 3 (italic of the authors).
[32] The following synthesis is based on Kauffmann *et al.*, 2008: 97-102 and Kauffmann *et al.*, 1999.

model will follow, since it is crucial to achieve the features making the WGI the most widespread governance indicators in the world.[33] The UCM:

1) allows the aggregation of many sources measuring different aspects of governance;
2) mathematically calculates the weight to be assigned to each source without any subjective evaluation process;
3) allows the calculation of explicit margins of error.

The idea under the UCM is simple. The authors express this fact themselves by emphasizing that:

> *each of our observed underlying data sources provides a noisy or imperfect signal of the true, but unobserved, level of governance in a country. The UCM provides a framework for extracting a minimum-variance estimate of governance from the observed data.*[34]

The WGI considers each source as an intrinsically imperfect measurement of true governance and consequently tries to extrapolate it by aggregating several of them. Trying to explain the method through a simile, the unobserved component model works like the Global Positioning System, better known as GP. Assessing the true level of governance is like locating a point in the space and the various sources are like the satellites. From the data of different satellites we can infer the position of the GPS user, as from data from different sources the authors infer the true level of governance for each country.

The following equation is the heart of the model:

(1) $$y_{jk} = \alpha_k + \beta_k \cdot (g_j + \varepsilon_{jk})$$

where α and β are unknown parameters which map unobserved governance *g* into the observed data *y*. The subscript *k* refers to data sources (k=1,2,…,K where K is the number of sources) and the subscript *j* refers to countries

[33] Cf. Kauffmann *et al.*, 2007b: 1.
[34] Kauffmann *et al.*, 2008: 97.

(j=1,2,…,J_K where J_K is the number of countries covered by the k^{th} data source). ε is an error term. It is due both to measurement errors (e.g. misperception of experts, sampling errors for surveys) and to imperfections in the relationship between the concept measured by the observed data and true governance.[35] As results from equation 1, the authors assume that the relationship between observed data and unobserved governance is linear.

The authors also assume that:

1) *g* is not a fixed parameter to be estimated, but a normal random variable with mean 0 and variance 1;
2) ε is a normal variable with mean 0 and standard deviation σ_k, which varies across data sources, but remains the same across countries within a given data source. σ_k is a signal of the level of information: the smaller σ_k, the more precise the source
3) the error terms are uncorrelated across data sources. This implies that the correlation between two sources is due to the common component g and not to the correlation of the error terms. At the same time, if a data source is not correlated with the others (that is, it is an outlier), it is because is a more imprecise signal of *g*.

The model calculates the distribution of unobserved governance conditional on the observed data for each country. Under the above-mentioned hypotheses, unobserved governance g is a random variable with normal distribution. This implies that the estimate of governance for each country will be equal to the mean of this conditional distribution, the precision of this estimation will be the standard deviation of this conditional distribution and

[35] E.g. measuring whether an institution to fight corruption exists is only a partial proxy of the wider phenomenon of corruption.

that the results can be obtained through the formulas of the multivariate normal distribution.

(2) $$E\left[g_j \middle| y_j\right] = \sum_{k \in K_j} w_k \cdot \left(\frac{y_{jk} - \alpha_k}{\beta_k} \right)$$

(3) $$V\left[g_j \middle| y_j\right] = \left(1 + \sum_{k \in K_j} \sigma_k^{-2} \right)^{-1}$$

The value of $E[g_j]$ obtained in equation 2 is the governance estimate for each country. The square root of the variance $V[g_j]$, calculated by equation 3, is a measure of the accuracy of the estimation of governance for a given country (the standard error) and is smaller, the larger the number of data sources available and the more precise the data sources.

Appearing in equation 2, w_k is the weight applied to the k^{th} data source. Relative weights are the same across different countries, but absolute weights change from country to country, according to the data sources available for the specific state.[36] Weights are also different across the six indicators. They are calculated through the following equation:

(4) $$w_k = \sigma_k^{-2} \cdot \left(1 + \sum_{k' \in K_j} \sigma_{k'}^{-2} \right)^{-1}$$

w_k is inversely proportional to the precision of the source, that is, to its variance σ_k^2, relatively to the variance of the other sources used to construct the indicator, $\sigma_{k'}^2$. The lower σ_k^2 relatively to $\sigma_{k'}^2$, the more precise the source k, the more weight is assigned to it. Equation 4 implies that the less noisy (i.e. more consistent) a data source is with the other, the more weight is given to it. On the contrary, outliers, that is data sources not consistent with the others, are given less weight. Again, this calculation of weights could not be possible

[36] Cf. *ibidem*: 14.

without considering the error terms as uncorrelated across data sources. This hypothesis is very difficult to verify and criticised.[37]

B.2.2. The criticism

8The WGI are used in a wide range of circumstances and by different typologies of users. Their diffusion in the best academic papers as proxy for governance and their use by multilateral and national aid agencies and institutions all across the world are the best proof of the degree of consensus they have achieved. However, this does not mean they are not criticised. There is quite a wide debate on the flaws of WGI and the authors themselves have taken part to the discussion. In this paragraph, we will summarize the most important points of criticisms and, where available, the response of the authors.[38] Furthermore, the analysis will be deepened as regards the accusation of being pro-business biased.

A bunch of criticism refers to the possibility of making cross-country or time-based comparisons with the WGI results. Some of the criticism arises from a misunderstanding of the margins of error provided together with the index. Again, this is a unique feature of WGI, therefore users may not be always able to grasp it. The standard error, which is very large for some countries covered by few and/or uncorrelated data sources, causes many pairwise comparisons to result as "statistically insignificant". This may be unsatisfactory, but it is much better than clear-cut rankings not taking account of the unavoidable degree of inaccuracy due to measurement errors, perception errors, aggregation methodologies and other inevitable drawbacks. More precise criticism points to the fact that cross-country comparisons are sometimes based upon completely different (non-overlapping) data sources. This can happen especially for very

[37] See paragraph B.2.2

[38] This paragraph is a review of the following articles: Arndt and Oman, 2006; Kauffmann *et al.*, 2007b; 2007c; Knack, 2006; Kurtz and Schrank, 2007; Thomas, 2007.

small states. The authors reply by saying that this is one of the strength of the WGI and that in any case very few comparisons are based on non-overlapping sources. In this case, there could be the risk that the different sources are measuring completely different aspects of the same phenomenon. We would partly agree that allowing comparisons among otherwise non-comparable states is a plus, but a minimum "comparability check" should be performed. States with too few sources (1 or 2) should perhaps be excluded from the final index, although this would reduce the country coverage. This is especially true if the single source that is used is measuring just a focused peculiar aspect of the wider phenomenon. Otherwise, states with too few sources could remain within the list of countries covered by the index, but underlining that their data are not entirely fit for comparisons.

Many scholars point out that the WGI is biased towards the business *élite* view. Kauffmann, Kraay and Mastruzzi respond that the mix of sources is well differentiated, clarifying that the indicators are based not only upon surveys of firms and commercial risk rating agencies, but also upon NGOs, surveys of individuals and multilateral organisations. First of all, the mere fact that data sources are produced by different subjects does not mean they are not biased. It may well be that data produced by an NGO or a multilateral organisation legitimately reflect its views and that its views are pro-business (or any other ideological orientation) biased. For sure, there are sources which are in no case liable of pro-business bias, but they are not the majority and, most importantly, the weighting methodology penalises outliers. However, the authors dismiss this point of criticism because they show that different types of sources are correlated among each other. It is fair to say that authors' data[39] highlight a relatively high degree of correlation, but are too partial, showing only the correlation of Global Competitiveness Report's survey with some other sources.

[39] Kauffmann *et al.*, 2007c: 556.

Since the correlation among sources influences the weights, to allow the reader to make his own judgment, we propose an analysis of the weights assigned in the last edition of WGI.[40] Far from being a complete analysis, table 1 shows which sources, and for how many indicators, are assigned a weight higher than 0.1 out of 1. As you can see, no surveys are given such a weight, while commercial business information providers are for seven times (out of a total of 15). Interestingly, the non-governmental organisation Freedom House is assigned a weight higher than 0.1 for four times. Table 2 refines the analysis provided by Kauffmann *et al.*, who show the share of weights of surveys, but not the share of weight of household surveys and firm surveys. Results may cast shadows on the authors' defence, since, while the share of weights of surveys can be up to 0.24 out of 1, the share of household surveys is never higher than 0.062. Finally, it has also to be considered that three out of five household surveys[41] are continent-focused, therefore having a limited coverage.[42]

Table 1: ***Number of cases a source is assigned a weight higher than 0.1***

Commercial Business Information Providers	w_k**>0.1**	**Public Sector Data Providers**	w_k**>0.1**
Global Insight Business Conditions and Risk Indicators	3	African Development Bank Country Policy and Institutional Assessments	1
Economist Intelligence Unit	2	Asian Development Bank Country Policy and Institutional Assessments	1
Merchant international Group Gray Area Dynamics	1	Institutional Profiles Database (French government)	1
Global Insight Global Risk Service	1		

[40] Kauffmann *et al.*, 2008: 31.
[41] Afrobarometer, Latino-Barometro, and Vanderbilt University Americas Barometer.
[42] Since the weights in table 2 are relative (and absolute only in the theoretical case of a country covered by each source), the weight of household surveys is further reduced.

Total	*7*	*Total*	*3*
Non-Governmental Organisation Data Providers	w_k**>0.1**	**Surveys**	w_k**>0.1**
Bertelsmann Transformation Index	1	*None*	0
Freedom House (2 sources)	4		
Total	*5*		

Source: personal elaboration of Kauffmann et al.*, 2008: 31*

Table 2: ***Weight of household surveys***

Indicator	**Total weight of household surveys (out of 1)**	**Weight of household surveys out of total weight of surveys**	**Indicator**	**Total weight of household surveys (out of 1)**	**Weight of household surveys out of total weight of surveys**
Voice and accountability	0.043	78.2%	*Regulatory Quality*	0	0%
Political Stability and Absence of Violence	0	0%	*Rule of Law*	0.045	26.8%
Government Effectiveness	0.062	35.2%	*Control of corruption*	0.033	14%
AVERAGE	**0.031**	**25.7%**			

Source: personal elaboration of Kauffmann et al.*, 2008: 31*

Some criticism stems from definitional problems. As said *supra*, it is true that the authors refrain from giving a definition of governance and that this may be disturbing, especially for political science scholars. However, the peculiar model adopted and the fact that WGI are an aggregation of indicators enable the authors to make and defend this choice. The different implicit or explicit definitions of a phenomenon adopted by the underlying sources are conducive to their idea of giving a multi-faceted measurement of governance.

The last point of criticism we believe to be important concerns the correlation of errors across data sources, which is a crucial hypothesis for the model. Many sources of WGI are correlated among each other, but it is

impossible to test whether the correlation is caused by the fact that they are accurately measuring governance or by the fact that they are making the same errors. In the literature there is anecdotal evidence that some sources' error terms are likely to be correlated, but there is neither a comprehensive nor a conclusive analysis. At the same time, the authors do not provide for a comprehensive analysis excluding the correlation of errors, but simply state that the "evidence for the prosecution" are not conclusive. If the existence of correlation errors were proved, the unobserved component model, which gives more weight to more correlated sources because it is supposed that correlation is a consequence of precision, would be brought into dispute. However, the authors show that the indicators are robust and results do not change if the weighting scheme is removed and an unweighted average is computed. The sensitivity analysis should be carried out more extensively to verify that WGI could survive the death of the unobserved component model.

B.3. Institutions, public policy and growth

There is no doubt that a good institutional environment, that is good institutions, policymaking, regulation and governance, is conducive to more growth and higher *per capita* incomes. As for the theoretical aspect, even though there are diverging opinions and currents of thought, no economist doubts of this relationship. Furthermore, it is confirmed by most of the empirical tests: although the direction of causality is not clear and the significance of institutional quality is not always very high, governance and growth are strongly correlated.

Institutions, term that widely encompasses all the abovementioned factors, have an impact on economic development, primarily by setting the

rules of the game. "Governmental institutions establish the framework for economic activity within a country. Good institutions create an environment that promotes economic activity, inventiveness, growth, and development."[43] As long as the economic system of a country is (more or less) capitalist, as it is for 99% of countries in the world,[44] it always has to be kept in mind that capitalism needs sound institutions, a coherent legal framework and independent courts. Free-market supporters will argue that "less is better", but almost nobody would state that capitalism would survive without this institutional framework. In our opinion, this very basic thought is the foundation of the necessity of good institutions for achieving a sustainable economic welfare.

Another way of seeing the importance of institutions for growth is to consider economic development not only as amassing physical and human capital, but also as an accumulation of institutional capacity.[45] There are empirical proofs that institutions play the same role as human capital plays for "conditional convergence". Neoclassical theory of growth predicts absolute convergence. It implies that low-income countries, having a lower stock of capital and consequently higher returns, will grow more than developed ones and catch up. However, this, on average, does not happen in the real world. Subsequent growth theories have relaxed this assumption by introducing conditional convergence. It means that only countries with a similar endowment of one or more third factor(s) (i.e. human capital) will converge to the same (steady) level of income.[46] Jalilian *et al.* extrapolate from their regression that institutional quality can play the same role: given other factors, such as human and physical capital, only countries with the same level of

[43] Butkiewicz and Yanikkaya, 2006: 648.
[44] The only notable remnants of a close-but-distant past are Cuba and North Korea
[45] Cf. Jalilian *et al.*, 2006: 89: cf. Rodrigo, 2008a: 1. Both are drawing upon *Rodrik D., Subramanian A., Trebbi F. (2004)* Institutions rule: the primacy of institutions over geography and integration in economic development – Journal of Economic Growth, Vol. 9, Issue 2, pp. 131-165.
[46] Cf. Ali, 2003: 349-350

institutional quality will converge to the same (steady) level of income.[47] However, this can be partly due to the fact that they use years of schooling, usually a proxy for human capital, as a proxy for early institutional quality.

The literature disagrees on which aspects of the institutional context matter (or matter most) for growth.[48] Different candidates are proposed: rule of law, control of corruption, regulation, democracy, and limited government,[49] most of them showing a considerable degree of correlation. The empirical results are not conclusive, since they vary depending on the panel of countries considered and the way of measuring the institutional context. For each of the mentioned factors, there are empirical works supporting their importance for growth.

Rule of law is among the most employed measurement of institutions[50] and it is strongly positively correlated with economic outcomes. It is criticized by "orthodox" institutionalists, underlining that this reflects political choices, but not institutional features. E. g., one of the best scorers in the WGI Rule of Law indicator is Singapore, which is well-known for is pro-market policies, but it is not a shining example as regards the institutional context, being a one-party dictatorship. However, rule of law is important because it represents the basic agreed feature for a capitalist economy to work properly. More mixed results

[47] Cf. Jalilian *et al*, 2006: 95.
[48] Actually, there is also disagreement on the operationalisation of growth. In the literature, many dependent variables have been employed *i.a.*: GDP growth, *per capita* income, rate of investment, productivity growth. However, this is not relevant to the aim of this section and the general terms "growth" or "economic outcomes" are sufficient for the analysis.
[49] Although it is less connected to the topic of this paragraph, also the political economy of reforms and the relationship between reforms, their features and growth is explored by several authors and by the OECD. Cf. Koedijk and Kremers, 1996: 455; cf. De Macedo and Martins, 2006.
[50] E.g. in Kauffmann and Kraay, 2002.

are achieved concerning corruption. Some authors consider it a statistically significant factor, some others do not.[51]

Other authors[52] have a narrower focus on regulation. They consider the quality of regulation, and the underlying capacity of a state to provide it, as an important determinant of market performance. In addition to proving that regulation has a significant impact on growth, econometric tests also show that the WGI indicators more directly related to regulatory quality (that is, Regulatory Quality itself and Government Effectiveness) have a bigger impact than other measurements of governance.[53] Quality of regulation is a concept difficult to define. Mainstream economists consider regulation to be good when it is market-enhancing, not burdensome and (possibly) kept at minimum. On the contrary, heterodox scholars consider good regulated developing countries those with a thoroughly interventionist state. While the empirical general analysis reinforces the mainstream argument,[54] the heterodox find support in several country case studies, claiming that over the last fifty years, fast growth in developing countries is usually associated with a non-liberal, interventionist state.[55]

Things are more complicated when the importance of democracy is dealt with.[56] An assessment of the effect of democracy heavily depends on the definition of the concept, the measuring indicator(s), country coverage, and features of the empirical specification. In any case, it is fair to say that different measurements of democracy are less correlated with the other assessment of institutions and also less correlated, and less statistically significant, with

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[51] Cf. Butkiewicz and Yannikaya, 2006: 655.
[52] Cf. Jalilian *et al.*, 2006; cf. Koedijk and Kremers, 1996.
[53] Cf. Jalilian *et al.*, 2006: 95-96.
[54] Cf. *i.a.* the theoretical papers of the Doing Business project, cit. in footnote 121.
[55] Cf. Rodrigo, 2008a: 1-2.
[56] The same holds true for the concept of "constrains of government" and "limited government".

regard to growth and economic outcomes.[57] There are quite a few sound theoretical explanations for the weak results obtained when regressing growth on democracy, highlighting the possible negative counter-effect of a democratic regime:

1) democracy undermines investment because leads to pressures for immediate consumption;
2) "young" democracies in developing states cannot resist the pressures from special interest groups;
3) the driver of growth is not democracy, but human capital, which is a necessary element for both phenomena.

Although the subject is thorny, empirical analyses concerning democracies and several consistent case studies on regulation do not exclude that there may be different mechanisms in place depending on whether developed or developing countries are at stake. We do not want to affirm that poor countries need or are condemned to be non-democratic or badly governed, but it may be that to achieve steady and sustainable economic growth they need "their way" of regulating the economy and of becoming democratic. The theory that autocracy boosts government is not confirmed by data, but it has to be kept in mind that democracy is a value in itself, but not always the most effective mean to foster economic growth.

[57] Cf. Glaeser *et al.*, 2004: 284; cf. Butkiewicz and Yanikkaya, 2006: 655-656. The latter state that a positive effect of democracy on growth (through the channels of enhanced education, reduced inequality and lower government consumption) is estimated in *Tavares J. and Wacziarg R. (2001)* How democracy fosters growth. European Economic Review No. 45, pp. 1341-1378.

B.3.1. Direction of causality

While the relationship between institutions/public policy/governance[58] and growth is theoretically sound and empirically confirmed, the debate about the direction of causality still has not reached a conclusion. It is a chicken-egg dilemma: is economic growth allowing the creation and reinforcement of better institutions or are better public policies fostering economic growth? Theoretic arguments exist in favour of both cases and the econometric empirical tests could still not say the final world on the issue. Furthermore, it may well be that growth and good governance are mutually reinforcing or that there is a common factor driving both in the same direction.

Since the correlation among the two phenomena is well established, the debate on the direction of causality may seem futile. Common sense and empirical analysis suggests that economic growth and good institutions usually are mutually reinforcing, but that this is not a necessary casual link. In some cases better institutions come before growth, in some other cases growth springs without good institutions in place. Again, in some circumstances the achievement of economic welfare pushes for the improvement of the institutional context, in some others good governance does not follow economic growth. The experience of many nations is very contradictory and may support both views.[59]

However, identifying the direction of causality is of paramount consequence for developmental policymaking. If good governance and institutions cause growth, then international development agencies and donors have to focus on promoting institutional capacity and regulatory reforms in developing countries to spur growth. Consequently, the recent attention to the

[58] Across this paragraph, the terms "governance", "institutions", and "public policy" are used indifferently, as most of the literature either does not discriminate among them or focuses on several of these aspects.
[59] Cf. Butkievicz and Yanikkaya, 2006: 650.

quality of regulation, to the control of corruption and to many other governance-related topics as pre-conditions for poor countries, other than as value in itself,[60] to receive aids is well-placed. On the contrary, if growth brings about good governance, then international bodies have to take into consideration that good institutions will develop subsequently and do not have to make aids conditional on them.[61] However, it has to be clear that nobody doubts that good institutions are conducive to growth. They are for sure, as it has been told in the previous paragraph. The question is if this happens because of institutions producing the causal effect or vice versa. Put simply, "who comes first?".

The analysis should start from a very basic point. Good governance is neither the only nor the most important driver of economic growth. Even if it ended up being the cause and not the effect, it would be just one among many others, such as physical capital, human capital, and technology. Furthermore, it is not a necessary cause, as proved by the existence of poorly governed or dictatorial countries with impressive growth path.[62] At the same time, economic growth as well is not the unique reason behind good governance, although the two phenomena are correlated. The existence of good institutions depends upon several other factors, such history, human and civic capital.[63]

To say a conclusive word on the debate, supporters of the "institutions come first" theory tend to use econometric instruments to empirically estimate the relationship. The problem when regressing growth on governance is that

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[60] As it is effectively noticed in Glaeser *et al.*, 2004: 298.
[61] Very bluntly, Kauffmann and Kraay ask, in case economic growth is considered to be the cause of better governance, if "good governance is a 'luxury' that only rich countries can 'afford'." Kauffmann and Kraay, 2002: 3.
[62] As an example, China is not a free or democratic country by any definition, but it is growing fast. India is a democracy, but none would consider it being efficiently governed. Still it is growing fast.
[63] For a definition of civic capital, cf. Djankov *et al.*, 2003b: 9-11.

those variables are likely to be affected by simultaneity. The typical growth regression looks like equation 5:

(5) $$y_j = \alpha + \beta \cdot g_j + \varepsilon_j$$

Where *y* is *per capita* income, *g* is governance, ε is the error term, α and β are the two parameters to be estimated and *j* (j=1,…,J where J is the number of countries) is the subscript for each country. Simultaneity implies that "one or more of *[the]* explanatory variables are jointly determined with the left-hand side variable"[64]. It means that in the error term there are factors also influencing *g*, therefore governance is correlated with the error term[65] and it is called an endogenous variable (with respect to the causal effect measured by β). Consequently, the assessment of the parameters through the usual Ordinary Least Square (OLS) method will deliver inconsistent estimates. To overcome this hindrance, econometricians may resolve to use the Instrumental Variable (IV) estimator. "An instrumental variable *[…]* is a variable that can be assumed to be uncorrelated with the models error ε but correlated to the endogenous regressor *[…]*."[66] The IV estimators are non-distorted and consistent, but their precision (i.e. their standard error) may be lower if the correlation between the endogenous and the instrumental variable is tenuous.[67] If IV regression is correctly carried out on equation 5, β will purely measure the relationship between governance and growth and no other factors.

Part of the literature focused on the search of an instrumental variable for governance. An instrumental variable would be fit if it was correlated with governance but had no effect on income other than through governance (i.e. it was not correlated with the error term). It is very difficult to think of a

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[64] Verbeek, 2004: 129.

[65] I.e.: $E(x_j \varepsilon_j) \neq 0$.

[66] *ibidem*: 133. I.e.: $E(z_j \varepsilon_j) = 0$ and $E(z_j x_j) \neq 0$, where z is the instrumental variable.

[67] And if the independent variable and the error term are not correlated, but we assume they are.

phenomenon having an influx on governance, but not on *per capita* income. Acemoglu, Johnson and Robinson[68] come out with an original proposal: they use European settlers' mortality rate in colonies as an instrument for governance. Their idea is that Europeans settled in colonies where settlers' mortality rate was low and brought with them the European institutions to be transplanted. Since institutions change only slowly over time, early institutions have an impact on current ones. This causation chain is confirmed by the correlation between settlers, mortality rate and assessments of the current institutional quality.[69] For the instrumental variable to be fit, it must also not be correlated with the error term, that is "mortality rates of settlers between the seventeenth and nineteenth centuries have no effect on income today other than through their influence on institutional development."[70] To verify if this proposition holds, the authors test the instrumental variable controlling for identity of the main colonisers, legal origin, climate, religion, geography, natural resources, soil quality, measures of ethnolinguistic fragmentation, current disease environment, and the current fraction of the population of European descent. Having passed these tests, the IV regression shows that institutions have a significant impact on *per capita* income and that the magnitude of the impact is greater than that obtained by the simpler OLS regression.

This model strongly supports the hypothesis that institutions cause growth and Acemoglu *et al.*'s paper is often quoted in the debate about causality. E.g., Kauffmann, Kraay and Mastruzzi, themselves supporters of this hypothesis, consider their econometric model as well-demonstrated. They state that:

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[68] Acemoglu *et al.*, 2001.
[69] Cf. *ibidem*: 1370-1371.
[70] *ibidem* : 1383

> [i]*n another highly influential paper, Acemoglu, Johnson, and Robinson (2001) have shown that the historically determined component of institutional quality has had a strong causal effect on current levels of per capita income across countries today.*[71]

Going on with the analysis, in their influential paper "Growth without governance"[72], Kauffmann and Kraay deepen previous IV models to precisely identify not only whether governance matters for *per capita* incomes and the magnitude of the effect, but also to discriminate this correlation into a **strong positive influx of governance on incomes** and a weak **negative influx of incomes on governance**. To do so, they use non-sample information, making several hypotheses on the variance of governance indicators, the extent of measurement error in *per capita* incomes, and the importance of omitted variables. It is not easy to judge the soundness of the hypotheses: Kauffmann and Kraay call them "judicious"[73], Kurtz and Schrank define them as "heroic".[74] However, it can be said that they are not always well-defended. E.g., as a measurement of the variance of governance indicators, Kauffmann and Kraay use the variance of the WGI indicator "Rule of Law". To demonstrate that the variance could not be much higher, they say that if it was, the WGI indicator would not be informative. Since they consider the WGI to be informative (that is, not having an excessive standard error, the square root of variance), the variance cannot be so high. It sounds like a circular unconvincing reasoning. However, if the model is accepted, then it will prove that governance has a strong impact on *per capita* incomes and that incomes negatively influence governance, excluding the existence of a virtuous cycle.

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[71] Kauffmann *et al.,* 2007c: 561.
[72] Kauffmann and Kraay, 2002.
[73] *ibidem*: 3.
[74] Kurtz and Schrank, 2007: footnote 7.

Arndt and Oman[75] try to discriminate the reciprocal effect by using a model with simultaneous equation where both governance and *per capita* income are instrumented. As instrument for governance, they also use settlers' mortality. As instrument for income, infant mortality rate is chosen. It is considered to be correlated with *per capita* incomes, but not with governance. Kauffmann *et al.* criticise this approach underlying that: "*[i]*nfant mortality rates depend in considerable measure on public health interventions, and it seems plausible to us that the quantity and quality of these in turn depend at least in part on governance."[76]

Also the employment of European settlers' mortality rate is criticised for same reason. Glaeser *et al.* make a very simple statement writing that:

> *it is far from clear that what the European brought with them when they settled is limited government* [i.e. their institutions]. *It seems at least as plausible that what they brought with them is themselves, and therefore their know-how and their human capital.* [… V]*alid instruments must be uncorrelated with the error term, and if settlement patterns influence growth through channels other than institutions, they are not valid instruments.*[77]

If this is true, the Acemoglu *et al.*'s approach needs to be abandoned. This is confirmed by the fact that years of schooling are strongly correlated both to the settlers' mortality rate and to the economic development.[78] It has also to be noticed that any measurement of human capital is absent among the control variables employed by Acemoglu *et al.*

The importance of human capital is confirmed by the econometric estimations. They show that initial human capital is a strong predictor of subsequent growth and that measurements of governance and institutions lose their significance if human capital is added to the regression. The significance of human capital for

[75] Cf. Arndt and Oman, 2006: 80-83.
[76] Kauffmann *et al.*, 2007b: 30.
[77] Glaeser *et al.*, 2004: 289.
[78] Cf. *ibidem* : 290-293.

growth is not really a new fact in the economic literature.[79] However, Glaeser *et al.* also formulate the hypothesis that human capital is not only a driver of growth, but **it is the common driver both to growth and good institutions.** Formulating the theory upon previous studies by Lipset, Przeworski and Barro,[80] they affirm that human capital causes institutional improvement and that institutional outcomes depend to a large extent on the endowment of this factor. This is coherent with the fact that countries with similar level of income and political system do not grow with the same pace. This theory does not imply that institutions do not promote growth, but that the quality of governance is primarily an effect of another factor, which should be more thoroughly promoted by the international community.

> *This evidence is at most suggestive. But it does suggest that, from the point of view of understanding the emergence of countries from poverty, the focus on placing constraints on government as a starting reform may have been misplaced. The focus on factor accumulation, including the growth in human capital, might have been more productive.*[81]

Maybe a conclusion of the discussion could be a statement of Prof. Kirkpatrick, who stressed that although poor countries are in need of good instutions to foster growth, this is not their most urgent need, and other factors should be provided.[82]

B.3.2.Institutional quality and the effect of international trade

A very interesting research question analysed by recent literature is the inter-relationship between institutional quality and the impact of trade on

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[79] Cf. Ali, 2003: 348-350; cf. Glaeser *et al.*, 2004: 279-282.
[80] Cf. *Lipset S. M. (1960)* Political Man: The Social Basis of Modern Politics – Doubleday, New York (NY); cf. *Barro R. J. (1999)* Determinants of Economic Growth – MIT Press, Cambridge (MA). cf. *Alvarez M., Cheibub J. A., Limongi F., Przeworski A. (2000)* Democracy and Development: Political Institutions and Material Well-Being in the World, 1950-1990 – Cambridge University Press, Cambridge (U. K.). Cit. in Glaeser *et al.*, 2004.
[81] *ibidem*: 287.
[82] European Network of Better Regulation final conference, Center for European Policy Studies, Brussels, 17th of December 2008.

growth. Starting from Frankel and Romer's contribution, [83] the positive influx of trade on growth has been acknowledged. However, further research has challenged this findings suggesting that the results are not robust to the inclusion of institutional quality and that trade may even have a weakly negative effect on income if institutions are accounted for.[84] In this paragraph the effects of institutional quality on the benefits of trade will be dealt with, analysing if they exist and their magnitude. Then, we will focus on the channel through which this relationship works and on the aspect of institutional quality playing the bigger role.

The strategy to empirically test the relationship is to insert in a growth-regression similar to equation 5 a term for trade and a term where trade and institutions interact. The regression will look as follows:

(6) $$y_j = \alpha + \beta_1 \cdot g_j + \beta_2 \cdot T_j + \beta_3 \cdot g_j \cdot T_j + \beta_4 \cdot \boldsymbol{X_j} + \varepsilon_j$$

where T_j is a measure of trade, like for example openness (import plus export out of the GDP), $g_j \cdot T_j$ the term capturing the interaction between trade and growth, and $\boldsymbol{X_j}$ is a vector of controlling variables. [85] Although the significance level is not always perfect, the coefficients for governance, trade and the interaction term have the expected sign and also the expected magnitude. The coefficient of governance is positive, the coefficient of trade is positive, and the coefficient capturing the interrelationship is negative and larger than the coefficient of trade. This means that trade has a negative impact on income of countries with low institutional quality, while it magnifies the effects of good institutions.[86]

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[83] *Frankel J. A., Romer D. (1999)* Does trade cause growth? – American Economic Review, Vol. 89, Issue 3, pp. 379-99. Cit. in Desroches and Francis, 2006: 1, cit. also in Borrmann *et al.*, 2006: 11.
[84] For an in-depth analysis, cf. Rodrik *et al.*, op. cit. (footnote 45); cf. also *Rigobon R., Rodrik D. (2004)* Rule of Law, Democracy, Openness and Income: Estimating the Interrelationships – Review of Economics and Statistics, Vol. 85, Issue 4, pp. 777-792.
[85] Problems could arise since openness and governance are positively correlated (cf. Gani and Prasad, 2006, 18). This can be overcome by using IV regression.
[86] Cf. Borrmann *et al.*, 2006: 12-15; cf. Desroches and Francis, 2006: 3; 23-27.

The same results hold if in equation 6 the left-term is substituted by a measure of the level of sophistication of the country's export, as Desroches and Francis do. Their estimates show that the quality of institutions has a positive and statistically significant impact on the level of sophistication of the country's export, that is on its position on the international chain of value compared to other countries. At the same time, the interaction term has a negative and statistically significant coefficient, meaning that low institutional quality hampers a country's competitiveness on the international markets.[87]

Desroches and Francis ask what mechanism is at play in linking the effect of trade on growth and institutional quality. They build an equilibrium model to simulate the impact of an improvement of institutional quality in a closed economy. They demonstrate that the quality of institutions influences the comparative advantage of a country, namely the advantage in producing capital-intensive goods. The authors suppose that institutional quality enters in the model as a factor influencing company managers' theft. That is, they suppose that a fraction 1-α of capital earnings is stolen by managers and that α depends positively on the quality of institutions, namely those designed to protect the rights of investors. They demonstrate that if the quality of institutions increases, the capital per worker and the capital per worker employed in consumption goods-producing sectors increase as well. The wage to rental ratio increases and the price of capital-intensive consumption goods falls relative to the price of labour-intensive. If two open economies are considered, one with a high level of institutional quality and the other with a low level, then the difference in institutions gives the former a comparative advantage (i.e. lower relative price) in capital-intensive production. This situation is not going to change in the long run, therefore the country with

[87] Cf. Desroches and Francis, 2006: 17-23.

better institutions will be structurally better located in the chain of comparative advantage (measuring the capital-intensity of the country's exports).[88] The mechanism described above works in this way because the institutions are thought of as a determinant of capital rent, indirectly through the amount of rent stolen by company managers. However, this is just a possible (and rather narrow) effect of institutions on the economy. The model could change by thinking of the quality of institutions as a determinant of wages, i.e. through a better labour market regulation. Although an alternative model has not been built, it is reasonable to think that **if** institutions are supposed to impact on wages instead of rents, results may be different

In their work, Borrmann *et al.* analyse the sub-components of institutional quality having the biggest impact on the interaction between trade and growth.[89] The sub-components are good governance, as measured by the six indicators of WGI, and regulation, as measured by the Doing Business project. Their conclusion is that regulation matters more than good governance.[90] Among different regulation fields, labour market regulation has the biggest impact on the relationship between trade and growth. Other important factors are the regulation of entry and the tax burden. They explain this result considering that international trade openness allows a pro-efficient reallocation of resources among winning and losing sectors, whilst regulation, especially as far as labour market and entry barriers are concerned, hampers this mechanism.

[88] Cf. *ibidem*: 4-17.
[89] Cf. Borrmann *et al.*, 2006: 12-20.
[90] Among good governance, the factors having a bigger impact are Rule of Law and Control of Corruption.

SECTION C. PROS AND CONS OF A COMPOSITE INDICATOR OF REGULATORY CAPACITY

Although the measurement of governance has come a long way, there are still improvements to be achieved and scholars try to cast a light on the direction future research should take. In the literature there is evidence that more studies are needed in the field of measurement of institutions rather than exclusively of regulatory outcomes. Furthermore, there is also the need to develop fact-based indicators alongside the widespread perception-based ones. An example is the following quotation by Glaeser *et al.*:

> [Our results] *suggest that research in institutional economics, and in particular on the consequences of alternative institutional arrangements, must focus on actual rules, rather than on conceptually ambiguous assessments of institutional outcomes.* [… O]*ur results suggest that the current measurement strategies have conceptual flaws, and that researchers would do better focusing on actual laws, rules and compliance procedures that could be manipulated by a policy maker to assess what works.*[91]

The remaining part of this thesis will try to describe a possible theoretical framework for the creation of an index of regulatory capacity. The aim of this work is not to "correct" existing indicators, but to create a new tool which is complementary to the current focus on regulatory outcomes and use both objective and subjective data, representative of different groups of stakeholder. At the same time, we want the index to be context-aware to the maximum possible extent. We do not want to ameliorate the Kauffman index, Doing Business or the ICRG, although some criticism is inevitably part of this thesis. We want to enlarge the state-of-the-art of governance indicator by employing

[91] Glaeser *et al.*, 2004: 298.

the best techniques which have already been experimented in a field which is currently under-researched.

This section shows the pros and cons of the would-be-created indicator of regulatory capacity. Section D explores the needs and the techniques to create a context-aware indicator. Section E gives a definition of regulatory capacity and operationalises the concept by listing the components of the index.

C.1. Pros of a composite indicator of regulatory capacity

Regulatory capacity is a synthetic expression encompassing the inputs and the processes employed by a country to formulate, monitor and enforce regulations,[92] regardless of the public body(ies) concerned, be it the Parliament, a ministry, an agency or an independent authority, and regardless of the norm hierarchy, that is whether the regulation is issued by law, by secondary regulation or by any other administrative act. For the sake of simplicity, we temporarily assume that the regulatory capacity is positively correlated to the regulatory quality, that is that if a country is endowed with more regulatory capacity, it will produce a better regulation. In turn, a better regulation will create conditions conducive to a greater competitiveness, to less resource diversion and waste, to a greater stakeholders' satisfaction and, finally, to a higher level of welfare. Improving the regulatory capacity is therefore a mean to improve the overall economic performance of a given country. Assumed this reasoning as true, measuring the national regulatory capacity is a good intermediate target on the path to improve it.

[92] Cf. paragraph E.1.4 for a comprehensive definition of regulatory capacity.

The regulatory capacity is a multi-faceted phenomenon and measuring it implies gauging many phenomena and many institutions governing the regulatory process. Once the data on single aspects have been collected, an aggregate regulatory capacity indicator can be a powerful analysis instrument for several reasons:

1) **Synthesis**. Creating a regulatory capacity aggregate indicator would be useful in synthesizing the information concerning different aspects in a single instrument, which would provide an imperfect but easy-to-access picture of a country situation;

2) **Reduction of error**. An aggregate indicator comprehends several measurements of a single phenomenon, therefore can "averag*[e]* out and so reduc*[e]* the measurement error and otherwise reduc*[e]* the influence of idiosyncrasies of individual data sources"[93]. Each single source is indeed influenced by unavoidable errors of measurement, which can arise from the process itself or from other reasons, such as the fact that the variable is an imperfect proxy of what is intended to be gauged[94]. If the errors are uncorrelated among different sources, the error of the composite index is going to be smaller, because of errors' compensation. Otherwise, if the errors among sources are correlated, the aggregation process does not reduce the measurement errors.

3) **Explicit margins of error**. Given certain conditions, a composite index allows the calculation of explicit margins of error. Following the example of the WGI, explicitly calculating the standard error alongside each country score, the composite indicator of regulatory capacity will

[93] Kauffmann and Kraay, 2007b: 4
[94] E.g.: the existence of a common supervisory office for RIAs can be a verifiable, but imperfect proxy for the coherence of the regulatory process. Cf. paragraph E.2.4.3.

underline the degree of accuracy of the scores and/or (if any) the rankings, by providing a range of probabilistic variability. We agree with Kauffmann *et al.* stating that:

> *"only by using aggregate indicators with transparently-reported margins of error (such as the WGI) are users even able to know whether observed differences in point estimates of governance are in fact significantly different across countries."*[95]

Unlike the Kauffmann index, where the margins of errors are calculated through the aggregation of several sources via the unobserved component model, the margins of errors of regulatory capacity will be computed via an uncertainty and sensitivity analysis. This analysis will assess how the index results would change if some of the underlying theoretical hypotheses changed. The results of the index will therefore be communicated together with a range of variation, showing the possible result of index designers' different choices. [96]

4) **Communicability**. Even though it is less informative, a composite index is much more media and user-friendly than the underlying dataset. Provided that communication is not misleading, the index can reach and influence a larger audience;

5) **Comparison among countries and benchmarking.** A carefully constructed composite indicator can allow more comparisons among countries than a single indicator. Even though two countries are not comparable with regards to a single sector or a single regulatory tool because of institutional differences and/or of different political options, their regulatory capacity can be compared through their

[95] Kauffmann *et al.*, 2007b: 11.
[96] For an example of uncertainty and sensitivity analysis applied to a composite indicator, cf. Nardo *et al.*, 2005b: 94-99

overall regulatory capacity index. Moreover, the regulatory capacity comparison is often based on best practice sharing, which may bring about problems of "fashion following"[97] and does not allow taking into consideration the whole institutional framework in which the practice takes place. A good composite indicator would allow country-to-country benchmarking and time-series based assessment of regulatory reforms, avoiding the logic of anecdote-based best practice comparison;[98]

6) **Neutrality**. Even though composite indicators are often accused of being biased (especially pro-business biased) and of hiding their biases, a composite indicator of the regulatory capacity could, and should, in principle be constructed so to be as neutral as possible as regards the political framework. Indeed, measuring and assessing the regulatory capacity will be done regardless of the values the regulation pursues, because it does not comprehend any evaluation about either the outputs or the outcomes. Furthermore, since an aggregate indicator can be based on objective data, such as the institutional framework, as well as on subjective data, such as the perceived transparency of a consultation process, it permits to take into consideration different stakeholders' views.

7) **"Actionability"**. A numeric synthesis of the regulatory capacity of a given country, if supported by an underlying set of sub-indicators and objective data, would be an actionable instrument, allowing to identify the areas where an intervention is needed and to monitor the process.[99]

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[97] Cf. Manning *et al.*, 2006: 32-33

[98] For the drawbacks of using only best practice sharing methods, cf. *ibidem*: 11.

[99] Kauffmann and Kraay point out that an actionable index has to be also action-worthy, so to avoid to undertake only reforms which bring few but verifiable (and included in the indicator) benefits. Cf. Kauffmann and Kraay, 2007b: 6.

This is the main aim to be pursued when building a regulatory capacity composite index: it is a tool useful for public service experts and reformers.

8) **Subjective and objective data**. Building the indicator of regulatory capacity, we will stick to Kauffmann and Kraay's opinion that both are needed to produce a sound and realistic measurement of regulatory governance. Therefore, the index will achieve a high degree of "actionability", but will not neglect the possible gaps between rules and their real implementation. Furthermore, as far as subjective data are concerned, they will be collected from different groups of stakeholder, trying to avoid any possible bias.

A *caveat* needs to be pointed out before examining the major difficulties in constructing such an index. The attainment of the above listed pros is conditional on how the indicator can be built and on the underlying data. It is worth noting that an authoritative international organisation such as the Organisation for Economic Cooperation and Development (OECD) strongly doubts about the practicability and the usefulness of composite indicators in its "Government at glance" project, which deals also with regulatory quality and regulatory capacity, among a myriad of other topics. The creation of composite indicators is not totally excluded, but will be conditional on very strong specifications.[100]

C.2. Cons of a composite indicator of regulatory capacity

[100] Cf. Manning *et al.*, 2006: 45-49.

Many, and sometimes insurmountable, difficulties have to be overcome to create a regulatory capacity composite indicator. In this section the focus will be on the drawbacks of the construction of the indicators which are peculiar or particularly relevant for a regulatory capacity index. These drawbacks can be split into two categories: statistical and theoretical drawbacks. The former consist of the technical difficulties in aggregating data about regulatory capacity. The latter relate to the possibility that a carefully constructed regulatory capacity indicator could not fulfil the aim it is supposed to, because ontologically incorrect.

C.2.1. Statistical difficulties[101]

Statistical difficulties relate to problems which arise from a sort of "technical discretion" in designing a composite indicator of regulatory capacity. These difficulties arise because of the researcher taking decisions which seem to be based on some statistical and technical objective principles, but are instead discretional and able to have a strong impact on the final outcome.

Overcoming those drawbacks is possible, but different authors are likely to have different opinions about the choices to be made, resulting in non-compatible indexes. Transparency and consensus are the remedies for this hindrance. To build a transparent indicator, the researcher has to make explicit and justify each technical choice, not considering anything as "naturally given". Consensus means the use of a bottom-up approach, analysing what kind of "highest common denominator" emerges from the literature, from experts' opinion and from stakeholders' views about different solutions of the same problem. Different approaches and different studies are likely to disagree on

[101] In this paragraph the analysis path provided by Nardo *et al.* (Nardo *et al.*, 2005a) will be followed. The problems related to different definitions of the same phenomenon given by different groups of people or in different institutional frameworks (step 1 of Saisana *et al.*'s analysis) are to be found in paragraph C.2.2.

the details, but could reach a shared opinion about some key points, diminishing the risk of constructing completely incompatible indicators.

C.2.1.1. Data selection and measurement process

Many studies about regulatory capacity are available, but most of them analyse the problem from a qualitative point of view, whilst an analytical and quantitative approach would be needed to create a composite index. In principle, even qualitative differences can be included in the index, by creating dummy (or quasi-dummy) variables[102], that are variables which assume discrete values, usually scaled from 0 to 1, to signal a peculiar characteristic of the regulatory framework of a given country. While a certain number of those variables need to be used to account for qualitative differences, it is to be born in mind the values the researcher attaches to certain phenomena are somehow arbitrary. E.g. take into consideration the regulation of business entry. A business licence can be granted by different layers of territorial government: by the municipality, an intermediate body such as a region, or the state, e.g. by a ministry. The scale of values used to assess this phenomenon depends on the author's belief: does he prefer federalism because of its efficiencies or centralism because of a rational industrial organisation? And if the licence is granted by an intermediate body, does he assign half the value? Or two thirds? Or maybe zero because both alternatives seem superior to him? This problem can be overcome only by:

1) analytical studies which shed light on the links between government levels and efficiencies of business entry licences;
2) a wide consensus among stakeholders regarding the best option;
3) excluding this variable because it cannot be univocally measured.

[102] This "dummy" approach is largely used e.g. by Doing Business, which deals with a similar problem: how to attach values to law-on-the-book discrete phenomena. Cf. *i. a.* Djankov *et al.,* 2002.

In many cases the third option may be the only one available. This would hinder the validity of the indicator, which would describe only what can be measured instead of what should be measured.

Another, possibly more important, problem arises from the decisions concerning the inclusion or exclusion of any variable from the index. Ideally, the researcher should include in the index every variable he deems to be relevant. But to be included in the indicator, a variable has to be measured across a quite wide range of countries in a uniform way. Again, the risk is to create an indicator of what can be measured, but not of what should be measured. For developed countries, a database about regulatory quality is provided by the OECD. Even though it is not exhaustive of the concept of regulatory capacity, the publication "Indicators of regulatory management systems"[103] could constitute a sound basis to create a pilot composite indicator.

C.2.1.2. Weighting and aggregation

There are many difficulties concerning the choices about weighting and aggregation systems available to construct a composite indicator. They seem to be technical choices, but they often have a strong impact on the results. The only way to reduce arbitrariness is to make those choices, and the underlying assumptions, clear and to provide a sensitivity analysis, that is an analysis of how the results would change if different assumptions were to be made.[104] Even choosing an "aseptic" and mathematic way of weighting different variables has to be justified by the author[105], as much as choosing not to use any

[103] That is Jacobzone *et al.*, 2007a.
[104] Cf. Saisana *et al.*, 2005.
[105] See for example how in the unobserved component model different sources are weighted on the basis of their correlation with other sources. Even though there is a formula to mathematically determine the weights, this methods is based on a precise assumption (non-correlation of errors among sources) and has precise effects (underestimate the weights of sources using different methodologies, even though they were correct). Cf. *i.a.* Kauffmann *et al.*, 2007a: 11 and *infra;* cf. Arndt and Oman, 2006: 58-60.

weighting methods (i.e. to give the same weight to each variable). In the latter case, the author is ideally dealing with equally important variables and consequently avoids giving an implicitly greater weight to phenomena measured by more variables just because of their measurability.

C.2.1.3. Relationships to other variables

Another feature is mandatory for a sound composite indicator: it has to be correlated to other variables which are deemed to be important for the overall welfare of the society. E.g. an indicator of regulatory capacity would be useless if it were not linked with the level of regulatory quality.[106] We have assumed this relation as given in paragraph C.1, but, of course, if a regulatory capacity index were created, this relation would have to be investigated so to assess the fitness-for-use of the indicator. In the meantime, the indicator of regulatory capacity would be useless if not correlated with more general variables like the GDP growth or the stakeholders' trust in the regulatory bodies. Also in choosing which variables the index should be linked with, a minimum consensus should be reached among different stakeholders and different institutional systems.

C.2.2. Ontological difficulties

With the term ontological, we are not referring to difficulties which are matter of any technical discretionary choice, but to issues related to the possibility and appropriateness of a regulatory capacity indicator. Those difficulties do not arise from the question "how to build a regulatory capacity index?", but from "is it possible to measure the regulatory capacity with a single indicator?" and "would this indicator be a relevant and informative measure?".

[106] A concept that in itself is very difficult to measure.

The major problem a composite indicator has to deal with is the multiplicity of aspects, techniques and economic phenomena that regulation encompasses and/or concerns. The thousand sides of this concept increase the danger of building an indicator which comprehends too many different variables. In the composite indicator literature it is often used the expression "to avoid adding up apples and oranges", but we run the risk is to include in a single indicator the whole greengrocery's shop window, creating an index which actually does not say anything useful to evaluate the regulatory capacity of a given country. E.g. if part of the regulation is enacted by law, should the parliamentary structure be included in the indicator, so to verify if monocameralism or bicameralism endows the system with more or less regulatory capacity?[107] Adding this and many other variables, probably relevant when studying the inputs and the processes which lead to the creation of regulations, would help to draw an overall picture of the regulatory system of a country, but would dilute the usefulness of such indicator. Therefore, carefulness is needed to determine what is to be put in the index and how. Of course, there are many composite indicators measuring large phenomena and containing many different variables and/or sets of sub-indicators, like the ones measuring the extremely wide and vague concept of governance. Nevertheless, studying the regulatory capacity is not the same as giving a judgment about the overall quality of the governance in a country. The aim of a regulatory capacity composite indicator is neither to draw a picture of the global situation in a given country nor is mainly directed to the regulation stakeholders, which would probably be much more interested in regulatory quality measurement. A regulatory capacity composite index should provide a useful instrument for country benchmarking and for individuating the area where an improvement is

[107] Cf. paragraph E.2.4.5.

needed. This is why in my opinion the general indicator needs to be matched by other policy- and tool-specific smaller composite indicators.

Then, the differences in the countries' institutional framework have to be born in mind when constructing the indicator. Different countries regulate or do not regulate different sectors through different instruments and delegate this task to different institutional bodies. It is difficult to imagine an assessment criterion able to neutrally evaluate different regulatory frameworks without using some kind of value judgments as scale. Again, the correct approach to reach a "highest common denominator" would be a bottom-up approach based on an as wide as possible consensus-building process among scholars, stakeholders and regulatory bodies. Furthermore, the researcher must use statistical techniques enabling the creation of a context-aware index.[108]

Last but not least, the definition of good regulatory capacity may differ among the different actors involved in the regulatory process.[109] Politicians may wish the regulatory process to be based on consensus and on negotiation, whilst independent authorities may consider a fit regulatory process the one separated from political negotiations. Again, citizens may pressure for an as larger as possible consultation mechanism, whereas firm might prefer it to be carried out among narrower circles of interested parties. Before being able to build a regulatory capacity index, such differences should be taken into account, aiming at least at finding common criteria of regulatory capacity shared by different stakeholders.

[108] Cf. D.3.2.
[109] This aspect is explored in Radaelli, 2008a.

SECTION D. PICKING UP A MODEL

D.1. There are more things in heaven and earth than are dreamt of in our economics

The thorniest problem when assessing the regulatory capacity of a country through a composite indicator is to take into consideration how regulation models vary across various nations. If we did not find a way to include those differences in the index, we would not measure the regulatory quality of a country but just its "stickiness" to the theoretical model underpinning the composite indicator. Disregarding diversity, the indicator would result in a measure of how much a country pursues the goals indicated in the theoretical model, using the instruments the researcher believes to be the most efficient.

If every country agreed on what regulation should aim at, the correct approach to compare the different regulatory systems would be to elicit the goal to be pursued and to explore the efficiency of the used instruments. Instead, the regulatory systems differ across countries not only because of dissimilar levels of efficiency, but also because states reach different targets through regulation. The political and administrative bodies of a given nation do not design its regulatory structure only because of economic and/or efficientistic consideration, but ground their decisions also on political and cultural values and goals. These goals and values must be included somehow in our analysis or it would not be representative of the real world. Dixit states clearly what the economists' approach should be when assessing policymaking systems, such as the regulatory one:

> *"When these observers [the economists] judge the performance of a policymaking system, they should admit the legitimacy of noneconomic goals and ask if a feature of the outcome that appears prima facie*

inefficient is in fact a reasonable way of striking a balance between the various interests, or multiple principals [.]"[110]

Efficiency should matter, but should not be the only yardstick when economic analysis is applied to a complex feature such as regulatory capacity, which is a political, social and legal phenomenon as well. As a methodological principle, the goal of a regulatory capacity index should not only consist in discovering which system is more efficient, in accordance to an external comprehensive model, but also **how efficiently a system works given the aim(s) it pursues**. This principle not adopted, building an index would result in finding which nation is more similar to the "theoretical regulatory paradise on earth" depicted – clearly or implicitly – in the model.

Other important factors help to explain the regulatory structure of a country, namely history and institutions, including the general legal framework. La Porta *et al.*, beginning with their studies on shareholders' and creditors' rights[111], have used the origins of legal systems as the basic factor to classify them and have repeatedly shown that "there is by now a great deal of evidence that legal origins influence legal rules and regulations"[112], that is, for our purpose, legal origin has a deep impact on the goals and the tools of the regulatory system

The importance of history, or "path-dependency" is sometimes neglected by many economic analysis of governance, but it has to be included if we aim to assess complex phenomena such as regulatory capacity. Some economic approaches however are aware of it: for instance, when analysing the

[110] Dixit, 1996: 147.
[111] Cf. La Porta *et al.*, 1996.
[112] La Porta *et al.*, 2007: 27. Also cf. Djankov *et al.*, 2003b: 28.

mechanisms of governance within the paradigm of transaction costs-based economics, Williamson affirms that:

> *"Transactions costs economics not only subscribes to the proposition that history matters, but relies on that proposition to explain the differential strengths and weaknesses of alternative forms of governance.* […] *The entire institutional environment (laws, rules, conventions, norms etc.) within which the institutions of governance are embedded is the product of history. And although the social conditioning that operates within governance structure* […] *is reflexive and often intentional, this too has accidental and temporal features."*[113]

The analysis of governance must therefore be contextualized to produce a realistic cross-country comparison and efficiency cannot be the only assessment criterion. Introducing history, institutions and the legal framework, as well as encompassing political and cultural values, in the analytical instruments means taking into account that efficiency is sometimes constrained by external impediments.

> "[C]*oncerning the normative evaluation of different policies, judgements that existing policies are inefficient and recommendations of better alternatives, [the economic analyst] should recognize the full set of constraints on policy-making: the historically determined rules that cannot be changed within the current context, the information asymmetries, the independent action available to various political principles and so on."* [114]

Useless to say, some of those constraints on efficiency are intentional, that is efficiency is traded off for other goals or to have the regulatory system correctly embedded within the country's institutions and legal framework.

All those above-listed factors are neither ephemeral nor secondary: in the design of a regulatory structure they may be much more significant than economic and efficientistic goals. An economic analysis of regulatory capacity must deal with them, because they are imposed and very resilient (even though

[113] Williamson, 1996: 240.
[114] Dixit, 1996: 146

surely modifiable)[115] constraints which define and limit the regulatory system. Dixit warns that a policy or a system can be judged as inefficient only after having taken those binds into account: "a policy should not be condemned as inefficient unless a superior alternative that respects all these concerns can be demonstrated."[116]

This section will be composed of two paragraphs: the first is theoretical and analyses why composite indicators should include diversity and not stick to just one model; the second develops different approaches to deal with the technical problem of including diversity in the regulatory capacity composite indicator, presenting definitional, methodological and statistical proposals to reach this goal.

D.2. (Refusal to) deal with diversity

D.2.1. The easiest way: picking up a model. The example of Doing Business

Most composite indices about governance or the regulatory system assume that there is a model that constitutes the benchmark, or, in other words, that is the best option available. The features of the model are supposed to allow a country to achieve basic economic targets deemed to be fundamental for the overall welfare, e.g. GDP growth. The elements and the construction procedure of these indices often imply that the researcher is going to measure the distance between a country and the underlying model. This can be a legitimate goal for a composite indicator (provided it is stated clearly and transparently), but it is not the only one that such an instrument can pursue. A

[115] About the resiliency of e.g. the legal framework, cf. La Porta *et al.*, 2007: 38-39.
[116] Dixit, 1996: 146

composite indicator about regulation should be able to give a wider picture of this complex phenomenon. Moreover, there must be an economic literature thoroughly confirming that the features of the underlying theoretical model have a statistically relevant impact on the economic targets that governance and regulation are supposed to pursue.

A major and well-known example of a regulatory index based on a first-best model to compare the regulatory quality and the business climate of most of the world countries is Doing Business, an annual publication by the World Bank Group.[117] The Doing Business project is composed of several indicators, which are supposed to "measure business regulation and the protection of property rights – and their effect on businesses, especially small and medium-size domestic firms"[118], by assessing the degree of regulation, the regulatory outcomes and other features. The overall project is divided in ten areas. For each area, an index, composed of several sub-indicators, is built, to measure some aspects of the regulation faced by the enterprises in a given country. Those areas, and what is measured, are:[119]

1) Starting a business: procedures, time, cost to obtain a licence to start up an industrial or commercial business and the level of the paid-in minimum capital;
2) Dealing with licences: procedures, time and cost for a firm to build a warehouse;
3) Employing workers: rigidity of employment, nonwage labour cost and firing cost;
4) Registering property: procedures, time and cost for a firm to transfer a property title over a building;

[117] Doing Business is an annual publication. The latest available edition, World Bank, 2007 is used as reference.
[118] World Bank, 2007: 67.
[119] Cf. *ibidem:* 69-81.

5) Getting credit: the strengths of borrowers' and lenders' legal rights and the depth of credit information;
6) Protecting investors: the strength of the minority shareholders' protection measures;
7) Paying taxes: procedures and time for a firm to comply with tax obligation and the total tax rate imposed over businesses;
8) Trading across borders: procedures, time and cost for a firm to export or import goods;
9) Enforcing contracts: the efficiency of the judicial system in resolving a commercial dispute;
10) Closing a business: time, cost and outcome of bankruptcy provision.

To perform the measurement, the authors depict for each index a stylized realistic situation in which an average firm is faced with the domestic regulatory system. Each country receives a score for each index and the final ranking of the "ease of doing business" is calculated "as the ranking on the simple average of country percentile rankings on each of the 10 topics covered in *Doing Business 2008*."[120] The theoretical contexts of most of the ten indices have been thoroughly analysed in a series of papers, available on the Doing Business website.[121]

Doing Business assumes that the less regulated the best and does not take into consideration the benefits eventually brought about by regulation.[122] E.g. let's consider the "starting a business" area[123]. The sub-indicators of this area concern the number of procedures to start a business, the necessary time, the cost and the paid-in minimum capital. The most scoring countries are those

[120] *ibidem*: 82. Therefore, only the ranking information is retained in the final index and there is no hint about the level of "easiness" in each country.
[121] Cf. Botero *et al.*, 2002 (3); Djankov *et al.*, 2002 (); Djankov *et al.*, 2003a (9); Djankov *et al.*, 2006a (8); Djankov *et al.*, 2006b (10); Djankov *et al.*, 2007a (5); Djankov *et al.*, 2007b (7); Djankov *et al.*, 2008 (6). In brackets, the number of the indicator to which the paper refers.
[122] Cf. World Bank Independent Evaluation Group, 2008: 6.
[123] Cf. World Bank, 2007: 9-13; 69-70; Cf. Djankov *et al.*, 2002.

having the firms to go trough the least number of procedure in the shortest time and for the minimum cost and those not requiring any paid-in capital to start up. It does not take account of political and social trade-offs implicit in those phenomena, such as:

1) some procedures may be needed to verify that a goal the society deems to be important is pursued: e.g., some procedures may be requested for the safety of workers of for the protection of the environment. The least and the fastest the procedures are, the least checks are carried out. And whilst inefficiency can be a driver in increasing the number of procedures and the time needed, it is not the only one and these features can also spring from intentional political choices;[124]
2) depositing the mandatory minimum capital is a burden for start-ups, but serves the aim to protect creditors in the event of bankruptcy and could therefore be helpful to firms themselves, to the extent that lenders could be more willing to lend money because of this guarantee;[125]
3) the procedures carried out by the public administration have a cost. The share of cost falling on the shoulders of the start-ups may arise from inefficiencies, but also from the political will to have them bear the cost of the service.

The above-mentioned examples do not mean that the evaluation criteria adopted in Doing Business are wrong. What is pointed out is that other criteria are possible and that efficient and/or fair outcomes can be achieved by doing the opposite of what those criteria are saying. In particular, in the first example, it has been shown that countries can intentionally impose more burdens on the

[124] The same line of reasoning is valid, among others, for the area of enforcing contracts, whereas more procedure could also mean more accuracy or an inefficient judicial system. Cf. World Bank, 2007: 49-53, 82-83; Djankov *et al.*, 2003a; World Bank Independent Evaluation Group, 2008: 34-35.

[125] This method is adopted especially in the French civil law countries and has its rationale within the general legal framework, cf. La Porta *et al.*, 2006: 22-27

firm, reducing the system efficiency, so to pursue other goals. In the second example, it has been pointed out that burdens can also bring benefits to the firm itself and the index should take account of them. The third example is instead a matter of fairness and countries could also take it into consideration when enacting regulatory norms.

Besides, there is no consensus in the economic analysis about the identification of the relationship between the regulatory outcomes measured by Doing Business (as well as regulation in more general terms) and the overall economic targets better regulation is supposed to pursue.[126] As the World Bank Independent Evaluator Group points out, "research suggests, broadly speaking, that the regulatory framework does matter for economic outcomes, but it is inconclusive about which regulations matter most, and how much they matter compared with other determinants."[127] One of the most important determinants of the regulatory model adopted by a country is its legal origin, but still the legal origin cannot predict growth.[128] Besides, even though a relationship was found on data, there would be serious difficulties in identifying the direction of the causation,[129] because quality of regulation and general economic welfare are often mutually reinforcing phenomena.[130] This should be another reason not to pick a single first best model, since the scientific basis of this choice is not that thorough.

What should be made clearly visible is that Doing Business just measures how much a national system is "distant" from a zero-regulation model or from the least regulated country in the world. If any regulation is considered acceptable for the purpose of the index, it has to be based merely on efficiency,

[126] Cf. also Radaelli, 2006: 19.
[127] World Bank Independent Evaluation Group, 2008: 3.
[128] Cf. La Porta *et al.*, 2007: 28.
[129] Cf. World Bank Independent Evaluation Group, 2008: 5.
[130] Or at least, it has not been demonstrated that regulatory quality has an effect on growth whilst growth has not an effect on regulatory quality. Cf. paragraph B.3.1.

regardless of any other value and/or choice involved and of any consideration about possible benefits.[131] Besides, not even the country starting level is considered, since "*[s]*even of *[Doing Business's]* indicators presume that lessening regulation is always desirable, whether a country starts with a little or a lot of regulation."[132] This methodology implies that "it is difficult to tell whether the top-ranked countries have good and efficient regulations or simply inadequate regulation."[133] A very good example of this risk is the Employing Workers indicator, where the first then places are occupied by developed countries with flexible labour markets such as the United States, Australia and Denmark, but also by micro states such as the Marshall Island, Brunei, Tonga, Maldives and Palau. Those micro states are on top of the list not because an efficient labour legislation is in force, but because it is lacking, probably given that their dimension spares them some of the problems faced by a complex economy. For example, in the Marshall Islands there are no trade unions, no prohibition of compulsory labour, no laws setting the minimum age for employment, no legislation on maximum hour of work. Again, this index is not measuring the quality of the regulatory outcome or of the business environment, but just the "stickiness" of regulatory systems to the zero-regulation theoretical first best.

What is missing most in this methodology is the possibility to deal with diversity: "*[Doing Business]* is not intended, and cannot, capture country nuances"[134] and "*[t]*he indicators themselves cannot capture country context"[135]. This lack hinders the aim of measuring business regulation, which, as said, is a complex phenomenon where more goals, actors and values are involved. In my opinion, Doing Business could more correctly be seen as an

[131] Cf. World Bank Independent Evaluation Group, 2008: xxv.
[132] *ibidem*: xv.
[133] *ibidem*: xvi.
[134] *ibidem*: xv.
[135] *ibidem*: 9.

instrument measuring the burdens imposed by regulation on firms. Still, this is an important target pursued by a useful instrument, but if the goal is really to measure the regulatory system features, a way to include diversity must be found.

D.2.2. The hardest way: there is no model to pick up

Given the goal pursued by a regulatory capacity composite indicator, it would be difficult to identify a model which could be univocally considered as the first best. As previously stated, the main contentious issue to be included within the theoretical framework of the index is that a regulatory system aims not only at reaching economic and measurable attainments, but also at meeting social and political needs and at being correctly embedded within the nation general legal framework. Adopting a single best model, therefore excluding goal-related concerns and reducing the comparison of the regulatory systems simply to efficiency-based criteria, could be conducive to shed light on certain effects of regulations, but would not represent a realistic approach, given a diversity-filled world. The index-builder should then figure out how to proceed if the straight and simplest way of designing a best option model is to be avoided. Two possible methods to build a composite indicator of regulatory capacity are spelled out in this paragraph, and then the methodological reasons to opt for one of them are listed.

Having renounced to design a first best model, there are two possible ways of proceeding:

1) UE-style coordination: the index can be based on a model stemming from negotiations among different subjects, which agree on it being the benchmark to follow. Only after the model has been sufficiently delineated, then indicators can be developed to measure the distance of each country from the model. This method can be used by

international organisations (or by the nation state in a federal system) endowed with the sovereignty to propose and/or impose a model to their members, so to have them catch up and harmonise their systems. It is much more questionable whether a model can be superimposed by an international organisation or another body not provided with the needed sovereignty.[136]

2) Including diversity within the model. If either the index-builder cannot identify the best performing model consistently with the aim the composite indicator is supposed to pursue or consensus cannot be reached among the stakeholders (i.e. different countries) about which is the best model, it would be very difficult or even impossible to design a composite indicator which would be recognized as valid by stakeholders, users and scholars. The researcher must then try to include diversity within the model, to account for different stakeholders' views or for the impossibility of elaborating an unambiguous indicator. Including diversity serves the purpose of filling both epistemological and consensus gaps.

D.2.2.1. Epistemological reasons

Including diversity in the model seems a necessary step of the methodology needed to build the regulatory capacity composite indicator. First of all, refraining from identifying a unique model allows the researcher to "handle in a credible way the unavoidable degree of uncertainty, or even worst, genuine ignorance associated to any multi-scale, multi-dimensional analysis of complex adaptive systems".[137] Even though not identifying a best-option model may seem a shortcut to avoid making difficult choices about which features are to be included in it, it is just the fair admission that most of the times

[136] Of course, the term "imposed" has to be taken in a general way, because imposition can also occur through "soft" methods such as market-based mechanism.
[137] Nardo *et al.*, 2005b: 9.

economists do not know, or at least do not agree, on which the best regulatory model is for every purpose. At the same time, reality often suggests that there are different methods to reach the desired regulatory outcomes.

To cope with those dilemmas, we should adopt a so-called "post-normal" approach, realizing that since regulatory system is a complex system designed to fulfil multiple and possibly divergent aims, there is not just a straight efficient (first best) solution to be discovered, but the analysis is to be expanded so as to include the diversity existing in the real world. A post-normal approach recognizes that when dealing with the science of governance, "it is impossible to obtain an uncontested legitimization of a substantive problem structuring"[138], that is the scholars and/or the stakeholders cannot agree on which are the relevant goals to be pursued (the **normative** step, that is **what** the indicator should measure) and on how to analytically study the phenomenon (the **descriptive** step, that is **how** the indicator should measure it).

When approaching the normative step, the fact must be taken into consideration that most people do not agree on what should be the goals of a regulatory system and even when they agree on some goals, e.g. "quality of regulation", it is not possible to define in substantive terms what they intend as good or bad quality.[139] In details, several factors hamper the possibility to rationally define **what** the indicator should measure:[140]

1) The information space of the concept "regulation" is open, meaning that there is an non-finite set of possible criteria to define it;
2) Ignorance: since the definition of "regulation" is open, important aspects may be missed without having any scientific criterion to ascertain it;

[138] Giordano *et al.*, 2006: 61.
[139] Cf. Radaelli, 2008a: 7-10
[140] Cf. Giordano *et al.*, 2006: 73-75.

3) Some of the criteria used to define what regulation should pursue will result in incommensurable and conflicting trade-offs (e.g. when we compare the burden of regulation upon enterprises and the protection of consumers provided by the regulation, it cannot exist a common unit of measurement and a substitution rate);
4) Even assuming the concept has been defined by a finite set of criteria, disagreement will arise about what is bad and what is good for each criterion (e.g.: is good to have more regulation to protect the consumer or to have less regulation to endow the consumer with more freedom?)

The descriptive step encompasses the task of designing a model, representing the reality, to be used to underpin the composite indicator. When performing this step, the researcher must admit the possibility of multiple, but legitimate and scientific (that is procedurally correct), outcomes. A formal model describing an observed real phenomenon is not the outcome of a neutral and codified process, because it "will reflect not only the characteristics of the observed system, but also the choices made by the scientists on how to observe reality"[141]. Epistemology warns us that "no rule of encoding the formal system given the real system, i.e. to move from perceived reality to model, was ever agreed"[142], therefore we should include in our methodology the fact that we could not draw a neutral and unbiased representation of reality to be used as a yardstick in the indicator. The quest is not for first best model, but for satisfying solutions within a non-finite set of scientific analytical models.

Designing a single model not only can be an attractive and simplifying option, but also responds to the fact that sometimes the economists feel incumbent upon them to indicate the single most efficient model, so to pursue it. Instead, when dealing with complex phenomena such as the regulation

[141] *ibidem*: 61.
[142] Saisana *et al.*, 2005b: 7.

system, the researcher must include in the model as much variety as possible, in the attempt to correctly analyse the divergent approaches used by different countries, whose differences are not trivial and are, or should be, purposeful about the political targets pursued and the legal system in which the regulation is enacted. The different goals and legal approaches of a country may and do have an impact on the efficiency level of the regulator system. This impact is to be measured and included in the indicator, but it would be too simplistic to turn the indicator just into an assessment of the distance among what we consider to be the most efficient option and the regulatory system of a country. If not else, because recent history has made clear over and over again that procedures, laws and institutions which are well-functioning in a context can be harmful in other ones.[143]

D.2.2.2. Consensus-building reasons

Statisticians are aware that, in the field of statistical and economic analysis for policymaking, being scientific does not fulfil their duty and that the analysis must also be based on the consensus of the concerned stakeholders, to be obtained trough negotiation. In developing the NUSAP methodology to evaluate the quality of science for policy, Funtowicz and Ravetz state that science should be the ground for define a policymaking instrument as long as "definitions and standards are firmly based on scientific knowledge that is fully relevant to the situation and adequate in strength *[but it]* occurs rather less often than might be thought."[144] When it is impossible to ground an instrument on science, statisticians must focus on consensus, which, in their vision, is a superior quality guarantee for a policymaking tool. This is valid to a greater

[143] Cf. Djankov *et al.*, 2003b: 6.
[144] Funtowicz and Ravetz, 1990: 161.

extent for composite indicators: "however good the scientific basis for a given composite indicator, its acceptance relies on negotiation"[145].

As Saisana *et al*. correctly note, "there is one aspect of the quality of composite indicators which we find essential for their use. This is the existence of a community of peers *[…]* willing to accept the composite indicators as their common yardstick based on their understanding of the issue"[146]. If the regulatory capacity composite indicator were not accepted by the surveyed countries, it would be a fruitless instrument, regardless of its correctness. A composite indicator, as told in paragraph C.1, is a powerful instrument because of its actionability and it would be much less useful if not actionable because most of the stakeholders do not agree on its construction. Including diversity in the indicator and refraining to draw a first best model is therefore a tool conducive to create the needed consensus about the index.

A crucial method to gain consensus among stakeholders consists in creating an index based on a model which respects the different aims pursued by the regulatory systems and which is not unbalanced in favour of a peculiar legal system. In such an index, the constraints imposed by the basic political choices about the goals of regulation and those imposed by the difference in the general legal framework should not automatically turn into a lowering in the country ranking. The real challenge is how to create an index which is open to diversity, but still not vague.

Since we consider regulatory capacity as a field where it is incorrect to design a model which is deemed to be the best performer regardless of the country- and stakeholder-specific context, the following part of this section is going to explore two different ways of dealing with diversity. In the first

[145] Nardo *et al*., 2005b: 9.
[146] *ibidem*

paragraph a "crossword-style" proposal is outlined, taking account of the different country choices regarding which sector is to be regulated and with which instruments. The second paragraph explain two statistical techniques of weighting and aggregating indicators which looks promising to build a regulatory capacity indicator "diversity-friendly".

D.3. How to deal with diversity in a regulatory capacity index

D.3.1. A crossword-style proposal

As a possible way of analysis, the regulatory capacity can be structured into a matrix:

1) on the vertical dimension there are the economic sectors (e.g. the energy sector) or the economic phenomena (e.g. the entry licences for new business) for which regulation is issued;
2) on the horizontal dimension there are the regulatory tools (e.g. the use of RIA or the consultation process) employed in issuing regulation;

Each cell contains several information: first of all whether a certain instrument is used in producing a specific regulation, then the use of this instrument can be evaluated through several instrument-specific criteria, e.g. for the consultation the assessment could regard who can participate or the duty to respond in writing to stakeholders' observations.[147]

A more modest approach compared to building an overall regulatory capacity composite indicator would be to provide vertical and horizontal sub-indicators of regulatory capacity. This approach would avoid some of the

[147] Many ideas and examples on what to measure when assessing the horizontal dimension of regulatory quality are based on Jacobzone *et al.*, 2007a

above-mentioned drawbacks. Mainly, it would rule out some of the major concerns which would hinder the indicator neutrality and would produce several indicators, providing more information than the overall one.

First of all, creating a set of different indicators for different sectors and phenomena would avoid two major open problems:

1) how to assess regulation processes and inputs if they differ according to the regulatory field concerned (i.e. consultation is mandatory to enact secondary regulation but not if regulation is enacted by law);
2) how to assess the choice to regulate or not a given sector.

With this approach, the political choice concerning which sectors are to be regulated would stay out of the indicator, thus eliminating one of the concerns in constructing a neutral instrument. Moreover, regulatory capacity could differ among economic sectors and singling out which sector is endowed with more or less regulatory capacity can be a more relevant information than an indication of average regulatory capacity. In the same way, considering the horizontal dimension of the matrix reduces the problems concerning the different institutional frameworks. If a country does not consider the RIA as an effective instrument or does not intend to leave significant choices to the technical body drafting this analysis, it would simply not be included in the index which would compare the quality of RIAs across several countries.

This crossword-style approach could be useful in creating a scorecard for each country, without the necessity to weigh each score in an arbitrary way in order to have a composite index. Moreover, it would cast a light on the regulatory capacity both on a sector-based perspective, interesting e.g. firms, and on a technique-based perspective, interesting scholars and public sector reformers. The real challenge in constructing those indicators is to have it correctly correlated with the regulatory quality and the more general outcomes

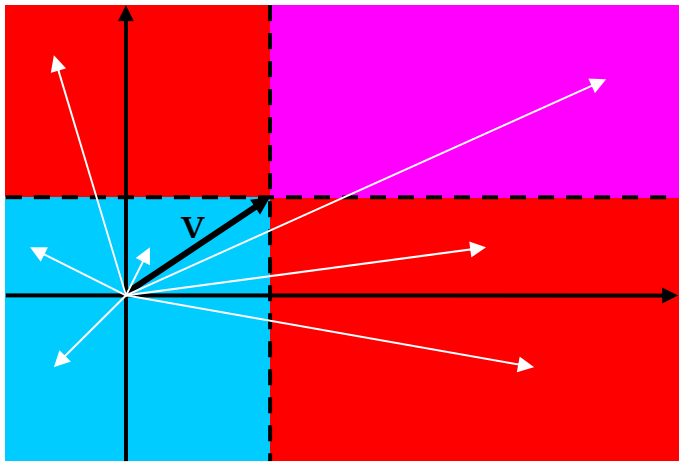
regulation is designed to pursue, therefore creating an actionable measure relevant to assess which input and processes are able to reach the target of a better regulation for a better society.

D.3.2. Three names for a technique: the efficiency frontier approach (or Data Envelopment Analysis – DEA, or Benefit of Doubt - BOD)

D.3.2.1. Basic description of the technique

A composite indicator can be equated to a vector, whose components are the values of sub-indicators. One of the ordering criteria used for vectors can be applied, that is that a vector is greater than another if all its components are greater than the other's components, as shown in Figure 1.[148]

Figure 1: ***Example of ordering for 2-component vectors***



In the purple space there are the vectors whose components are greater than those of vector V. In the blue space there are the vectors whose components are lower than those of vector V. Vectors located in the red space have some components greater and some components lower than the vector V's components. Vector V is greater than every vector located in the blue space, is lower than every vector located in the purple space, is neither greater nor lower of any vector located in the red space.

[148] For graphic simplicity, all the figures and the examples will be in two dimensions, that is the analysis will deal with two-component vectors or with composite indicators consisting of two sub-indicators. This analysis is nevertheless valid in an n-dimensional space, that is it may be used to construct a composite indicator consisting of n sub-indicators. Only the graphical representation would become impossible. Cf. Saisana and Tarantola, 2002: 17. For problems related to the numbers of sub-indicators, cf. paragraph D.3.2.3.

When two countries' composite indicator scores are compared, a similar criterion can be used: if every sub-indicator of country A is greater than the corresponding sub-indicator of country B, than A's composite indicator score is greater than B's and country B is dominated by country A. The criteria must be reversed if the sub-indicators' scale of values considers the smaller the value the better the outcome (e.g.: inflation, unemployment rate). In that case, if every sub-indicator of country A is lower than the corresponding sub-indicator of country B, than A's composite indicator score is greater than B's and country B is dominated by country A. What matters is the sub-indicators scales of values being uniform, that is every sub-indicator must point in the same direction: either the greater the better or the lower the better. If indicators are not uniform in this sense, simple mathematical transformations can be performed to fulfil this requirement.[149] In this chapter, the latter criteria will be adopted, that is the lower the better (in the graphics, the closer to the origin the better).

Based upon this ordering criterion, an efficiency frontier can be constructed, comprehending every country whose composite indicator score is not dominated by any other. Non-dominated countries, as shown in Figure 2, are:

1) best performer countries in one (or more) sub-indicator(s);
2) countries which are not best performers in any sub-indicator, but still are closer to the origin than any linear combination of the best performers.

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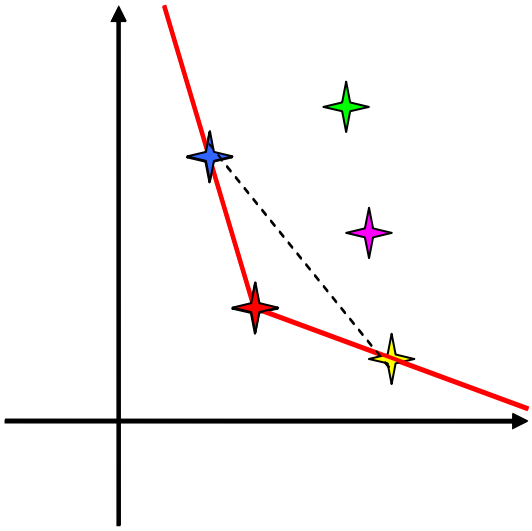
[149] For instance, consider a composite indicator based on both years of schooling (the greater the better) and abandonment rate (the lower the better). To perform a vector-based comparison, we could use the following formula:
Transformed abandonment rate for country A = $Max[x_j] - x_a$.
where $[x_j]$ is the set of the different abandonment rates of the countries in the sample and x_a is the value of abandonment rate for country A.
Applying this transformation, both sub-indicators are such that the greater the better.
Other methods of transformation can exist and the choice to pick up one of them can have effects on the final result, therefore this has to be taken into account when performing the sensitivity analysis.

Moreover, a linear combination of two adjacent countries on the frontier is still on the frontier, implying that the efficiency frontier is convex.[150]

Figure 2: ***The efficiency frontier***



The blue star is the best performer in the horizontal dimension and the yellow star is the best performer in the vertical dimension (reminder: the lower, the better). The dotted line represents the linear combination of the blue and yellow stars. The red star is not best performing in any dimension, but still it is not dominated by any other star and it is closest to the origin than the linear combination of the best performers. Therefore, the red star lies on the frontier as well and those are the three stars through which the efficiency frontier passes.

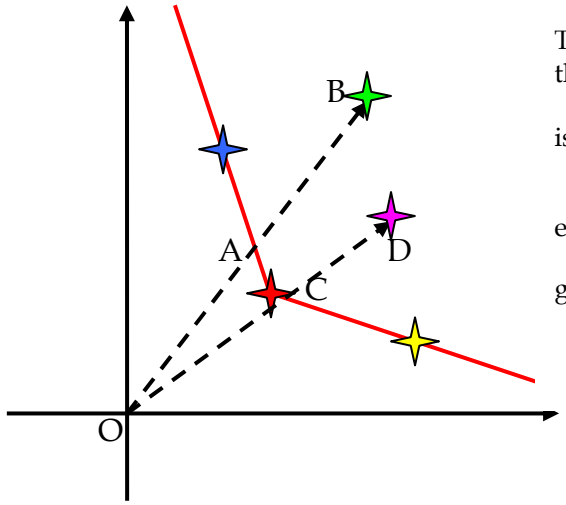
The approach used by Storrie and Bjurrek, who make the frontier runs parallel to axes X and Y after the last countries, that is after the blue and the yellow stars, has been avoided. This approach being adopted, a country doing as good as a best performing country in one indicator, but much worse in the other, would be still granted the score of 1. In my opinion, if a country scores the same as a best performer in one indicator, but much worse in the other, it does not deserve the maximum score, since the best performer shows that it is possible to maintain its edge on one indicator without having such bad performance on the other. The approach shown in figure 2 is however admitted by Storrie and Bjurek, even though they consider it to be an *ad hoc* adjustment.

The efficiency frontier constitutes the benchmark: countries lying on the frontier receive a score of 1, while the others receive a score proportional to their distance from the frontier, as shown in Figure 3. Scores go from 0, the minimum, [151] to 1, the maximum. Thus, the frontier is the benchmark, or, more precisely, the benchmark for any given country is its relevant point of the frontier, that is where the vector identified by the country's sub-indicators

[150] Cf. Storrie and Bjurek, 2000: 4.
[151] Actually, 0 is only the lower limit for the score, since for a country to have 0, its distance from the origin should be infinite.

values crosses the frontier. This point is considered as the benchmark because it is "the ideal point exhibiting a similar mix of indicators"[152].

Figure 3: ***Country Score***



The score of blue, red and yellow stars is 1, as they lie on the frontier. The score of green star is equal to $\frac{\overline{OA}}{\overline{OB}}$; the score of the pink star is equal to $\frac{\overline{OC}}{\overline{OD}}$. The closer to the frontier, the greater would be the score.

The above-described technique is called "efficiency frontier approach" or "data envelopment analysis – DEA" and has been used to evaluate a quite wide range of complex phenomena, from efficiency of public bodies to development.[153] When DEA is applied in the domain of composite indicators, it is also called "Benefit of the Doubt – BOD" approach.[154] It is a non-linear model and "the benchmark frontier is a piece-wise linear approximation of a non-linear best practice 'technology' *[…]* and is constructed in such a way that it envelopes the observation of the input-output relation as tight as possible"[155]. It is a powerful technique because it allows to aggregate non-commensurate indicators and to establish a benchmark which is not imposed by anyone, but is derived from the data.[156] Moreover, it has another very important characteristic, being independent of1 the unit of measurement of sub-indicators (and

[152] Nardo *et al.*, 2005b: 60.
[153] Cf. Despotis, 2005: 969-970 and notes 13-19.
[154] Cf. Nardo *et al.*, 2005a: 67.
[155] Mahlberg and Obersteiner, 2001: 16.
[156] Cf. Mahblerg and Obersteiner, 2001: 5.

consequently to any linear scale change),[157] providing a partial response to the problem of incommensurability as described in paragraph D.2.2.1.

D.3.2.2. A deeper look at it: the weighting issue

The most interesting feature of the efficiency frontier approach is that **weights are based on data**: each country's weights will be different and will reflect its position in the space, that is the values of its sub-indicators. A uniform weighting scheme is dropped[158] in exchange for being able to account for diversity. The underlying assumption is that countries spend most resources and obtain best results in the fields which they believe to be the most important. It is therefore assumed that data reflect the underlying choices about goals and tools of regulation: "*[s]*tated otherwise, since one doesn't *know* a country's true (policy) 'weights', one assumes that they can be inferred from looking at relative strengths and weaknesses."[159]

This assumption is quite strong and it is probably more useful to look at it in a "negative" sense: it allows the researcher to take into consideration that a country can score very poorly on one sub-indicator compared to the others because it does not appreciate the underlying goal and/or tool. Since it is assumed that, if a country does very well in some sub-indicators but not in all, it is intentionally not pursuing what the specific sub-indicator measures, its score will not be too affected (because the weight assigned to that indicator for that country will be low).[160] Meanwhile, the model is not that "stupid": if a country performs relatively poorly in most sub-indicators, it will receive a low

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[157] Cf. Cherchye *et al.*, 2007: 121-122.
[158] Some scholars (cf. Nardo *et al.*, 2005a: 74) believe that not having equal weights makes the cross-country comparison not possible. We do believe that comparison is still possible and makes even more sense, because each country is compared with a benchmark whose weighting scheme, that is whose preferences, is the same of the country at issue.
[159] Cherchye *et al.*, 2007:119 (italic by the authors).
[160] Cf. *ibidem*: 117.

score because it is assumed that the poor performance does not reflect peculiar choices about regulation, but a low level of regulatory capacity.

This approach can seem simplistic, but helps the researcher to take account of different priorities in policymaking. Besides, the DEA definition of weights may effectively fill the two gaps, epistemological and consensus-building, highlighted in paragraphs D.2.2.1 and D.2.2.2 : "*[s]*uch a data-oriented weighting method is justifiable in the typical *[composite indicators]* context of uncertainty about, and lack of consensus on, an appropriate weighting scheme."[161] Especially the lack of consensus is dealt with, given that DEA approach computes weights so that each country has its score maximized whereas any other weighting scheme would penalize it.[162]

Using the efficiency frontier approach, the weights are given by the slope of the frontier either in the point where the country is (if the country lies on the efficiency frontier) or in the point where the vector identified by the country's sub-indicators values crosses the efficiency frontier (if the country does not lie on the frontier).[163] Namely, the slope of the frontier represents the relative weight of the factor on the horizontal dimension compared to the factor on the vertical dimension.[164] The weights reflect the relative importance assigned by each country to the different dimensions of the phenomenon. For this reason,

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[161] *ibidem*: 117. Cf. also Cherchye *et al.*, 2008: 239-240.

[162] Cf. Chercye *et al.*, 2007: 120; cf. Despotis, 2005: 972. It implies that DEA scores are superior to any other weighting scheme scores; cf. Cherchye *et al.*, 2004: 933. This is true as long as no restrictions on the weighting scheme are imposed. Cf. *infra* par. 3.2.3.

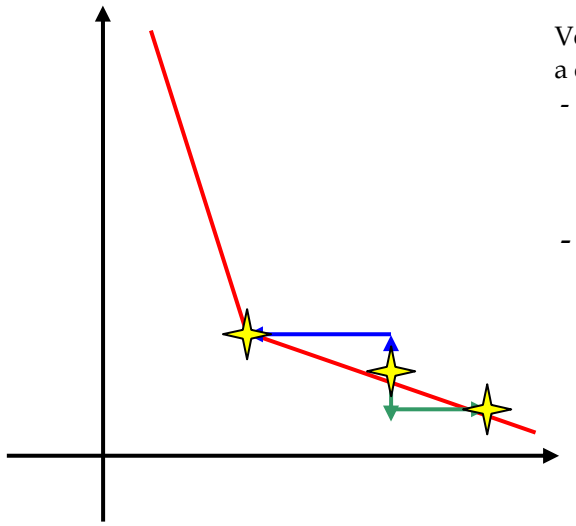
[163] Cf. Storrie and Bjurek, 2000: 2, 4.

[164] The slope is equal to $\frac{\Delta Y}{\Delta X}$, therefore it represents how much Y (the vertical factor) must vary to compensate a unit variation of X (the horizontal factor) in order to have the country staying on the frontier. Therefore, it represents how much X is important compared to Y: if the slope is flat, it means that a unit variation of X can be compensated with a little improvement of Y, that is Y is the most relevant variable. If the slope is steep, it means that a unit variation of X can be compensated with a greater improvement of Y, that is X has a relatively greater importance than Y.

the efficiency frontier approach overcomes the weights interpretation problems created by linear aggregation. If linear aggregation is adopted, weights, meant to indicate importance[165], result into just measuring substitution rates or trade-offs, given that the preferential independence of sub-indicators is not assured.[166]

E.g., let's consider the yellow star in Figure 3, which has a very good score on the vertical sub-indicator. The slope of the efficiency frontier on that point implies that the vertical dimension is relatively more important than the horizontal dimension.[167] This can be seen in Figure 4.

Figure 4: ***Weights and relative importance***



Vertical dimension is considered more important for a country performing relatively better on it:

- blue path: if the yellow star country slightly worsens in the vertical dimension, to remain on the efficiency frontier it has to enjoy a large improving in the horizontal dimension;
- green path: if the yellow star country slightly improves on the vertical dimension, it can bear a larger worsening on the horizontal dimension without leaving the efficiency frontier

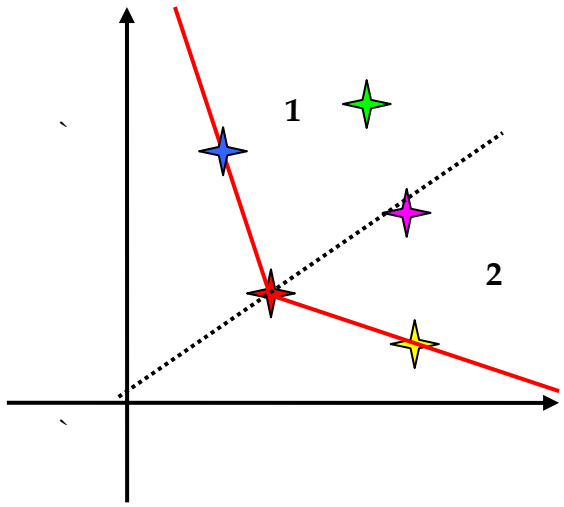
[165] Consider e.g. Freudemberg, 2003: 12: "Greater weight should be given to components which are considered to be more significant in the context of the particular composite indicator." Cit. in Chercye *et al.*, 2007: 115.

[166] Cf. Nardo *et al.*, 2005b: 75-76; cf. Nardo *et al.*, 2005a: 74.

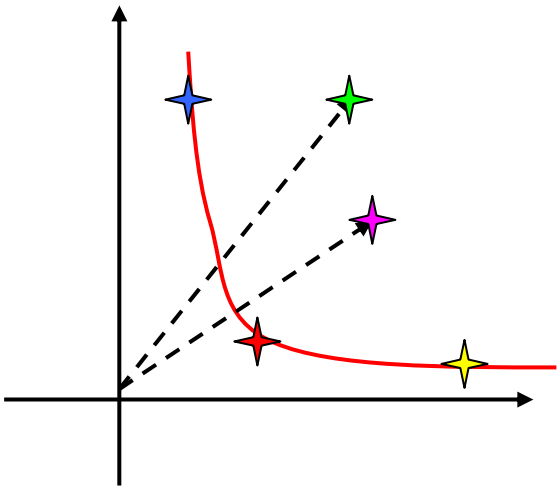
[167] If a linear efficiency frontier is adopted, the trickiest part comes when dealing with the red star, which lies on an angle of the efficiency frontier. By the way, the model still makes sense: if the red star country moves downward along the frontier, is giving more importance to the vertical dimension, reflecting the slope of the flattest part of the frontier (as in the case described in figure 4). If it moves upward along the frontier, it is giving more importance to the horizontal dimension, reflecting the slope of the most sloping part of the frontier.

If a linear efficiency frontier is adopted, then the space will be divided in *n* subspaces, where *n* is the number of different slopes of the frontier. Within each subspace, every country is assigned the same weighting (as shown in Figure 5). Since this would undermine the weighting flexibility of DEA, it would be suggested adopting a curved efficiency frontier.[168] It adopted, the weights are given by the derivative of the frontier in the point where the country is (if the country lies on the efficiency frontier) or in the point where the s vector identified by the country's sub-indicators values crosses the efficiency frontier (if the country does not lie on the frontier). This approach is shown in Figure 6.

Figure 5*: Linear frontier*



Countries lying in the subspace 1 (above the dotted line) are assigned weights in accordance with the most sloping part of the efficiency frontier. Countries lying in the subspace 2 (under the dotted line) are assigned weighting in accordance with the flattest part of the efficiency frontier. For the red star, which is lying exactly on the dotted line, cf. note 147.



With a curved efficiency frontier, each country has its own weighting, because the weights are not based anymore only upon the relative position of the countries on the frontier. The relative importance of sub-indicators, reflected by the weights, is given by the derivative of the efficiency frontier.

Figure 6: ***Curved frontier***

[168] We started with a linear efficiency frontier so to simplify the comprehension of the model, even though in my opinion the curved shape is preferable.

However, there is a *caveat* if a curved efficiency frontier is drawn: the functional shape of the frontier must be carefully chosen. E.g. Storrie and Bjurek suggest that a Cobb-Douglas type function could be adopted.[169] In my opinion, several functions could be used to represent the efficiency frontier, as long as they:

1) lie in the first quadrant, so as to always represent strictly positive weights;
2) are convex, that is the second derivative is always positive (hence the first derivative is monotonic and increasing), so that only non-dominated countries lie on it;
3) have a first derivative who is always negative and $\lim_{x \to +\infty} Df(x) = 0$ (hence, the function is monotonic and decreasing), so to avoid that countries with lower scores in every sub-indicators are assigned a greater composite indicator score and to have the function lying in the first quadrant.

Therefore, adopting a curved efficiency frontier introduces more uncertainty in the model, since several functions may fit the purpose, but it allows every country to be assigned different weights, better reflecting the relative importance given to sub-indicators and fully exploiting the DEA flexibility. This has to be taken into consideration when performing the sensitivity analysis.[170]

D.3.2.3. Drawbacks

1) **Movements of the countries on the frontier.** A variation of non-dominated countries' sub-indicators is most of the times irrelevant for

[169] Cf. Storrie and Bjurek, 2000: 10.

[170] The problem of the curve type is overcome if the weights and the scores for each country are computed through a linear program, which needs no hypothesis concerning the functional shape of the frontier. It is anyway useful to be able to describe the characteristics of the adopted benchmark function.

the country itself, but has a great impact on other countries' scores. A country on the frontier will not see its score increasing even though it improves its performance (and, to a certain extent, not even worsening would impact on its score), therefore reducing the incentives it faces. The only incentive for non-dominated countries would be not to lose ground compared to the others on the frontier. At the same time, a movement of the efficient countries would imply changes in other countries' scores, although nothing changed in the latter's situation. This is a natural implication of this method, since the benchmark, that is the frontier, is derived from countries' data and the scores represent an assessment of the distance from the benchmark. However, some consider this phenomenon to be a drawback of the DEA approach.[171]

2) **Too many countries on the frontier**. Since each country performing best in any indicator is located on the frontier (and all the other non-dominated countries are located there as well), the model risks giving too many subjects the maximum score.[172] To avoid that, it is advisable to:
   a. Enhance countries-to-indicators ratio. To be sure that not most of the countries are located on the frontier, the number of the countries must be a multiple of the number of the indicators (10:1 could be a sufficient ratio);
   b. Implement a "nested" DEA. If the phenomenon is measured my many sub-indicators, the researcher could adopt a two-step DEA. Sub-indicators are grouped in homogeneous sets (let's call them intermediate indicators) and then DEA is performed within each group. Afterwards, a second DEA is performed using intermediate

[171] Cf. Nardo *et al.*, 2005a: 74.
[172] Storrie and Bjurek do not consider it to be a major drawback, cf. Storrie and Bjurek, 2000: 10.

indicators values as inputs. Nevertheless, how to group the indicators becomes a sensitive and subjective issue.

3) **Too few countries on the frontier.** The model does not make sense if there is only one non-dominated country. If this happens, the problem does not lie in the technique, but in the reasons which led the researcher to adopt it: if there is one country which is able to perform the best in every feature of the studied phenomena, there is no need to use a methodology which allows diverse approaches to be evaluated. The researcher should therefore refrain to build the index through a DEA approach in such a case.

4) **Too much weight on a single sub-indicator.** As Mahlberg and Obersteiner point out:

> *This model has the characteristic to diagnose any country supporting the frontier to be equally well performing even if it is superior with respect to one indicator but performs poorly with respect to all the others […]. For such a country, the DEA computes a high weight to the indicator where the country is superior and a low weight to all the other indicators. In an extreme case, the DEA selects a weight of one for that indicator and a weight of zero to the others. Only this indicator is taken into account for computing the performance index. This characteristic makes the results of the basic model implausible.*[173]

To overcome this drawback, weight restrictions can be imposed. That is, in the linear programme computing the score, there can be restrictions on the values weights can assume, either for single sub-indicators or for groups of sub-indicators. There can be several kinds of restrictions:

[173] Mahlberg and Obersteiner, 2001: 7.

a) relative restrictions: a general relative restriction can be imposed, e.g. a weight range of [0,1:10] means that no factor can be weighted more than ten times any other factor.[174] Alternatively, more detailed restrictions can be imposed, e.g. that sub-indicator A cannot be awarded a weight 3 times greater than sub-indicator B;[175]
b) absolute restrictions: restrictions can be more cogent, e.g. the researcher can impose to each sub-indicator a range within which its weight can vary;[176]
c) ordinal restrictions: e.g. sub-indicator A's weight must be greater than sub-indicator B's and sub-indicator B's weight must be greater than sub-indicator C's.[177]

These restrictions being introduced, the efficiency frontier would not pass through every non-dominated country. The countries which are close to one axis, but far from the origin, will not be on the frontier.

The restricted DEA approach has an important side-effect: it limits the number of countries awarded the maximum score (reducing the importance of the first drawback above-described). Nevertheless, it has two drawbacks: first, it is not true anymore that the weighting scheme grants each country the maximum possible score and therefore the agreement on the restrictions can be politically sensitive or difficult to reach. Second, the restricted DEA approach increases the researcher's intervention on the model, which becomes more sensitive to his subjective judgments. This has to be taken into account when performing the sensitivity analysis. Therefore, it is recommended to implement first a non-restricted DEA approach and then to verify if

[174] ibidem.
[175] Cf. Cherchye *et al.*, 2007: 128-131.
[176] For instance, it could be stated that sub-indicator A can have a weight between 10% and 20%, sub-indicator B can have a weight between 30% and 50% etc. The restriction can also be more general, e.g. each weight must be comprised among 10% and 50%. Cf. *ibidem*: 127.
[177] Cf. *ibidem*: 127-28.

weights and results are implausible. If this happens, then a restricted DEA approach can be implemented, stating the relevant reasons for its adoption and including this feature into the sensitivity analysis.

SECTION E. REGULATORY CAPACITY: IN QUEST OF A PARADIGM

E.1. Defining regulatory capacity

E.1.1. Some hints from the literature

The use of the expression "regulatory capacity", or "regulatory capability", is not widespread in economic literature. The field where it is most employed is the analysis of institutional endowment in less developed economies. The World Bank Group and the continental Development Banks, as well as other development-related institutions, use the term "regulatory capacity" in their projects[178] and in their studies, thus providing us with some hints about what could be defined as regulatory capacity. It is worth noting that this expression is very seldom used with reference to developed economies, as their regulatory capacity level is taken for granted and should not be the object of an analysis. This is the gap an index of regulatory capacity is intended to fill.

Since the existing literature concerns countries in need to build up their regulatory capacity, the expression is often defined in a negative sense, underlining what is lacking. E.g., Kirkpatrick and Parker note that "many developing countries seem to lack strong regulatory capability in terms of trained personnel and sound laws to sustain regulatory commitment and credibility"[179] and that regulatory governance in those countries is failing also because "regulatory offices in developing countries tend to be small, *[…]*

[178] Cf. e.g. The World Bank, 2005.
[179] Kirkpatrick and Parker, 2004: 12.

[because there is a] lack of knowledge and trained regulatory staff *[which]* also have limited capacity in the use of methods of regulation policy analysis."[180] In the book edited by Millán and Von der Fehr, it is stated that regulatory capacity is limited because "*[e]*stablished regulatory bodies often lack independence, human and financial resources and expertise. Functional coherence between regulation and oversight may be lacking, and institutions may be inadequate."[181] The regulator's capacity to manage the market is also said to be dependent "on the legal setting, including the regulator's degree of autonomy and the judiciary reliability and transparency."[182] To sum up, factors affecting regulatory capacity seem to be:

1) the human and financial resources, including the staff's expertise;
2) the independence of the regulator;[183]
3) sound laws governing the regulatory process and the regulator;
4) a sort of coherence within the regulatory system;
5) the judicial setting, that is the judicial system monitoring or enforcing regulation.

However, even though the concept of regulatory capacity may vary, scholars agree that the lack of regulatory capacity is detrimental to the governance of regulated sectors:

> [t]*o prevent this result* [the rise of monopolistic effect in the regulated sector], *governments need to develop strong regulatory capabilities so that they can police the revenues and costs of production of the privatized utility firms and protect consumers from monopoly exploitation.*[184]
> [t]*he regulator's task* [i.e. balancing the efficiency and the effectiveness goals of regulation] *will be made more difficult by the limitations in administrative and regulatory capacity.*[185]

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[180] *ibidem*: 41.
[181] Millán and Von der Fehr, 2003: 30.
[182] *ibidem*: 196.
[183] Cf. also Gilardi, 2002: 875.
[184] Kirkpatrick and Parker, 2004: 1.
[185] *ibidem*: 24.

> [w]*eak regulatory capacity and weak government commitment to improve that capacity in Latin America led to the fact that price caps alone did not yield the expected benefits for the users.*[186]

Remaining in the field of developing countries, Jalilian *et al.* highlight that for the achievement of a high level of regulatory quality, institutional capacity is as crucial as the design of the normative regulatory system.[187] Quoting the criteria provided by Parker, a good regulatory system "is one that balances accountability, transparency and consistency"[188]. Accountability implies that the regulator is accountable and has to operate within its powers and to observe the due procedures. Transparency requires the decisions and the decision-process to be revealed to the interested parties. Consistency is an effect of independence.

Another field where the expression "regulatory capacity" is employed, though not systematically, is the European public policy domain, within the paradigm of "regulatory state" analysis. Bach and Newman, studying the influence nations have in shaping the global regulation, define and operationalise the concept:

> *We define regulatory capacity in the context of international economic governance as a jurisdiction's ability to formulate, monitor and enforce a set of market rules.* […] *Regulatory capacity is a multidimensional phenomenon. At a minimum regulatory capacity consists of regulatory expertise, coherence, and the extent of statutory sanctioning authority.*[189]

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[186] Guasch, 2004: 114.
[187] Cf. World Bank (2002) World development report, 2002: Building institutions for markets – World Bank, Washington DC. Cit. in Jalilian *et al.*, 2007:88
[188] Cf. Parker D. (2002) Economic regulation: a review of issues, in Annals of Public and Cooperative Economics 73(4), 493-519, cit. in Jalilian *et al.*, 2007: 89.
[189] Bach and Newman, 2007: 831.

Again, attention is drawn to rule formation, expertise, system coherence and to the judicial system. Going more in depth on those factors, the authors state that:

> *Regulatory expertise encompasses policy-makers' ability to identify regulatory challenges, develop policy solutions, implement them and provide competent monitoring. At a minimum, developing an international regulatory strategy requires staff with sufficient training. Comprehensive budgetary resources, years of experience, and a high level of professional staffing thus all demonstrate regulatory expertise.*[190]
> *Regulatory capacity also depends on the coherence of regulatory authority in a policy domain.* […] *Regulatory capacity should be greater when regulatory authority has been delegated to a specific regulatory body that has the authority to shape and enforce market rules, and weaker when it is dispersed.*[191]
> [R]*egulatory expertise and coherence alone are insufficient if regulators lack the statutory authority to impose costs for non-compliance. Regulatory capacity also depends critically on the ability to punish non-adjustment.*[192]

E.1.2. The OECD contribution

E.1.2.1. "Government at glance" variable classification

In recent years, the Organisation for Economic Co-operation and Development has made a big effort to measure and evaluate the governments and the public administrations of its member states, including their regulatory systems. Although the OECD has not coped explicitly with regulatory capacity issues, its theoretical framework is useful to better define the concept and some of the tools developed within it can also be employed in this field.

In 2005, the OECD Directorate for Public Governance and Territorial Development launched the project "Government at glance", aiming at

[190] *ibidem.*
[191] *ibidem.*
[192] *ibidem.*

measuring and comparing what is, broadly speaking, called the public sector in each of its member states.[193] To perform this task, a theoretical framework has been created to identify which variables were to be measured and to group them in conceptual blocks. Those categories of variables are "revenues; inputs; public sector processes; outputs; outcomes; and antecedents or constraints that contextualise government efficiency and effectiveness."[194]

While "Government at Glance" aims at measuring government as a whole, a regulatory capacity indicator would only measure the input and the processes used within the regulatory system. However, this taxonomy of public sector-related variables can help to identify the variables relevant to analyse regulatory capacity. Two of the OECD categories encompass also data which are definitely to be used as inputs for the index of regulatory capacity, namely "inputs" and "public sector processes". It can be said that within a complex regulatory system representation, regulatory capacity is a property of this system which deals most with its inputs and its processes.

Going more in depth in the definition of the categories, input variables "will comprise both financial data (public expenditures including tax expenditures) and non-financial data (such as staff numbers and workforce composition)"[195]. Labour-related resources will be the key factor within this class. Public sector processes variables are those concerning the structure, institutional and managerial arrangements of the public sector, as well as some of the activities undertaken.[196] They comprehend relevant variables for a

[193] For more information, cf. the website (visited on October 2008): http://www.oecd.org/document/12/0,3343,en_2649_33735_37688524_1_1_1_1,00.html
[194] Manning *et al.*, 2006: 10. Cf. also Lonti and Woods, 2008: 7; cf. OECD, 2005: 7-9.
[195] Manning *et al.*, 2006: 18.
[196] Cf. *ibidem*, fig. 1.

regulatory capacity index, such as data on regulatory quality management, integrity framework and e-government.[197]

E.1.2.2. Regulatory system assessments

The OECD has also carried out several projects about regulatory performance and regulatory system management, which may provide useful hints for the assessment of regulatory capacity.[198] In 2004 a draft was prepared to analyse the possibility of an *ex post* evaluation of regulatory tools and institutions, a task which is very close to the assessment of regulatory capacity. First of all, this document provides us with a definition of regulatory tools and institutions and of regulatory policies which deserve to be reported as a contribution in the quest for a definition.

> *Regulatory tools and institutions refer to the mechanisms by which governments promote regulatory quality, consistent with their underlying regulatory policies. Examples of regulatory tools include regulatory impact analysis (RIA), consultation and communication mechanisms, simplification measures such as time-limits for decision-making, sunsetting and automatic review clauses. Regulatory institutions include central regulatory quality oversight units, external committees (established by government with the purpose to promote, propose or implement various regulatory quality measures), and independent regulators.*[199]

> *Regulatory policies are policies designed to maximize the efficiency, effectiveness, transparency and accountability of regulation based on an integrated and rational approach for the process of producing and reviewing regulation, rather than on the material content of regulation per se.*[200]

The difference between mechanisms, to which the former definition refers, promoting regulatory quality and policies, to which the latter definition refers,

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[197] Cf. Lonti and Woods, 2008: 10-12 and also OECD, 2007: 10-11.
[198] Parts of those previous works have converged in "Government at Glance" project.
[199] OECD 2004, 8.
[200] ibidem.

is not exactly clear, since most mechanisms are probably the outcome of implemented policies and policies need mechanisms to be effective. Moreover, the scope of the first definition is too narrow in the field of regulatory capacity, since it should encompass not only mechanisms which promote regulatory quality, but also, more in general, mechanisms which lay at the basis of formulation, monitoring and enforcement of regulation. However, tools, institutions and policies concerning regulations which are not regulation *per se* are good candidates for ending up within a regulatory capacity indicator.

As said above, the aim of the 2004 report is to perform an *ex post* evaluation of the quality of regulatory tools and institutions. However, measuring regulatory quality is not always possible and the researcher must resolve on opting for other methods:

> [t]*he best means of evaluating* [regulatory tools and institutions] *is to look directly at regulatory quality. However, while this is clearly a theoretically optimal approach, the practical problem of making an assessment of aggregate regulatory quality* […] *is widely recognised* […]. *The approach taken in this report is, therefore, focused on the identification and development of a range of more specific and "technical" tests to evaluate regulatory tools and institutions.*[201]

Those tests are more limited in scope and cannot be used to carry out an overall analysis of the regulatory systems but can "provide insight into one or more specific aspects of the use of a regulatory quality tool"[202]. Moreover, being more specific, those tests are likely "to be more suitable to the task of guiding the optimisation of specific aspects of a regulatory quality tool and institutions"[203] and "to allow some of the links between the application of the tools and improvements in resulting regulatory quality to be understood and

[201] OECD 2004, 9.
[202] ibidem.
[203] ibidem.

highlighted."[204] The narrower scope of the evaluation tools and the attention on the link between better resources (that is more regulatory capacity) and better results (that is more regulatory quality) make them potential instruments to be used in assessing regulatory capacity. Among the proposed tests, those concerning compliance can be useful. They may provide a hint about how much coherent is a system.[205]

E.1.3. A deeper look at the concept of "capacity"

This introductory paragraph should also contain a brief analysis of what the term "capacity" is used for in the scientific fields which are coinciding or very close to the regulation studies, to highlight the reasons for which this analysis is focused on regulatory capacity rather than e.g. regulatory quality or regulatory performance.

In their study about development capacity, Baser and Morgan adopt the following definition of capacity: "*emergent combination of individual competencies, collective capabilities, assets and relationships that enables a human system to create value*"[206]. In the field of the capacity indicator index, "value" has to be intended as good, effective, regulation, regardless of the goals pursued. The regulatory capacity index would therefore assess whether a system has the resources and capabilities to deliver what it aims at.

The authors underline some features of the concept of "capacity" which are also relevant for regulatory capacity:[207]

1) capacity has to do with **collective actions** and defines the realm of what an organization is able to do, intentionally and effectively.

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[204] ibidem.
[205] Cf. *infra* paragraph E.2.4.2.
[206] Baser and Morgan, 2008: 3 (italic is mine).
[207] Cf. *ibidem*: 20-25 (italic by the authors).

Assessing the regulatory capacity is a crucial step to assess what the regulatory system could achieve and with which degree of effectiveness and efficiency. The regulatory capacity lies both in the individual resources, i.e. in the workforce, and in the overall institutional design;

2) capacity is a **system phenomenon**, coming out of complex relations among attitudes, assets, resources, strategies and skills. Therefore, regulatory capacity refers to the regulatory system as a whole and deals with the technical, organizational and social aspects of the system;
3) capacity is about **empowerment and identity**, therefore regulatory capacity concerns who is doing what within the system and the degree of autonomy and responsibility of the regulatory actors;
4) capacity is a **potential** property and must not be confused with performance, which results from the application and the use of capacity. The same holds true for the relation between regulatory capacity and regulatory performance.

The idea that the capacity endowment of a country defines the outcomes it could achieve is also present within the paradigm of the "regulatory state":

> *The idea that state capacity structures the realm of possible policy outcomes has become a staple of comparative analysis* […]. [S]*tudies of state capacity focus on 'specific organizational structure, the presence (or absence) of which seems critical to the ability of the state authorities to undertake given tasks'"*[208]

Therefore, studying the regulatory capacity of a system should eventually cast a light on the possible regulatory outcomes it can produce. This is the main

[208] Bach and Newman, 2007: 831 (italic by the authors). The quote within is from Evans, P.B. Rueschemeyer, D. and Skocpol, T. (1985) 'On the road to a more adequate understanding of the state', in P.B. Evans, D. Rueschemeyer and T. Skocpol (eds), Bringing the State Back In, Cambridge: Cambridge University Press, pp. 347–66.

reason why this study is exploring the possibility of creating an index of regulatory capacity.

E.1.4. Definitions and aims of the index

At this stage, it is time to propose a definition of regulatory capacity, to state what the related index should aim at and to highlight a workable operationalisation of the concept.

Regulatory capacity is the **combination of individual competence, organizational capabilities, assets and relationships that enable a political entity to formulate, monitor and enforce regulation,** in both market- and non market-based sectors. The level of regulatory capacity of a given system depends on the presence (or absence) and on the features of certain **inputs** and **processes** to be employed in formulating, monitoring and enforcing regulation.

The regulatory capacity index aims at assessing and comparing the level of regulatory capacity of each state. It is designed to cover an area which is often neglected by studies about regulation, which primarily focus on regulatory quality and/or regulatory outcomes. What we are proposing is a horizontal index that can be applied to different economic and/or administrative sectors, since it can evaluate different kinds of institutions relying on different mechanisms and techniques to formulate, monitor and enforce different regulation. While the theoretical framework remains the same, the actual content of the index (that is, the variables and their organization) can be adapted to measure different regulatory systems.

Five factors have been identified as being the basis of regulatory capacity endowment:

1) the **resources and competence**, both human and financial, available to the regulatory body(ies), paying special attention to the staff's expertise;
2) the degree of **independence** of the regulator;
3) sound laws governing the regulatory process, that is **regulatory governance**;
4) the **coherence** of the regulatory system;
5) the **judicial framework**, that is the judicial intervention to monitor and to enforce regulation.

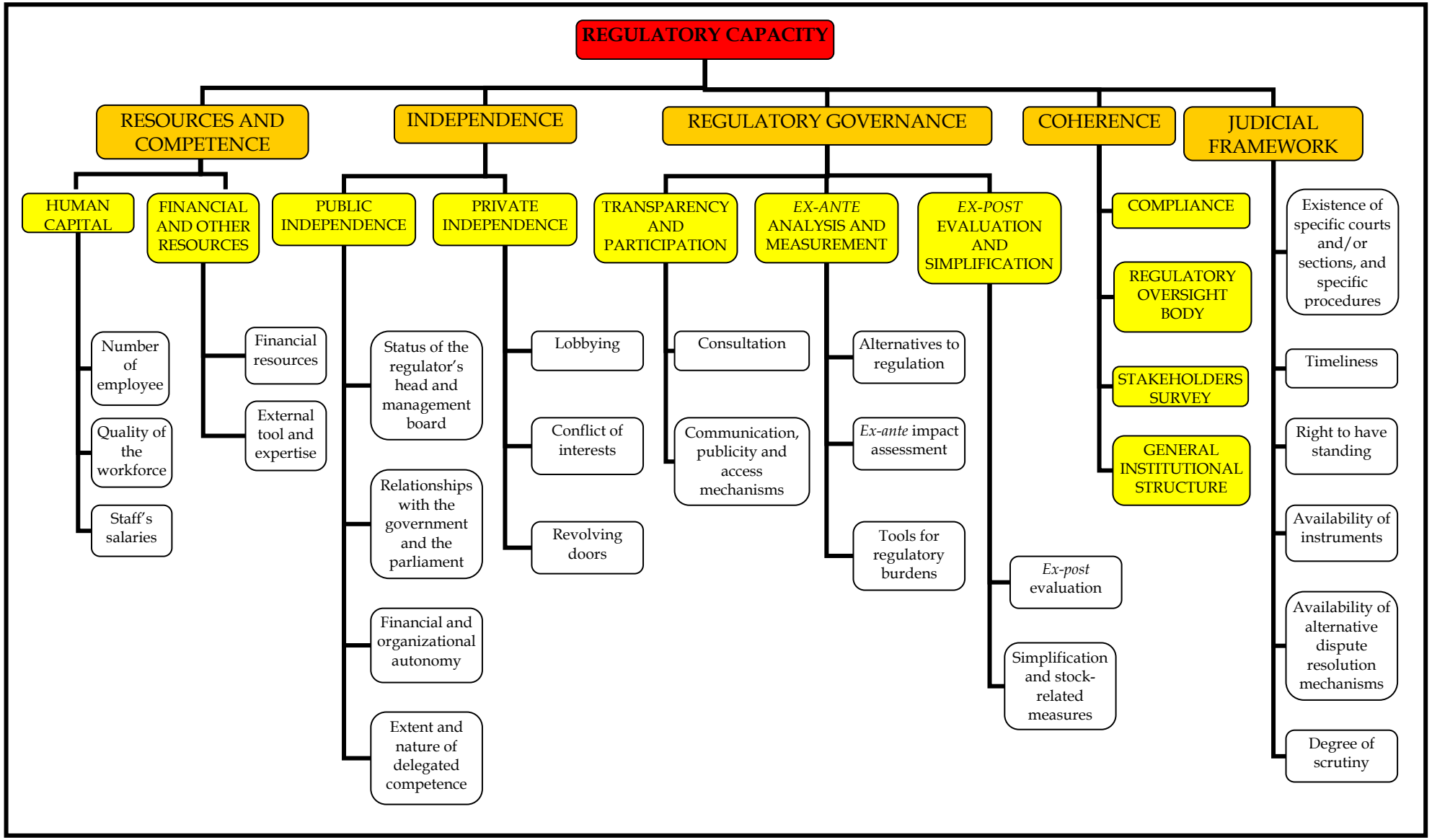
Each of these factors is described in greater details below.

E.2. Operationalising regulatory capacity: what to put in the index

In this paragraph, the most practical question of this research is tackled: **according to the definition of regulatory capacity, what actually constitutes the regulatory capacity index?** This study will provide an analysis of the five areas highlighted above and a first operationalisation of those concepts, based on the relevant literature. However, it will not provide a list of variables and the scores assigned to each possible variable value, since to achieve this result, more in-depth analyses of each area will be needed and the actual construction of the index falls outside the scope of this thesis. Furthermore, what follows is a "construction site": during the creation of the index, according to the data and the theory, more variables could be added, some could be removed, and the structure could be revised. This paragraph is just the first step to build a measurement of regulatory capacity, although it is necessary and, hopefully, will constitute a good guide for more advanced studies.

The general scheme of the index is represented in Figure 7. In depth analysis is carried out in the following paragraphs.

Figure 7: ***The Index of Regulatory Capacity***



E.2.1.Resources and competence

The starting point in evaluating regulatory capacity consists in assessing the financial and human capital endowment of the regulators. Resources and competence are a necessary input: however good is the regulation, however clear and participatory are the procedures, however independent is the regulator, all of these features would be like tears in rain if the subject formulating, monitoring and enforcing regulation has not enough money and qualified staff to perform its duties.

E.2.1.1. Human capital

To work properly, first of all the regulator body needs to have an adequate **number of employees**. The analysis should start from sheer numbers: how many employees work in the regulatory body? Then, a method of scaling should be provided, since otherwise we could not compare e.g. the employees of the education ministry in Luxembourg and in Germany. The most direct approach would be to scale the number of employees to the number of inhabitants or of public sector workers. Alternatively, the number of employee could be scaled to one ore more outputs, i.e. the quantity of sectorial regulation issued per year. Finally, the number of workers could be scaled in different ways in the different sectors: e.g. in the education sector, the divisor could be the number of pupils; in the electric sector, the number of MW installed.

However, the workforce amount can be an ambiguous variable: too many workers (or a too high workers-to-something ratio) could indicate either a high degree of institutional endowment, and therefore of regulatory capacity, or a low level of efficiency. To verify whether we are facing the first or the second scenario, the analysis should include one or more measures of regulatory

performance, quality and/or output.[209] Besides, a measure of the scope of regulatory tasks could be useful in determining whether the workforce amount is appropriate or excessive. Anyway, it would be difficult to find a clear answer to this dilemma, but a more careful analysis could provide some hints. While avoiding the risk of considering "the smaller the regulator, the best", the index should be cautious in straight awarding higher scores to bigger regulatory bodies.

Then, the **quality of the workforce** matters for the assessment of regulatory capacity. The staff's professional qualifications must be studied: how many workers are pedagogues, doctors, economists, lawyers, engineers? [210] Or, which percentage of workers holds a master degree? For some areas[211], also the number of scientific publications authored by the staff may be a signal of quality. The quality of the workforce also stems from having the staff attending lifelong learning and training sessions, [212] therefore figures about these phenomena are good candidates to be included in the index. Finally, attention should be paid to the average or median years of experience of the staff, given that learning economies can be achieved thanks to an experienced workforce.

To analyse the regulatory workforce, a last factor has to be analysed: **staff's salaries.** High wages definitely help in attracting best workers to the regulatory bodies, although too high wages could also be a signal of squandering of resources. However, the risk of inefficiencies is probably less strong than in the case of the number of workers. The level of wages for regulatory staff should be scaled, e.g. to the average national income and/or the average public workers' wage.

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[209] Cf. De Panizza, 2007: 10 for a proposal of an efficiency measure.
[210] Of course, different categories of workers matter for different sectors. Cf. Wallsten *et al.*, 2004: 17, 33: cf. Wu, 2005: 45; cf. De Panizza, 2007: 9.
[211] E.g.: central banks, competition authorities.
[212] Cf. De Panizza, 2007: 9; cf. Jacobzone *et al.*, 2007a: 24.

E.2.1.2. Financial and other resources

Unsurprisingly, the **financial resources** of a regulatory body are a good indicator of its capacity to perform its tasks. As in the case of the workforce, we need to find a good scale to make the level of resources comparable among different countries. Besides, we again face the problem of having the index awarding high scores to regulatory systems which inefficiently use their resources, spending too much for achieving the same result as other systems. Again, a comparative analysis could provide an insight of which is the "appropriate" level of financial resources.

Finally, if the regulator has access to **external expertise and/or tools** in his work, this should be accounted for in the index.[213]

E.2.2. Independence

The index of regulatory capacity, for the reasons that will be stated *infra*, has to include an assessment of the regulator's degree of independence. A regulator may be considered as independent when it "retains some autonomy from pressures of highly concentrated interests of industry and other state institutions."[214] This definition is important because it points out that an assessment of regulatory independence must take account not only of the degree of independence (**some autonomy**), but also the subjects of whom the regulator is independent (**industry and other state institutions**).[215] This paragraph aims at gauging the degree of independence enjoyed by regulators

[213] E.g. the Italian competition authority may use the Financial Police to carry out inspections in firms.
[214] Wu, 2005: 2.
[215] On the contrary, most of literature focuses either on relationship between regulators and public institutions or on public-private relationships.

towards both private and public entities. The former is called "public independence" and the latter "private independence".

Each regulatory body may enjoy a different degree of independence, either of political actors, such as the parliament or the government, or of private parties or of both. A high degree of independence stems the risk of the regulator being captured, that is the risk of the regulator acting in favour of a given party(ies) even though it is expected to take account of either the general interest or a larger community of stakeholders. However, not every regulator is designed to be independent: in some sectors, regulators are under the direct control of the government or are part of it;[216] in others, the regulator is an emanation of private parties.[217] Therefore, it is important to highlight when independence is crucial and then how to measure it.

Within the field of regulatory state analysis, it is believed that the main reason for the state to delegate power to a politically independent authority is credibility. In some cases, the optimal choice for policy-makers is to commit themselves to a certain course of action and, to credibly do so, they may prefer to delegate their power to an independent regulator.[218] This situation occurs when policymakers deal with individuals rationally responding to incentives and anticipating future political choices, and cannot, for any reason, rely on coercion to implement their policies. This is often the case when policymakers intend to regulate complex markets through incentive-based regulation rather

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[216] For education or health, the regulatory body is often the government itself. The same happens also in sectors which are undergoing a liberalization process, such as the postal service: i.e. the Italian ministry of economic development (*Ministero dello Sviluppo Economico*) is the regulator of the postal service. Cf. Bitetti and Trovato, 2007: 3.

[217] Such as the Italian Central Bank (*Banca d'Italia)*, whose shares are held by private banks. Cf. http://www.bancaditalia.it/bancaditalia/funzgov/gov/partecipanti/Partecipanti.pdf visited on October, 2008.

[218] Cf. Majone, 1996: § 2-4; Gilardi, 2002: 874-875. Credibility and regulatory commitments are crucial especially in sectors where investments are considerable and can be recovered only over a long period. Cf. Wu, 2005: 5.

than through command-and-control.[219] Furthermore, it can be stated that "the more dynamic the industry and market environment, the greater the independence that is required."[220] However, although it is agreed that in some cases regulator's autonomy is beneficial, the degree of desirable independence varies function of the economic and political context.[221]

The independence of the regulator is less crucial when it deals with non-market sectors, such as education. In those sectors, the command-and-control procedures enacted by the government (or the parliament) and implemented through bureaucratic structures are often the rule and independence is deemed to be a less prominent factor in determining regulatory capacity.

Finally, there are some sectors where either self- or co- regulation or the direct involvement of the private regulated parties within the regulator is deemed beneficial. A possible approach to self- or co-regulation is detailed in Box 2.

Box 2 ***Approaches to self- and co-regulation***

Ofcom, the British regulator for communications, is undergoing a review process concerning its approach to self- and co-regulation. Its mandate expressly promotes self-regulatory approaches, in the wider context of pursuing better regulation. Ofcom considers those tools as "means of achieving policy outcomes more effectively, by incentivising industry to cooperate through greater engagement and offering more flexibility and targeting specific issues"[222].

Self-regulation is defined as "when industry administers and enforces its own solution to address a particular issue without formal oversight or participation of the regulator".[223] Co-regulation is defined as "an extension of self-regulation that involves both the industry and the government (or the regulator)

[219] Cf. Gilardi, 2002: 875.
[220] Melody, 1997: 197.
[221] Cf. OECD, 2000: 15.
[222] Ofcom, 2008: 9.
[223] *ibidem*: 3.

administering and enforcing a solution in a variety of combination."[224] Co-regulation delivers the benefits of self-regulation, but implies a regulatory oversight.

In 2004 OFCOM had laid out the criteria to be met to put in place a self- or co-regulation system. Those criteria were: 1) beneficial to consumers; 2) clear division of responsibility between co-regulatory body and Ofcom; 3) accessible to member of the public; 4) independence from interference by interested parties; 5) adequate funding and staff; 6) achieve and maintain near universal participation; 7) effective and credible sanctions; 8) auditing and review by Ofcom (including key performance indicators); 9) transparency and accountability; 10) consistent, proportionate and targeted regulation; 11) appropriate appeals mechanism.[225] This strategy is under review and an incentives-based approach is proposed.

The pre-conditions for an effective self-regulation are very similar to the conditions hampering collusion. Where undertakings are likely to collude, a self-regulation mechanism would just lead to the same result. And, if the collusive outcome is detrimental to the society as a whole, self-regulation will be detrimental as well. According to this theoretical approach, Ofcom focuses on market conditions and interests of market players to establish when self- and co-regulation are appropriate. First of all, private incentives of companies should be aligned with public interests. If this is not completely true, several factors must be present: non-compliance to self-regulation is to be clearly determinable, the nature of the commitments is to be clear, and companies have an incentive in meeting their promise.[226]

The Ofcom scorecard to verify whether a market is compatible with self- and co-regulation will presumably look as follows:[227]
1) do companies have a collective incentive in solving a concern through self-regulation?
2) would the concern be addressed accordingly to the citizens' interests?
3) do individual companies have an incentive to withdraw from the scheme?
4) is there a free-rider issue?
5) is the self- or co-regulatory scheme clear and simple?
If the scorecard is complied with, then the actual implementation of a self- or co-regulatory system will be based on the existing assessment criteria listed above.

[224] *ibidem*: 5.
[225] Ofcom, 2004: 3.
[226] Cf. Ofcom, 2008: 10
[227] Cf. *ibidem*: 10. This is just a document for consultation, therefore its provisions may be subject to changes.

Mandelkern Group on Better Regulation proposed in its final report a different approach, less favourable. First of all, it states when regulation is needed and subsequently when regulation can be misused. Misuse of regulation is likely to take place when the length of the regulatory process is excessive compared to the needs of the industry; when the costs of drafting and implementing are disproportionate; when too much responsibility is taken away from the players; and when inappropriate implementation or enforcement is likely, therefore creating the risk of loss of credibility for the regulator. However, self- and co-regulation are just two alternatives among others, such as: do nothing; creation of an incentive mechanism; contractual policies; mechanisms to ensure the assumption of responsibilities (e.g. mandatory motor vehicle insurance for civil liability); mutual recognition; and improving existing regulation. The focus is on co-regulation, which can take two different shapes: the regulator setting the objective(s) and delegating the implementation to other parties; and the regulators validating rules stemming from self-regulation. Finally, five conditions for co-regulation are laid down: 1) the primacy of the public authority remains intact; 2) co-regulation cannot be used in areas where safety, fundamental right or citizen equality are at stake; 3) the proposed co-regulation option is appropriate and proportionate; 4) there are credible and representative players with whom the regulator may act in partnership; and 5) supervisory mechanisms are set up.[228]

E.2.2.1. Independence from the political system: public independence

As for independence from the political system, several groups of variables have been individuated as denoting independence, being thus good candidates to end up in the regulatory capacity index:[229]

1) **the status of the regulator's head and of the regulator's management board**: e.g. who is appointed by whom and for how long, rules for removal;
2) **the relationships with the government and the parliament**: e.g. obligations of the regulator towards the parliament and the government;
3) **the financial and organizational autonomy**: e.g. which are the sources of the budget, who controls the regulator's budget, who is in charge of

[228] Cf. Mandelkern, 2001: 12-17.
[229] Cf. Gilardi, 2002: 880-884; cf. Wu, 2005: 10-16; cf. OECD, 2000: 14-21.

human resources management, whether and how the employees can be moved or fired;

4) **the extent and nature of competences** delegated to the regulator: e.g. whether the regulator has the last word on given issues or the government can overrule its decisions, whether the regulator has exclusive, shared or subordinate competence over its sector, which actor(s) is (are) in charge of setting the regulator's agenda[230].

Built-in competence and expertise are as well factors conducive to independence, since they allow the regulator to rely on its own forces without having to depend on external subjects, but those aspects are included within the first element of the indicator (cf. *supra* paragraph E.2.1).[231]

E.2.2.2. Independence from the private parties: private independence

As far as independence from the private parties is concerned, the index will evaluate laws, facts and/or perception about different issues: lobbying regulation, management of conflicts of interests and "revolving door" limitations.

Most of the assessment concerning public independence is carried out on the laws on the books, since the appointment procedures of regulator and/or the source of founding and the scope of its authority must be written in binding norms. Instead, to analyse private independence facts and perceptions are relevant evidence. The regulation of private independence is often based upon general principles, detailed in soft law instruments such as guidelines.[232] Because of this, it is useful to analyse not only whether those principles exist at

[230] Cf. Tyler and Bednarczyk, 1993: 662-665
[231] Cf. Melody, 1997: 197-198.
[232] Cf. Wu, 2005: 25.

all, but also their actual application (the facts) and whether the regulator is perceived as being independent, e.g. through stakeholders' surveys.[233]

More in detail, the measurement process will concern:

1) **Lobbying**. In its recent work, the OECD provides the following definition of lobbying:

> [t]*he essence of lobbying involves* ***solicited communication, oral or written, with a public official to influence legislation, policy or administrative decisions****. Although lobbying most often focuses on the legislative branch, it does also occur within the executive and sub-national governments as well* [.][234]

Although lobbying is a common and legitimate phenomenon in every democracy and its positive function is recognised,[235] it has to be regulated to avoid the risks that vested interests capture the regulator. Regulating lobbying is an important step in ensuring the integrity, and the image of integrity, of public administration. The index should look at:[236]

a. whether lobbying is regulated and if so, whether through law, soft-law and/or self-regulation tools;
b. whether the law, or any other normative tool, provides a clear definition of lobbying, stating which actors and activities are covered and which are not;
c. whether any information disclosure is mandated, concerning the identity of lobbyists, the identity of the beneficiaries, the targeted offices and institutions;
d. whether the above-mentioned information is available in a public registry, in particular through electronic access.

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[233] Stakeholders' surveys could be also useful to assess public independence.
[234] OECD, 2008: 15 (bold by the author).
[235] Cf. *i.a.* Bohem, 2007: 21-22.
[236] Cf. OECD, 2008: 21-30.

e. the availability and effectiveness of sanctions, the introduction of individual and corporate liability.

The political and administrative context is particularly important for evaluating lobbying legislation. In some countries the decision-making process often officially includes other entities, e.g. trade unions and employers' associations, while the same participation would be considered as lobbying in others.[237]

2) **Conflict of interests.** The OECD provides a definition of conflict of interests in the public sector:

> [a] *conflict between the public duty and private interest of public officials, in which public officials have private-capacity interests which could improperly influence the performance of their official duty and responsibilities.*[238]

The main categories of interests are financial and pecuniary, legitimate private-capacity activities, related-party transactions and personal and familiar relationships.[239] Conflict of interests is not corruption, but may pave the way for it, and it is likely to result in a disruption of the regulator's integrity.[240] Not only the actual taking place of a conflict of interests but also the conviction by the public opinion of it occurring may be disruptive. Therefore, it is important that each jurisdiction sets rules to prevent and punish potential conflicts.

An effective policy dealing with conflict of interests requires:[241]

a. identification of potential conflicts through hard or soft-law instruments;
b. duty for the regulator's staff to disclose any potential conflict;

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[237] Cf. *ibidem*: 36.
[238] OECD, 2003: 15
[239] *ibidem*: 25. Post-public employment of a public official is also considered as a potential source of conflict, but it is dealt with in the next bullet point.
[240] *ibidem*: 22-23.
[241] Cf. Wu, 2005: 25; cf. OECD, 2003: 27-31.

c. tools to deal with conflicting situations, such as disinvestment, recusal, abstention.

3) **Revolving doors.** "Revolving doors" is an expression employed to indicate the occurrence of staff moving in and out between the regulator and regulated private parties. Having the staff serving all their careers in the regulator would result in a greater regulator's independence, since they would be less influenced by industry's interests.[242] To measure this phenomenon, the index will encompass data about:
   a. laws governing the possibility for civil servants of being employed by private parties in the same sector, focusing on whether any prohibition, either permanent or temporary, exists and whether mandatory disclosure is required and/or permit request is due to be submitted in case of private appointment;
   b. figures synthesizing the stock of civil servants coming from private industries, the stock of civil servants subsequently hired by private parties and the flux of staff between the regulator and the regulated private parties.

E.2.3. Regulatory governance

This paragraph deals with another aspect of the institutional endowment of a regulatory system: the existence of sound laws governing the regulatory process, that is formulation, monitoring and enforcement of regulation. The title of this paragraph could have been "sound laws" to highlight what we are looking at, but the term "regulatory governance" has been chosen to highlight the vast study field on which it draws. An intellectual debt is also owed to the

[242] Others point out that revolving doors help the regulator to benefit from industry insiders' knowledge. Cf. Wu, 2005: 17.

studies about "better regulation". The two terms are used in an interchangeable way.

Searching for the meat of the matter, regulatory governance or better regulation can be considered as "meta-regulation or rules on how rules should be formulated, implemented and evaluated."[243] The term "meta-regulation", literally "regulation on regulation", means "a set or rules covering the regulatory process, from rule formulation to enforcement, implementation and ex-post evaluation of regulations."[244] From a dynamic perspective, regulatory governance and better regulation are also an important mechanism to shape the political and regulatory discourse, in order to meet changing different social, political and economic needs.[245]

Regulatory governance is beneficial to regulatory quality and therefore to the quality of the institutional context. Consequently, it is often promoted in relation with better economic performance.[246] However, the relation between regulatory governance and economic outcomes is, to say the least, indirect. [247] Regulatory governance is just one among a myriad of factors influencing the economy of a nation. Promoting a properly functioning regulatory system should be seen as a target in itself, not just as a means to other ends.[248] This approach also helps in not limiting the attention to business-oriented reforms of regulatory governance.

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[243] Radaelli, 2006: 11.
[244] *ibidem*: 12.
[245] Cf. *ibidem*: 14.
[246] E.g., consider EU Lisbon Strategy, where better regulation is a key component to promote more growth and better jobs.
Cf. http://ec.europa.eu/growthandjobs/faqs/background/index_en.htm
(visited on December, 2008).
[247] "there is no simple chain of causation between *[better regulation] […]* and final outcomes such as economic growth. *[…]* Arguably, the most direct impact of better regulation on competitiveness is via the changes in the regulatory culture." Radaelli, 2006: 19.
[248] Cf. Jacobzone *et al.*, 2007a: 8.

E.2.3.1. An historical perspective

> *Emphasis on better regulation and the importance of public assessment emerged as a result of the waves of public administration reforms that were introduced in some OECD countries during the 1970s and early 1980. In particular, the* UK New Public Management *experience and the* US National Partnership for Reinventing Government *created fertile ground for the introduction of better policy-making tools, increased accountability of public administrations, greater transparency of the regulatory process and, more generally, higher responsiveness on the part of the regulator.*[249]

This quotation depicts where and when the cultural changes which boosted scholars' and policymakers' attention to the quality of regulation took place. This first cultural and then political movement has its roots in the United States. The first better regulation tool to be adopted had been consultation. It was included in the Administrative Procedure Act adopted by the U.S. Congress in 1946.[250] A 60-day period of "notice and comment" was prescribed for several types of acts issued by the administrative agencies of the U.S. federal government. Subsequently, other tools were created, to perform an *ex ante* analysis of the impact of regulation. At the beginning, the U.S. applied this technique to verify the regulatory co-ordination ("Quality of Life Review") in 1971 and the inflationary impact of the administrative acts in 1974. Economic Impact Analysis was introduced in the 1978 and in 1981, under Reagan's presidency, a comprehensive procedure to assess costs and benefits of a proposed regulation, the Regulatory Impact Analysis, was introduced.[251]

In the U.K., the quality of regulation was prompted by the New Public Management movement, which took the centre of the stage during the Thatcher's administration in the early 80s. It was, first of all, "a cultural revolution in UK administration, transforming a procedure-oriented

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[249] Renda, 2006a: 105 (italic by the author).
[250] The text of APA can be found under Title 5 of the United States Code, beginning at Section 500.
[251] Cf. Renda, 2006a: 7; Cf. Renda, 2007. Cf. OECD, 1999: 10, 32-33.

bureaucracy into a more performance-oriented, efficiency-driven branch of the government."[252] This model is based upon a new conception of bureaucracy, interpreted through the principal-agent theory. The bureaucrat is the citizens' agent and the citizens are the principals. During the early 80s, the governmental reforms pushed for the introduction of institutions and mechanisms focusing on the efficiency and the effectiveness of the public administration, as well as on the creation of measurement tools. The process became more intense in the last years of the Thatcher's administration. Nevertheless, the Labour government of the late 90s did not change the approach. It focused more on the citizens, as the centre of the system.[253]

The attention on public service quality management, regulatory governance, regulatory quality and better regulation is a phenomenon born in the Anglo-Saxon world and the Anglo-Saxon countries are, to date, the most advanced in this field.[254] The OECD took a prominent role in promoting regulatory reforms among developed countries, especially with the work of the Public Management working group (PUMA). A large part of this research is based on its theories, methodologies and data. However, the phenomenon has spread to other parts of the worlds as well, even though continental Europe and French-origin legal systems opposed different amount of resistance.[255] Other international institutions, the World Bank and the International Monetary Fund, pushed for regulatory reforms in many other countries.

As stated in previous sections, the index will be built in a context-aware manner and will not consider any national model as first-best. The focus is on principles of regulatory governance which are widely shared among different nations and legal systems, such as transparency, participation, measurement,

[252] Renda, 2006a: 26.
[253] Cf. Pollitt and Bouckaert, 2002: 353-354.
[254] Australia, Canada and New Zealand are at the forefront as well. Cf. *ibidem*: 270-291; 338-347.
[255] Cf. *ibidem*: xx; 20.

evaluation and simplification. Although the above-mentioned theoretical ideas of regulatory reforms have a history and a place of birth, the index will not measure how much a system is "Anglo-Saxon", but how much it sticks to the principles we deem to be conducive to better regulatory governance and therefore to a higher endowment of regulatory capacity. A value judgment underpins the model, like for any evaluation process, but it does not concern the distance of a country from a real given model.

Regulatory governance has come a long way since the first steps described in this paragraph have been taken. The better regulation toolbox has been beefed up to encompass more and more tools, more and more sophisticated. This paragraph aims at describing which tools are conducive to better regulatory governance, therefore signalling a richer and more useful endowment of regulatory capacity. Those tools will be split in three categories: tools for transparency and participation; tools for *ex ante* analysis and measurement; and tools for *ex-post* evaluation and simplification.

E.2.3.2.Tools for transparency and participation

> *Transparency concerns the capacity of the regulated entities to identify, understand and express views on their obligations under the rule of law* […]. *Transparency represents a key feature of good public governance, particularly to build trust in government.*[256]

This paragraph tackles two areas of regulatory governance: consultation; communication, publicity, and access mechanisms.

1) **Consultation.**[257] Consultation is an element of paramount importance to foster regulatory transparency and participation. Although no single element makes good regulatory governance, good regulatory

[256] Jacobzone *et al.*, 2007a: 26.
[257] Cf. Jacobzone *et al.*, 2007a: 28-29; Cf. Radaelli *et al.*, 2006: 31; Cf. OECD, 2004: 42-43; Cf. Mandelkern, 2001: 26-32; DITRAG, 2003: 12-13.

governance cannot disregard consultation. Consultation can be intended "as an interaction between the bodies responsible for regulation and parties that are likely to be affected by or interested in the regulation in question."[258] The index should take account of:

a. number of consultations carried out, that is the ratio of the number of regulations for which consultation has taken place out of the number of regulations for which it has not;
b. when consultation is carried out. Consultation, to be an effective regulatory tool and not a useless exercise, must take place in a moment when it can still have an impact on the content of the regulation;
c. methods of consultation. The more systematic the method, the better. Notice and comment and public meetings are very systematic and valuable methods. Internet-based consultation or a widespread invitation to comment can be the basis of an effective consultation as well. Informal consultation is better than nothing, but it does not guarantee equal treatment and access to the regulator;
d. involvement of stakeholders. The index should look at which categories of stakeholders are (systematically) consulted. Both the laws on the book and factual evidence should be analysed to assess how inclusive the consultation process is. The Mandelkern report suggests that consulting too many is better than consulting too few (although feasibility and timeliness of the process are to be taken into consideration);
e. period of consultation. The strictest the time for the consulted parties to respond, the worst. However, the need of a timely regulatory process has also to be taken into account. The index

[258] Mandelkern, 2001: 26.

should look at whether a minimum period is mandated by the regulatory system and whether regulators really respect this provision;

f. duty of the regulator towards the consulted parties. As far as this element is concerned, it is important to look at whether the regulator has the duty to respond (and how) to the stakeholders' requests or whether it must take account (and how) of the expressed opinions, e.g. if a justification is due in case the regulator's opinion diverges;
g. publicity of the consultation (taking account of possible grounds for exceptions, such as commercial secret);
h. the existence either of mandatory rules or of soft-law guidelines governing the consultation process.

2) **Communication, publicity and access mechanism.**[259] "Another dimension of transparency is the clarity of the legal and regulatory framework and the effectiveness of communication and access arrangements."[260] Good regulatory governance lays down that regulatory acts must be public and accessible and that regulators must effectively communicate their activity. The index of regulatory capacity should look at whether regulatory acts are public, maybe also while they are being drafted; whether a consolidated register for regulations is in force; and whether regulators extensively use internet-based technologies to make their activities public and accessible.

Most of literature includes the struggle to make laws and regulation more readable in better communication efforts. Although it is an important aspect, it is hard to measure, since there is not a straightforward criterion to assess readability to be used, apart from

[259] Cf. Jacobzone 2007a: 25; 30-31; 43. Cf. Mandelkern, 2001: ii; v; 40-44; DITRAG, 2003: 11-12.
[260] Jacobzone *et al.*, 2007a: 30.

checking the mere existence of an office or a programme for increasing readability.

Forward planning is another means fostering the publicity of the regulatory future choices. However, its mere presence is not that important, as long as it is not somehow binding. Furthermore, it is difficult for political institutions which do not deal only with the ordinary business to respect a fixed plan. Sometimes, it is not even useful if it is too constraining. What can be really useful is the duty to pre-announce major interventions which the regulator either plans or must do, according to some existing legal provisions, in the coming months (or years).

E.2.3.3. Tools for ex-ante *analysis and measurement*

This paragraph tackles three areas of regulatory governance: searching for alternatives to regulation; *ex ante* impact assessment; and tools to assess the burdens imposed by regulation to different categories of stakeholders.

1) **Alternatives.**[261] As described in Box 2, there are several alternatives to regulation which may be put in place. Considering *ex ante* the range of relevant means of action, whether or not involving the use of regulation, is a good norm of regulatory governance. The index should look at:
   a. whether a mandatory duty to consider alternatives to regulation exists in the laws on the books;
   b. whether in the preparatory documents alternatives to regulation are considered (measuring e.g. the percentage of cases in which they are).

[261] Cf. Jacobzone *et al.*, 2007a: 32-34; cf. Mandelkern, 2001: 26-32; cf. Renda, 2006a: 88-91.

2) ***Ex ante* impact assessment.**[262] Defining impact assessment can be challenging. It is a tool whose use is increasingly spreading across the world, but with important differences concerning how it is performed and what it aims at. The Mandelkern working group, accordingly, highlights that "*[t]*he exact detail of the most appropriate form of regulatory impact assessment depends heavily on the **administrative, legal** and **constitutional framework** in which it operates."[263] The following definition is taken from ENBR, a European-wide research project about impact assessment,[264] which had to agree on a common definition to deliver its task.

> *Impact assessment is:*
> *1) A systematic, mandatory, and consistent assessment of aspects of social, economic, or environmental impacts such as benefits and/or costs;*
> *2) affecting interests external to the government;*
> *3) of proposed regulations and other kinds of legal and policy instruments;*
> *4) to i) inform policy decisions before a regulation, legal instrument, or policy is adopted; or ii) assess external impacts of regulatory and administrative practices; or iii) assess the accuracy of an earlier assessment.*[265]

First of all, the index should look at the diffusion of impact assessment, that is, whether the legal system provides for this tool; and whether and how much it is regularly performed before issuing a regulation. Subsequently, its quality comes at stake. Several components must be included in a good impact assessment: statement of the problem, reason for intervention, definition of policy options, estimation of

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[262] Cf. Jacobzone *et al.*, 2007a: 35-41; cf. Mandelkern, 2001: 19-26; cf. Renda, 2006a: 80-91; cf. Radaelli *et al.*, 2006; cf. De Panizza, 2007: 10-15; cf. Cecot *et al.*, 2007: 4-5, 16; cf. OECD, 2004: 26-40; DITRAG, 2003: 6-7.
[263] Mandelkern, 2001: 19 (bold by the author).
[264] Cf. www.enbr.org, visited on December 2008.
[265] Radaelli *et al.*, 2006: 5. Another definition can be taken from the Mandelkern report: "*[impact assessment]* provides a structured framework for informing the consideration of the range of options available for handling policy problems and the advantages and disadvantages associated with each." Mandelkern, 2001: 20.

costs, estimation of benefits, comparison between costs and benefits of each option, analysis of different types of possible impacts (e.g., economic, social and environmental), identification of parties affected by the regulation, identification of winning and losing groups in the society, clear choice of the preferred alternative(s), and provision of a plan for *ex post* analysis. Quantification of cost and benefits is a plus, but when it is impossible, at least a qualitative assessment must be carried out. The use of consistent discount rates and the introduction of risk and sensitivity analysis are other quality-enhancing factors.

It is also important that the impact assessment is well integrated into the regulatory process. As a proxy for this feature, the index should check whether it is performed by the policymakers in charge of issuing the related regulation too.

Another significant feature to be investigated is the "impact of the impact assessment" on the regulatory process. A proxy could be whether the results of the assessment are visible in the final regulation. However, if impact assessment is just an analysis of the preferred alternative, which is in any case going to be adopted, this variable could not be very meaningful. Therefore, the index could look at whether the adopted regulation does not expressly contradict the impact assessment.

Last but not least, impact assessment is a burdensome task for public administration. Therefore, a provision creating a threshold for defining which proposals of regulation are to undergo *ex ante* analysis and which are not is a good norm of regulatory governance.

3) **Regulatory burdens.** [266] Regulation is expected to deliver benefits, but at the same time often it imposes burdens on different stakeholders.

[266] Cf. Jacobzone *et al.*, 2007a: 41; cf. Mandelkern, 2001: 32-39; 75-80; cf. Radaelli *et al.*, 2006: 32-34; cf. Rodrigo, 2008b: 15-18.

Regulatory burdens usually fall within the categories of compliance or information costs. These are the costs for behaviours and organisations to be adapted to the (new) regulation and for the regulatory information requirements to be met. In this paragraph, the *ex ante* estimation of regulatory burdens is taken into account, while the *ex post* reduction is dealt with in paragraph E.2.3.4.

Computation and reduction of burdens imposed on firms (the so-called administrative burdens) are an aspect of regulatory governance under the spotlight in the European Union and in several Member States. However, burdens can be imposed also on other categories, such as consumers and public administrations. While some regulatory costs cannot be avoided and some other burdensome provisions are in any case beneficial (e.g., if the provision delivers net benefits), it is important that the regulator is instructed to pay attention to regulatory burdens before issuing an act. Once this is done, a cultural change may occur: even though burdens cannot be avoided, at least the regulator is aware that regulatory benefits cannot be delivered "at any costs" and that less burdensome options should be analysed and, if viable, adopted. The index should look at:

a. whether a mandatory duty to assess *ex ante* regulatory burdens exists in the laws on the books;
b. whether in the preparatory documents regulatory burdens are actually assessed and taken into account when shaping the regulator decision;
c. whether measurement tools, such as the Standard Cost Model,[267] are used by the regulator.

[267] See Box 3.

E.2.3.4. Tools for ex-post *evaluation and simplification.*

This paragraph tackles two areas of regulatory governance: *ex post* evaluation; tools for simplification and for the improvement of the existing regulatory stock.

1) ***Ex post* evaluation.**[268] Regulatory governance should encompass norms concerning the *ex ante* phase of the regulatory process as well as norms for the *ex post* phase. In the *ex post* phase, evaluation and simplification take place. In this paragraph, the focus will be on the evaluation of the regulation, since an evaluation of regulatory processes and tools have been included in the previous parts of this section. An *ex post* evaluation of the regulation aims at assessing whether the regulation has achieved the goals and delivered the benefits it was expected to. The index should look at whether a **systematic** evaluation system is in place. A relevant variable is to measure the number of regulations for which *ex post* evaluation has taken place. The variable could be a ratio of evaluated regulations out of the total number of issued ones, possibly rescaled on the best performer.

   Another important feature is the body is in charge of the evaluation process. It can be carried out internally, by a quasi-independent administrative entity such as a regulatory oversight body, by another political institution, or by an external consultant. Each option brings advantages and disadvantages, concerning the fairness, the deepness, the speed and the possibility of learning-by-evaluating. However, more studies on the effect of internal or external evaluation are needed to decide how to judge the different institutional settings.

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[268] Cf. Jacobzone *et al.*, 2007a: 49-51; cf. Mandelkern, 2001: 12-13; cf. Renda, 2006a: 106-111; cf. OECD, 2004: 8-23; Cf. Radaelli and De Francesco, 2004.

2) **Simplification and stock-related measures**.[269] Simplification programmes and stock-related measures are very common in the current political landscape. On one side, there is growing political consensus about that, on the other, there is a strong need to simplify overgrown, overcomplicated, outdated and burdensome regulatory systems. We support the Mandelkern group's statement that simplification is not deregulation, but aims at "making *[the regulations]* more effective less burdensome and easy to comply with."[270]

A simplification programme must meet some criteria to be likely to be successful. It has to be systematic and long-term focused, it has to provide clear objectives and implementation strategies, the targets have to be as measurable as possible. Furthermore, it has to involve the stakeholders and promote a cultural change in the regulators' staff.

Several tools can be used to put a simplification programme in place and some of them are briefly defined in Box 3. Their impact is different and therefore they should be scored differently. However, we believe that the systematic nature of the simplification programme and the results actually achieved, e.g. in terms of reviewed or repealed regulations, or of reduction of regulatory burdens, are more important features in the measurement of the endowment of regulatory capacity.

Box 3*: A small glossary of tools to review the stock of existing regulations*[271]

1) *Process re-engineering*. It aims at reducing government formalities (e.g., information duty imposed on businesses), by redesigning procedures, eliminating steps and introducing information technologies in the process. The target is to streamline governmental institutional operations and to reduce administrative burdens. It is essential to co-ordinate re-engineering between different branches and levels of government.

[269] Cf. Jacobzone *et al.*, 2007a: 41-48; cf. Mandelkern, 2001: 17-18; 32-43; cf. Rodrigo, 2008b.
[270] Mandelkern, 2001: 33. The report also states that simplification does not imply ignoring real-world complexities, which sometime are to be dealt with complex instruments and regulations.
[271] Cf. Rodrigo, 2008b: 12-28; cf. Mandelkern, 2001: 32-43; cf. Jacobzone *et al.*, 2007a: 45-48.

2) *Standard Cost Model.* It is a method to measure the administrative burdens imposed on businesses through legislation, regulations and other requirements. It starts with the identification of obligations imposed by laws and then calculates the monetary value of fulfilling them for a typical firm. It can be applied both to the stock and to the flow of regulations.

3) *Guillotine.* It reviews a large number of regulations and, in one shot, eliminates those which do not pass a three-step test: legality, necessity, business friendliness. Regulations which are neither legal nor necessary are eliminated, regulations which are legal and necessary but not business friendly are reviewed, and regulations which meet the three criteria are retained.

4) *Bulldozer.* It is a method based on the business community, which identifies the unnecessary regulation which to be removed or modified without deeper and longer interventions on the whole regulatory framework. It requires a dialogue between the businesses highlighting unnecessary regulations and the public administration verifying whether the regulation at stake is really unnecessary.

5) *Staged repeal*. Comprehensive review of parts of the existing stock of regulations grouped according to their age. It allows identifying existing regulations, eliminating unnecessary ones and modernizing those in need of it.

6) *Review clause.* It is an internal clause mandating the review of the regulation is to at a certain date. It is different from the sunset clause since it usually implies that the rule will continue to exist unless action to eliminate it is taken. However, it may also imply that in case the review does not take place, the regulation ceases to exist.

7) *Sunset clause.* It is an internal clause stating that a regulation expires after a certain date. It presents some risks in terms of legal certainty.

8) *Scrap and build*. Complete review of the regulatory system, by rethinking it from scratch.

9) *Codification*. Collecting, systematically arranging and restating the norms in a certain area, with minor changes. The Mandelkern report uses the term "consolidation".

10) *Recasting.* Collecting, systematically arranging and restating the norm in a certain area with major changes. The Mandelkern report calls it "simplification".

11) *Consolidation*. Collecting a basic act and its amendments in a single text, without legal status. No change is possible. The Mandelkern report uses the term "codification" (or loose-leaf codification).

E.2.4. Coherence

> *Coherence in law is a widely shared ideal. Almost everyone hopes for a legal system in which the similarly situated are treated similarly.*[272]
> *Regulatory outcomes that are incoherent can be justifiably criticized as inefficient, unfair or perhaps both. From the standpoint of overall welfare, incoherent outcomes fail to deploy resources in a socially optimal way* [.][273]
> [one of the OECD principles of regulatory quality:] *regulation is consistent with other existing regulations*[.][274]

These quotations are just an example of a more or less agreed judgment: "coherence" should be an attribute of a proper legal or regulatory system. It is pretty easy to define when either a regulatory system or a regulation is coherent, but finding suitable tools to measure the degree of coherence is challenging. Furthermore, it is important to bear in mind that raising coherence to the status of main target for a regulatory system could be detrimental, since there are cognitive constraints[275] and democracy has to inevitably coexist with some degree of incoherence.[276]

Coherence is a logical property concerning the relations either among several constituting elements of a single object or among several objects. It is a qualitative property, hardly synthesisable in a single figure. What we should look for are proxies of coherence, that is, measurable and verifiable facts which can reasonably be considered as conducive to coherence. Otherwise, we should turn to perception surveys, asking regulators and regulatory stakeholders to assess coherence in order to measure it. Anyway, we should start with some explanations of what we are talking about when we refer to "coherence".

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[272] Sunstein *et al.*, 2002: 1154.
[273] Coglianese, 2002: 1223.
[274] Jacobzone *et al.*, 2007a: 8.
[275] Cf. Sunstein *et al.*, 2002: 1154-1155. See also page 1163: "*[a]*s a practical matter, complete consistency of beliefs and preferences is an unattainable ideal for any individual, and probably for any legal system."
[276] Cf. Coglianese, 2002: 1237.

E.2.4.1. Some dimensions of coherence

The analysis can begin from Coglianese's taxonomy, who states that there are two types of regulatory coherence: instrumental coherence, achieved when regulatory strategies or means are consistent with appropriate regulatory goals or ends; and comparative coherence, that is the degree of consistency among regulations, either within a single category (internal coherence) or among different categories (external coherence).[277] Differently, Feaver opts for three categories.[278] The first is instrumental coherence, very close to Coglianese's concept, that is the coherence between the positive rules and the social needs they are set to satisfy. The second is systemic coherence, which is achieved when "the underlying social need for regulation and the normative policy foundations formulated to address that need are theoretically in alignment."[279] Although a reference is made to policy foundations instead of regulatory tools or positive rules, this type of coherence can also be encompassed within the concept of instrumental coherence. The third category is policy coherence, which is determined by "whether the normative policy foundations are in alignment with policy choices embodied in the positive legal instrument"[280] and whether regulations are consistent with others, of either the same general type or other categories.

As it has been shown, there is some degree of consensus on the fact that coherence could be assessed along different dimensions and on the nature of those dimensions. Both dimensions, with reference to Coglianese's taxonomy, are desirable for a regulatory system and could be easily evaluated by any observer, but the assessment will be by far and large qualitative and

[277] Cf. *ibidem*: 1223. Cf. also Sunstein *et al.*, 2002 for the differentiation among "internal" and "external" coherence.
[278] Cf. Feaver, 2008: 2-4.
[279] Feaver, 2008: 4.
[280] ibidem

subjective.[281] It is very difficult to imagine a measurement tool which could assess the degree of coherence among regulatory means and regulatory ends or between different regulations through a general (that is, applicable to different cases) and objective measurement scale. As can be seen in the above-mentioned definitions, it is clear what the word "coherence" means and what its dimensions refer to, but there is no sign of an attempt of operationalisation. Two methods are proposed to overcome this hindrance: looking for institutions and procedures conducive to coherence; and asking regulators and stakeholders to qualitatively and subjectively assess regulatory coherence.[282]

Parker[283] differently operationalises the concept of coherence, linking it to the concept of independence.

> *Since political intervention tends to undermine regulatory consistency, and politicians may be prone to alter the regulatory rules of the game for short-term political advantage, consistency is a primary argument for some kind of ''independent'' regulator.*[284]

Although, according to the theory of the regulatory state quoted *supra*,[285] independence fosters credibility, which is also given by the fact that the regulator is committed to a certain and coherent path of action, this possible operationalisation of coherence is discarded. Indeed, independence is considered as conducive not only to coherence, but also to other values, such as integrity. Furthermore, it cannot be excluded that a non-independent regulator is forced to pursue a consistent regulatory policy by an external influence. Therefore, independence is included in another part of the index and coherence is investigated with other tools focusing on either specific features of the regulatory system or stakeholders' perceptions.

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[281] E.g., economists would disagree on whether an increase of public expenditures is an appropriate means to achieve more growth.
[282] Jacobzone *et al.* suggest also assessing coherence by verifying whether consultation of other regulatory agencies is mandatory. Cf. Jacobzone *et al.*, 2007b: 12-13
[283] Parker D. (2002) op. cit. in footnote 188 , cit. in Jalilian *et al.*, 2007: 89.
[284] Ibidem.
[285] Cf. paragraph E.2.2.

E.2.4.2. Compliance

A way to operationalise regulatory coherence is to define it as the formal adherence between what a regulatory system is planned to do and what it actually does. Consequently, the first proposed method of assessing coherence is compliance tests. We make a clear assumption: **some of the tools analysed in paragraph E.2.3, namely consultation and impact assessment, are conducive to internal (and, to a lesser extent, external) coherence**. That is, if consultation is carried out effectively, taking account of stakeholders' views, it is likely to decrease the risk of the regulation being inconsistent with the pursued end(s). Furthermore, stakeholders could also help noticing an eventual incoherence between the regulation at stake and others.[286] Again, if an impact assessment is carried out effectively and subsequently published (therefore its accuracy can be checked), it could help to highlight and solve possible problems of regulatory incoherence. Since an objective measure of regulatory coherence is not available, it is difficult to test this proposition empirically, but it could be logically challenged and eventually falsified, therefore it is epistemologically correct to try to build a coherence assessment technique upon it.

Here the compliance test steps in. According to an OECD definition, a compliance test should:

> *seek to evaluate formal compliance with the individual elements of the regulatory quality tool or institution in question. That is, they test whether the RIA process, the consultation process, or the regulatory institution in question have met the procedural requirements set out in laws, policies or guidelines as appropriate. These tests are essentially process focused.*[287]

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[286] Cf. Mandelkern, 2001: 27: "*[one of the aim of the consultation process is]* checking that new regulation is coherent with existing regulation and the end result is effective"
[287] OECD, 2004: 20.

The OECD reports that in 2005 13 countries and the European Commission produce an evaluation of the level of compliance of RIAs with RIA requirements.[288]

However, the compliance of impact assessment and consultation with a checklist of criteria of good regulatory governance has been already included in the previous part of the index.[289] Therefore, to avoid double checking, it has to be decided whether including the assessment of compliance either here of the index or in the previous group of variables.

E.2.4.3. Regulatory oversight body

A regulatory oversight body exists in many nations[290] and it is the central counterpart to agencies and departments in charge of drafting regulation. It can play one or more of the following roles:[291]

1) **advisory role**, providing advice and support to regulators;
2) **gatekeeper role**, challenging and controlling the quality of draft regulations;
3) **advocacy role**, involving the promotion of long-term regulatory policy goals.

As stated in most of the literature, the existence of a regulatory oversight body is expected to raise the quality and the effectiveness of the regulatory process and, relevant for this part of the regulatory capacity index, to ensure a higher degree of regulatory coherence.[292] Having a single body in charge of checking regulation drafts or regulatory analysis, issuing specific guidelines

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[288] Cf. Jacobzone *et al.*, 2007a: 41.
[289] See paragraphs E.2.3.2 and E.2.3.4.
[290] For a review of regulatory oversight bodies across various nations, cf. Radaelli, 2008b and cf. Rodrigo, 2008a: 6-14.
[291] Cf. OECD, 2004: 53.
[292] Cf. *ibidem*: 52; cf. Jacobzone *et al.*, 2007b: 14; cf. Renda, 2006a: 125-126; cf. Renda, 2006b: 338.

and providing central guidance is a good way to increase the consistency of the regulatory system. In order to assess it, the index should look at:

1) the existence of a regulatory oversight body;
2) the roles played by the body;
3) the powers it is endowed with, e.g. whether it can suggest amendments to draft regulations or impose them, whether it can repeal drafts which do not meet the required quality criteria;
4) how it performs its duty, e.g. "whether the oversight body carries out its review functions in a timely and systematic fashion"[293].

Another similar entity which may also improve the level of regulatory coherence is a body which *ex post* carries out an in-depth evaluation of impact assessments, checking their quality and their level of compliance, such as the National Audit Office in the United Kingdom.[294] Of course, the role of an *ex post* evaluation body is less incisive than the role of an oversight body which has the power to intervene during the regulatory process, but the existence of the former should also be taken into account and possibly put into the index as well.

E.2.4.4. Ask the stakeholders

The degree of coherence can be studied through surveys among regulators and of stakeholders, asking them, both directly and indirectly, about the coherence of either regulation or the regulatory system. Direct surveys would search for information related to questions such as "is this regulation the appropriate mean for the desired end?" or "is this regulation coherent?"[295] If surveys could not be conducted, the opinions expressed during the consultation

[293] OECD, 2004: 54.
[294] Cf. Renda, 2006b: 340.
[295] The question can refer both to internal and external coherence, meaning coherence within the single regulation and between regulations of the same category. It is more difficult to think of cases when the coherence among different sectorial regulations is important for stakeholders.

could be analysed, to check whether the stakeholders gave any judgment about regulatory coherence.

Indirect surveys would be a cross-checking mean, that is, it would be asked whether some of the above-mentioned coherence-conducive tools have been appropriately used. E.g. the stakeholders could be surveyed about whether the consultation process, although formally correct, had actually allowed them to actively participate in the regulatory process.

As a reminder, survey results could be influenced by the final outcome of the regulatory process: if the stakeholders' requests have been accepted, they will be more likely to perceive regulation as coherent or consultation as fair and open; if not, they will be more likely to perceive regulation as not coherent or consultation as unfair and not achieving the aim of having them participate, even though it was not case. Surveys could therefore be proposed at an early stage, e.g. during the preparatory works, but before final regulation is issued.

E.2.4.5. General institutional structure and coherence

It is disputed whether a measurement of the coherence of the regulatory system should also include an evaluation of the institutional structure of the representation and of the government, such as the features of the representative Houses and of the legislative process, the stability of governments and their political composition.

The OECD has faced this problem in its already mentioned project "Government at Glance" and decided to include several data about the national political context. The reason to do this has been stated as follows:

> *The political institutions and administrative structures of a country provide the context for all work on the machinery of government, public sector efficiency and effectiveness. Being able to situate policies and*

> *indicators within this contextual background enables us to better understand differences between countries and, therefore, to provide more robust analysis.*[296]

The assessment will include data about: state structure, existence of an elected Upper House, election system for Lower House, frequency of coalition's governments, frequency of election in years, existence of term limits for Presidents, number of departments and agencies, number of ministers, existence of a separate senior civil service.[297] Since the work carried out by the OECD is different from the objective targeted in this thesis, neither this approach nor the list of variables are to be automatically adopted, although they are a relevant reference to look at.

Looking at a study field close to ours, in their book about the public management reform Pollitt and Bouckaert highlight how much public administration is influenced by the political context where it operates, a feature often neglected by other scholars. The same administrative (and, by extension, regulatory) model or reform may perform in a completely different manner in different contexts. They consider the following as the key features to be analysed:

1) state structure (including the constitution);
2) features of the executive power;
3) relationships between politicians and high-level civil servants;
4) dominant administrative culture;
5) sources used for policy formulation (e.g. internal or external consulting, *Conseil d'Etat* advisory role).[298]

In conclusion, it is clear neither whether institutional context (and which features of the institutional context) "makes the cut" and should be included in

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[296] Lonti and Woods, 2008: 8.
[297] Cf. *ibidem*: 14, 22-28.
[298] Cf. Pollit and Bouckaert, 2002: 45-63.

the index, nor how to do it. We intend to leave this as an open question, providing two hints on how to face it:

1) different approaches for different sectors: institutional constraints are not equally important for every policy area. Furthermore, different institutional constraints matter for different areas. Therefore, in principle, data collection on institutional context may be useful and should be included into the general index. But, as for the sectorial index, a case-by-case approach should be implemented to evaluate whether to have those variables included, and, if so, which ones;
2) if something does not fit into the index, do not squeeze it inside: although some political structure variables could be deemed as relevant for the index, it is not clear whether they can be equally treated, that is measured and juxtaposed to the other regulatory capacity variables. If a quantitative measurement of the institutional structure does not make sense, including in the analysis a qualitative assessment of the context to be put next to the index is advisable.

E.2.5. Judicial framework

The judicial system is an important actor in monitoring and enforcing regulations. In a liberal-democratic state, each act of a public body, regardless whether it is a branch of the government, a governmental agency or an independent authority, is to undergo some kind of judicial review if a legitimate subject requires it. Regulation, if it is not a piece of law, is to undergo the review as well.[299] The judicial authorities, therefore, play a key role in enforcing regulations, in monitoring whether it has been complied with, and in

[299] Pieces of law may in any case undergo judicial review by either the Constitutional Court or ordinary courts (where they are entitled to, e.g. in the U.S.).

verifying whether the issued regulation and the issuing process have met the criteria established by laws.[300]

An important difference between civil law and common law legal systems has to be underlined. In the former, the administrative acts are usually reviewed by special courts, different from those having jurisdiction on private litigation. In the latter, special courts do not exist and the judicial review of administrative acts is carried out by common ones. However, common law systems adopt organisation methods reducing the differences with civil law countries. In the United Kingdom the judicial review of administrative acts is carried out by the High Court, which is an ordinary court. Within the High Court, a new specialised entity has been created, called Divisional Court and, more recently, Administrative Court. Administrative litigations fall under the authority of this specialized court.[301] In Australia, a quasi-judicial review body has been established within the government: the Administrative Appeals Tribunal. It is in charge of reviewing the administrative decisions issued by the Australian Federal Government. Although it is not a court, its decisions are subject to the review of the Federal Court of Australia.[302] Therefore, even though some organisational differences persist, every developed country "provides for instruments of judicial safeguard with regard to public administrations, which are different from those available for private litigations"[303] and its legal framework provides for special trial procedures.[304]

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[300] Cf. Jacobzone *et al.*, 2007a: 48.
[301] Cf. De Petris, 2005: 3.
[302] Cf. Stone, 1995; cf. NERA Economic Consulting, 2005: 23-24.
[303] De Petris, 2005: 2.
[304] Furthermore, in Europe, the judicial review of administrative acts is also undergoing an indirect harmonisation because of the activity of the European Court of Justice, whose influence is making civil law and common law administrative systems more similar. Cf. *ibidem*: 20.

In order to point out which variables are to be taken into account, the aims of the judicial system for administrative review must be agreed upon. They can be summarised in the following four points:[305]

1) to ensure protection to private parties against the public administration. Since the latter is in a position of substantial superiority, this has to be done through special courts and/or sections and special procedures;
2) to ensure the functioning of public administration and legal certainty;
3) to balance the autonomy of the public administration with the need to scrutiny its acts;
4) to ensure citizens' access to the judicial procedure.

The first issues the index should look at are the **existence of either a specialised court or a specialised court section** and the **existence of dedicated procedures** to deal with the review of administrative acts.

Afterwards, other more specific elements must be evaluated to assess the quality and effectiveness of the judicial framework:

1) **Timeliness**. [306] For the review to be effective, it is important that the courts perform their duties within an acceptable period of time. Speediness is also due to guarantee the certainty of the regulatory framework. A widespread measure of the average duration of cases is the Cappelleti index. It estimates the expected duration of a case by dividing the flow of new cases per year by the stock of disposed cases in the same year. Furthermore, it is important that the judicial system makes *ad interim* remedies available also before the final decision is taken, to overcome possible time constraints.

[305] Cf. *ibidem*: 11.
[306] Cf. Buscaglia e Dakolias, 1999: 8, cf. Cornall, 2007: 3-4; cf. De Lise, 2006: §3.3.

2) **Right to have standing**.[307] Each legal system regulates in different ways the *locus standi*, that is the right for a subject to legitimately bring an action in front of the court to challenge an administrative act. The evaluation could be based on either the laws on the books, by analysing when an applicant has or has not the right to have standing, or the analysis of hypothetical situations, that is the same method used by Doing Business. To avoid a flaw of the Doing Business methodology, that is to assess only one situation and claim that it represents the general category to which it belongs,[308] several scenarios must be analysed for each regulatory area. This can be done by describing several situations in which different actors want to challenge a regulation and verifying whether they have the right to do so.
3) **Availability of instruments during the trial**.[309] To better perform the review, the court must have the possibility to have access to different instruments during the proceeding. The index should look at whether these instruments, e.g. the possibility of presenting written or oral evidence, or the consultation of external expertise, are available to the parties or to the judge.
4) **Availability of alternative dispute resolution mechanisms**,[310] such as arbitration, *ombudsman*, reconciliation committee. Most of these methods originate from common law systems, but their use is spreading also in civil law countries. They are important tools to allow the parties to reach an agreement without the court intervention, saving money and time.

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[307] Cf. De Petris, 2005: 5-6.
[308] See D.2.1.
[309] Cf. De Lise, 2007: § 2.1, Cf. Siclari, 2007: 455-457, 477.
[310] Cf. De Petris, 2005: 7-9.

5) **Degree of scrutiny**.[311] Analysing the degree of scrutiny and the powers the judge is entitled with is a slippery slope. On the one hand, the legal doctrine agrees that the judge cannot replace public administration discretional judgments with his own.[312] On the other, the self-restraint of the judge cannot be so extensive that the scrutiny becomes too limited. For the judicial review to be effective, the judge has to be able to perform a full and effective scrutiny, verifying both the reasonableness of the regulation and its content. It has to be able to know the facts and the methodology on which the act is based.[313] Although it should not take the regulator's place, it has to verify in depth the soundness and the suitability of the issued regulation. Furthermore, it is also important that elements of regulatory governance, such as consultation and RIA, can be subject to judicial review, and that the legitimacy of regulations can be challenged in case the regulatory process was not fair or did not meet the legal requirements.

Box 4*: Grouping variables*

We have come a long way to explore which variables and phenomena should be put inside an index of regulatory capacity. Although this is just a (quite deep) sketch of the index, the reader is likely to have thought that it comprises too many variables. The information overload could hinder the comprehension of the phenomenon, but two statistical techniques could help in decreasing the risk: Principal Component Analysis (PCA) and Factor Analysis (FA).

If the original variables enjoy a degree of correlation (and most of the described phenomena are likely to be correlated), PCA is used to transform them into a

311 Cf. De Petris, 2005: 7; Siclari, 2007: 452-462. Jacobzone *et al.*, 2007a: 23, 70.

312 Cf. European Court of Justice, C-120/97, Upjohn Ltd v The Licensing Authority established by the Medicines Act 1968 and Others.

313 This requirement is even more important for the review of acts issued by independent authorities dealing with complex matters. If the review cannot extend to the content and the technicalities of the act, it is likely to be too superficial. However, the more the authority uses its technical discretionary power, the more the judge must be careful not to invade the public administration sphere of powers. Siclari, 2007 deals extensively with this problem.

new set of uncorrelated variables. Some of the new variables, called principal components, will account for most of the variance of the data. Therefore the data structure is more clear and parsimonious, but no explicatory power is lost. The principal components are uncorrelated, consequently each of them represents a different "statistical dimension" of the data, synthesizing in a single factor a number of original variables partly measuring the same phenomenon.[314] Each component is assigned a "factor loading", representing the amount of total explained variance. FA is intended to achieve the same target, that is, reducing the number of factors describing the regulatory capacity. But, differently from the PCA, it is based on a special statistical model.[315]

However, these techniques have some flaws: 1) correlations among variables, upon which the factor loading is calculated, do not represent the real influence of the variables on the phenomenon; 2) PCA an FA are sensitive to modifications in the basic data (such as updates), to outliers and to small-sample problems; and 3) the incidence of the variables uncorrelated with the others is minimised.

[314] Cf. Nardo *et al.*, 2005b: 17.
[315] Cf. *ibidem*: 21.

SECTION F. CONCLUSION

In conclusion, we want to sum up the six most important issues to be withheld from this work.

1) Current indicators of governance and institutional quality have many strengths and some weaknesses. To build a high-quality indicator of regulatory capacity, strengths are to be imported and used accordingly to the aim of the new index. Weaknesses have to be acknowledged and a coherent strategy to overcome them, or limit their impact, has to be put in place. This has to be done transparently, highlighting each critical point and the adopted solution.

2) A carefully constructed indicator of regulatory capacity would be useful for the following reasons:
   a. synthesis;
   b. reduction of measurement errors;
   c. showing explicit margins of errors;
   d. communicability;
   e. comparison among countries and benchmarking;
   f. neutrality;
   g. "actionability";
   h. use of subjective and objective data.

   Statistical and ontological difficulties have to be overcome to construct the index. The former relate to data selection and measurement process, to weighting and aggregation techniques, and to the relationships between the index and other relevant variables. The latter relate to the extent and plurality of the concept to be measured, to the

differences among regulatory systems, and to the definition of what is "good" regulatory capacity.

3) Efficiency is a criterion, but not the only one, to assess a regulatory system. History, culture, politics and the legal system matter and must be considered by the index.

4) Diversity must be included in the index, since it is designed to deal with the assessment of (very) different regulatory systems. Diversity must be taken into consideration because regulation and regulatory capacity are open, uncertain, multi-scale and multidimensional complex concepts and cannot be over-simplified. This complexity is typical of the normative and descriptive aspects of the phenomena are concerned by this complexity. Furthermore, diversity allows the achievement of a consensus on the definition of regulatory capacity and on the indicator. Without consensus, the indicator of regulatory capacity would remain a theoretical unused instrument. A crossword-style modelling and the use of the Development Envelop Analysis (also called Benefit Of Doubt) approach are recommended.

5) Regulatory capacity is defined as the combination of individual competence, organisational capabilities, assets and relationships that enable a political entity to formulate, monitor and enforce regulation, in both market and non-market sectors. The level of regulatory capacity of a given system depends on the presence (or absence) and on the features of certain inputs and processes to be employed in formulating, monitoring and enforcing regulation. An index measuring this phenomenon is needed to complement the existing indicators, focusing on institutional features, such as inputs and processes of regulation, and employing fact-based data in the measurement.

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