Politics Matters in the Public Utility Privatisation and Regulatory Governance: Analytic Hierarchy Process Perspective

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Abstract

In the study of Cheng and Hebenton[10], it is shown that the development of regulatory governance is limited by the capacity of the regulators to enforce regulatory rules and monitor contracts. The objective of this research is to improve understanding of the essential links connecting environmental dimensions and regulatory modes via analytic hierarchy process (AHP), with particular reference to regulatory policy environment. It is suggested that certain political and economic preconditions are necessary for a successful privatization. There is often a political element in the choice of the method to be used for public utility privatisation.

Keywords: Regulatory governance, Public utility, Analytical hierarchy process.

Introduction

Many aspects of privatisation and regulation, however, are not obvious enough to be observed.[43] And several challenges are faced in investigating privatization and regulatory governance.[14, 26, 38, 49] This leads to a need to highlight a variety of institutional issues and the need for capacity building if public utility privatisation in the context of DCs is to be successful.

In the study of Cheng and Hebenton[10], it is shown that the development of regulatory governance is limited by the capacity of the regulators to enforce regulatory rules and monitor contracts. The objective of this research is to improve understanding of the essential links connecting environmental dimensions and regulatory modes via analytic hierarchy process (AHP) with particular reference to regulatory policy environment in Taiwan.

Institutional framework of public utility privatization in Developing Countries: Research into privatization and regulation is multi-disciplinary.[7, 8] The enabling environment is expected to encompass the political, legal and institutional setting along with the financial and fiscal systems and thus enhance the ability of governments to undertake successful privatization programmes.[9]

Privatisation, *per se*, should be treated as a means, not an end. Furthermore, the importance of regulatory governance for privatisation has come to be recognized more recently and understanding of this issue remains relatively limited. According to OECD, 'regulations' can be divided into three categories[32]: 'economic regulations' intervene directly in market decisions such as pricing, competition market entry, or exit.[36] They are invoked where there are market failures. Public utility privatisation aims to increase economic efficiency by reducing barriers to competition and innovation, often through deregulation and the use of efficiency-promotion regulation and by improving regulatory frameworks for market functioning and prudential oversight; secondly, 'social regulations' deal with such matters as health and safety, environmental and consumer protection and tend to be justified by reference to externalities and asymmetric information. The economic effects of social regulations may be secondary concern or even unexpected, but can be substantial[48]; 'administrative regulations' are 'red tapes' through which governments collect information and intervene in individual economic decisions. Regulatory reform aims at eliminating those no longer needed, streamlining and simplifying those that are needed and improving the transparency of application.[34]

On the other hand, Levi-Faur[21] argued about more "social" regulations alongside more "economic" regulations; "red tape" alongside "fair tape"; political and civil; national and international. It can be also observed that regulations hinder competition alongside regulation-for-competition; regulations that serve the public interest and regulation that mainly serves private interests. Today there is a sense that some regulations facilitate competition, while others impede it.

Therefore, the definition of good regulatory governance in this study means positive outcomes by regulatory governance required in privatization. The objective of the study is to address good regulatory governance for public utility privatization by linking three regulatory modes of OECD with the statement of Levi-Faur's[22] "regulation-for-competition". Furthermore, the study is also to explore interactions of these four regulatory modes with concluded environmental dimensions to address research question of the paper.

Methodology

Designed to reflect actual human thinking, the analytic hierarchy process (AHP) was developed in the early 1970s in order to resolve the dilemma between the scare resource allocation and planning needs of the military.[41] The AHP is a flexible and powerful process that deals with the qualitative and quantitative aspects of a decision and allows us to make decisions by personal judgment in a more logical way. More,

the AHP enables the decision maker to structure a complicated problem in the form of a simple hierarchy and to evaluate a large number of quantitative and qualitative factors in a systematic manner under conflicting multiple criteria.[6, 39, 42, 44] Therefore, the AHP can formulate a general multi-attribute decision problem in terms of a decision tree where each of the hierarchy levels involves several types of criteria. The decision problem is how to compare the relative importance of the criteria in a systematic and quantitative manner.

The numerator of the above equation is termed the consistency index and a consistence ratio (CR) of 0.1 or less is considered acceptable. If responses of a decision maker fail the consistency test, then the analyst must repeat the process until consistent responses are obtained. AHP application is based on the following four principles[17]:

(1) **Decomposition:** Break down the complex problem into a small number of constituent (decision) elements and then structure them in a hierarchical form.

(2) **Prioritization:** Involve pair wise comparisons of various elements residing at the same level with respect to an element from the upper level of the hierarchy.

(3) **Synthesis:** Aggregate these relative weights and synthesize them for the final measurement of given decision alternatives.

(4) **Sensitivity analysis:** Outcome stability is determined by testing the best choice against ''what-if'' type of changes in the criteria priorities.

The AHP was used to determine the priority of each of the alternative, that is, we selected optimum alternative necessary to construct the good regulatory governance model through successive priority setting based on the AHP as in figure 1. The AHP is a hierarchical representation of a process. To illustrate the functions of AHP, the method is detailed as follows:

Step 1-Decision problem: Weighting selection criteria with literature reviews and case studies on public utility privatization and regulation.

Step 2-Framework for personnel selection: The paper has closely reflected nine expert's opinion through the Delphi Technique to represent concrete experiences and consistency in priority. Three experts are from the National Communications Commission (the regulator); three of them are academic scholars majored in regulation; other three are from Ministry of Economic Affairs (MOEA), Environmental Protection Administration (EPA) and The Council for Economic Planning and Development (CEPD).

Step 3-Establishing the decision hierarchy: The step structures decision problems in a hierarchy, as shown in figure 2. It employs a three-level hierarchy to link regulatory modes and environmental dimensions to good regulatory governance goal. Ranking in decreasing order of importance, the three levels are: (1) the goal; (2) the four regulatory modes; and (3) environmental dimensions for public utility privatization.

Step 4: Data collection from the selection panel.

Step 5-Employing pair-wise comparisons and using expert choice 2000 software to make matrix: Matrices that compare the relative importance of respective decision elements were constructed through pair-wise comparisons, which compare the hierarchical elements in pairs with respect to the relevant elements at the previous level, after reaching the common consent for the related expert opinions through the Delphi Technique. This comparison is performed using the scale used in table 1. In regulatory modes lever, sample item is: ''amongst different regulatory modes, which one is more important than others. And in environmental dimension level, sample item is: "which dimension is more important". This scale expresses comparisons verbally and these verbal comparisons are then represented numerically into expert choice 2000 software. On the basis of the matrices which were derived from former step, the priorities for decision elements by the level were calculated and the consistency of reply were verified by CR.

Step 6-Synthesizing results: The set of overall priorities that indicate the relative importance of evaluation factors were obtained by synthesizing the priorities of every level according to the top-down approach and overall consistency of reply was verified by finding the composite consistency ratios.

The computation steps of AHP are summarized as below[40]:

Step 1: Develop the pair-wise comparison matrix *A* through utilizing the ratio scale in table 1.

Step 2: Let $C_1, C_2, \cdots, C_n$ denote the set of elements, while a_{ij} represents a quantified judgment on a pair of elements C_i, C_j. This yields an n-by-n matrix *A* as follows:

$$A = a_{ij} = \begin{array}{c} \\ C_1 \\ C_2 \\ \vdots \\ C_n \end{array} \begin{array}{c} \begin{array}{cccc} C_1 & C_2 & \cdots & C_n \end{array} \\ \begin{bmatrix} 1 & a_{12} & \cdots & a_{1n} \\ \frac{1}{a_{12}} & 1 & \cdots & a_{2n} \\ \vdots & \vdots & \vdots & \vdots \\ \frac{1}{a_{1n}} & \frac{1}{a_{2n}} & \cdots & 1 \end{bmatrix} \end{array} \quad \ldots.(1)$$

where $a_{ij} = 1$ and $a_{ij} = \frac{1}{a_{ij}}$, $i, j = 1,2\ldots,n$.

In matrix *A*, the problem becomes one of assigning to the *n* elements $C_1, C_2 \ldots C_n$ a set of numerical weights $W_1, W_2, \cdots, W_n$ that reflects the recorded judgments. If *A* is a consistency matrix, the relations between weights W_i and judgments a_{ij} are simply given by:

$$\frac{W_j}{W_i} = a_{ij}$$

(for $i, j = 1, 2, 3\ldots n$). Saaty[40] in 1990 advocated that the largest eigenvalue λmax would be

$$\lambda_{max} = \sum_{j=1}^{n} a_{ij} \frac{W_j}{W_i} \quad \ldots.(2)$$

If A is a consistency matrix, eigenvector X can be calculated by

$$(A - \lambda_{max} I)X = 0 \quad \ldots.(3)$$

Saaty proposed utilizing the consistency index (*C.I.*) and random index (*R.I.*) verifying the consistency of the comparison matrix (consistency ratio, *C.R.*). *C.I.* and *C.R.* are defined as below:

$$C.I. = \frac{\lambda_{max} - n}{n-1} \quad \ldots.(4)$$

$$C.R. = \frac{C.I.}{R.I.} \quad \ldots.(5)$$

where the *R.I.* indicates the average consistency index (as so-called random index), which was calculated by Saaty[39] in 1977 as the average consistency of square matrices of various orders *n* which he filled with random entries. Average consistency values of these matrices are given by Saaty and Vargas[42] as shown in table 2. If the $C.R<0.1$, the estimate is then accepted; otherwise, a new comparison matrix is solicited until $C.R <0.1$.

Analysis

Williamson's[47] three-layer scheme dramatizes the linkage, influenced by transaction cost that exists between governance forms and the individual. The scheme underlines a basic feature of institutional economics, where macro (the institutional environment) and micro (the individual) features are presented to analyse social and economic issues. The governance structure is affected by a locus of shift parameters which affects the comparative governance costs.

The fundamental idea of regulation is to design an incentive mechanism which will lead the company to act in accordance with the public interest. It is apparent that privatisation policies have been considered as a remedy of inefficiency. However, the degree of improvements crucially depends upon the institutional framework of regulation in which the privatised firm operates. Therefore, it is essential to develop regulation into a concept of regulatory governance and to integrate it with the broad governance agenda.

According to the survey via the AHP with expert choice 2000 software, table 2 shows the priorities for decision elements calculated according to levels and overall priorities of alternatives. In case of level 1 (i.e. priorities of four regulatory modes), priority of regulation-for-competition (0.375) was somewhat higher than others and then came administration regulation (0.276), social regulation (0.186) and economic regulation (0.164) in order. In case of level 2, priorities of environmental dimensions to attain respective objectives could be classified as five groups according to the objectives at level 1.

First, for economic regulation, priority of political dimension (0.354) was the highest and priority of ideological dimension (0.257) was the second and then was the administrative dimension (0.176).

Secondly, for social regulation, priority for political dimension (0.348) was the highest and priority for ideological dimension (0.242) was the second and then was administrative dimension (0.192).

Thirdly, for administrative regulation, priority for political dimension (0.342) was the highest and priority for ideological dimension (0.265) was the second and then was administrative dimension (0.179).

Lastly, for regulation for competition, priority for political dimension (0.337) was the highest and priority for ideological dimension (0.261) was the second and then was administrative dimension (0.0.183). Simultaneously the consistency of replies was verified because all the consistency ratios (CR) calculated by the level were less than 0.013, which was less than the predefined threshold 0.1.

The overall inconsistence of regulatory modes and environmental dimension for good regulatory governance model was presented at the last column of the table 3. Finally the paper can ague that no matter which kinds of regulatory modes (economic, social, administrative and regulation for competition), political, ideological and administrative dimension are the main environmental dimensions to influence public utility privatization with particular reference to regulatory policy environment in Taiwan.

Regulation, thus, is a topic that calls for a multidisciplinary approach.[3] Minogue[26] has explored the meaning of regulation from a number of perspectives. According to his statements, regulation is based on strict rules or broadly formulated guidelines, which allow further negotiations and discretion over their implementation. In other words, regulation can carry many different meanings depending on the context in which it is used. However, regulatory governance is supposed to preside over regulation and competition. It is important to study regulation from the broad perspective before discussing the issues under-laying regulatory governance.

Enhance regulation for competition: According to the analysis, the most important regulatory mode for public utility

privatization is "regulation for competition". Public utility privatization generally refers to policies adopted by the government to reduce the role of the government and enhance private sector involvement in the economy.

An important element often associated with privatization is 'competition'.[4, 13, 20] For Kay, Mayer and Thompson[18] privatisation also incorporates deregulation and contracting out. However, the sale of a government monopoly to the private firm may not necessarily enhance its performance but could instead turn it into a private monopoly such as market failure. Deregulation allows the government to introduce measures that encourages the private company to operate more efficiently.

Similarly the privatisation of TELEMEX of Mexico reveals that ownership, competition and regulation are not independent policy variables, but a set of loosely connected tools whose important interactions are yet to be understood. The development of the telecommunications industry largely hinges on building up: (a) diversity of supply and competition; (b) participation of private capital and enterprise; and (c) effective public regulation.

As Minogue[27] argued, evidence for the superiority of private over public enterprises is mixed and inconclusive. Moreover, the real issue is monopolised state and its associated inefficiencies rather than ownership. The significance of regulatory policies in the privatisation process has been emphasised so far. It is evident that public utility privatisation cannot be analysed in the absence of the economics of competition and regulation[12, 26, 31, 45]. It should be highlighted that regulation for competition is just one element in the overall combination of public policies and that regulatory governance is crucial to the exploration of the strengths and weaknesses of utility regulation. It also draws out the important links between regulation and the wider governance agenda, which is integral to the role of government and must be pursued on a permanent basis. Its focus, more than that of regulatory reform, is on 'good governance'.[33]

Administrative regulation: The other important regulatory mode is "Administrative regulation". It is of evidence that the links between public utility privatisation and regulation involve government-sponsored control, influence and monitoring of a mix of public and private sector agencies that provide public utility services performed by relatively detached regulatory agencies. In the study, the most crucial factor determining administrative regulation is a relatively capable the Regulocrats.[21, 22]

Moreover, lack of progress in developing effective regulatory institutions and processes is realised by some observers as symptomatic of a lack of government will to regulate the sector.[1, 28, 29, 50] In Argentina, lack of administrative regulation by the regulator regarding clarification of the scope of the concessions of the two regional privatised operating firms has reportedly led to slower investment.[46]

In short, telecommunications privatization has preceded the development of effective regulation and competition. The development of regulatory structures is limited by the capacity of Taiwanese government to enforce regulatory rules and monitor contracts. Regardless of the specific regulatory structure, successful and effective regulation is required in the context of Taiwan which needs political will in the government to make it work; prominent regulatory leadership committed to serving the public interest; profound management of the regulatory process, including knowledge of the industry; qualified professional staff in the various related disciplines; equal and open decision-making mechanisms accessible to all the parties affected and actions that respond to the broad political goals of the government.[28, 46]

Giving greater definition to the accountability framework for regulators can considerably clarify their role; it further formalises the manner of their interaction with other facets of the government and helps to define the respective roles of all the parties whose operations impinge to a greater or lesser extent, on the remit of the various regulators. The interests of democracy demand that such delegation of responsibility be accompanied by clear and defined accountability mechanisms. Accountability is a complement to responsibility. It concerns the obligation to explain, answer for and bear the consequences of the manner in which one has discharged duties, fulfilled functions and utilized resources.[30]

As a result, effective regulation is basically a political problem in Taiwan. It can be established only where there is strong government support and understanding of its goals, especially government will and commitment to regulate the sector. Experiences of different countries[11, 30] also suggest that the development and establishment of effective regulation is continuous and not a one-shot exercise.

On the contrast, economic regulation is the last regulatory modes towards good regulatory governance. It might be that the success of public utility privatisation should not only be judged in terms of improvements in economic performance indicators such as productivity and profitability, but must also consider 'public interest' which is the primary obligation of the public sector (especially the central government), because the respective value of government and market is originally different. It is precisely the problem that takes politics out of market towards good regulatory governance.

Moreover, evidence for the superiority of private over public enterprise is mixed and inconclusive. The real difference is 'monopoly' and its 'associated inefficiencies' rather than ownership. Furthermore, policy failures associated with privatization and re-regulation has called this public utility privatization into question. This has particularly been the case when consumers and citizens generally have been unable to perceive the benefits from privatisation. There is no need for

reticence that government is playing an important part in the process of privatisation and regulation policy. In other words, institutions and governance mechanisms of the government are significant in the process of achieving a successful public utility privatisation policy.

Politics is the core value towards good regulatory governance: For four different regulatory modes, their priorities for political dimension were the highest and for ideological dimension were the second, then were administrative dimension. Therefore, it can be argued that politics really matters and there is a need to enhance the role of government (Figure 3).

In 1997, OECD[32] stated that "the emergence of the regulatory state in this century was a necessary step in the development of the modern industrialised democracy… Regulation has helped governments make impressive gains in protecting a wide range of economic and social values".[33] However, the study showed that formal independence is neither necessary nor sufficient condition for explaining variations in the de facto independence of agencies.[24] The increasing use of regulation as government instrument may thus arise due to the growing demand to 'steer not row' the involvement of a variety of public and private sectors which operate at some remove from the central government.[22, 35] In other words, government is likely to retain greater responsibilities and accountabilities for economic and social regulation, especially in developing countries (DCs). As a result, it can be concluded that the government needs to strengthen its governance mechanisms in the complicated political-economic process of privatisation and regulation.

Profits must be sufficient to finance investment in the public utility. It can be observed that DCs face the urgent and difficult task of moving forward with public utility privatisation to maintain economic performance in response to technological innovations, changes in consumer demand and inter-dependencies in regional and global markets. In the public utility privatisation process, regulatory governance to stimulate competition and reduce regulatory inefficiencies has become central to the government economic policy agenda in DCs. As a result, to understand fully the 'regulatory governance' is necessary and significant for public utilities regulation. Moreover, there is a need to go beyond description and analysis of the formal structures and institutions of public management and to examine the characteristics of the public policy process.

The formal and informal resources delegated and available to regulatory governance affect the government's capacity to shape political outcomes. It can be observed that DCs[2, 5] face the urgent and difficult task of moving forward with public utility privatisation to maintain economic performance in response to technological innovations, changes in consumer demand and interdependencies in regional and global markets. In this transition, regulatory governance to stimulate competition and reduce regulatory inefficiencies has become central to the government economic policy agenda in DCs.

However, the establishment of a regulatory system is more difficult in the context of DCs.[2, 5] There are deep-rooted problems arising from the less developed structure of these economies, such as the establishment of good governance capacities. However, regulatory capacity is not a sufficient factor for successful regulatory governance, because political variables can influence divergence among regulatory agencies.[37] As a result, public utility privatisation and its regulation need to be framed within the context of governance not government.[19]

But many problems arise when attempts are made to put western models into practice when transplanted to different economic, social and political cultures. Moreover, some critical issues also need to question whether states will make policy rationally and whether policy actors will be prepared to cooperate in designing and delivering policy. Also, do political elites really want democratic and pluralist participation? Or will the regulatory process be captured by powerful special interest groups such as large or foreign companies?

Therefore, the various roles of government are reconceptualised relative to regulatory governance in the process of public utility privatisation. First of all, they must actively participate in the planning, financing, delivery and evaluation of public services.[16] Secondly, they must creatively and innovatively deal with changes and initiate public choices, programmes and projects, which contribute to solving emerging problems, meeting society's changing needs and achieving a sustainable future.[15] Thirdly, they must do this efficiently, effectively, equitably and also humanely. Fourthly, governments must act transparently so that citizens have the necessary information, access and involvement to hold them accountable for the outcomes they produce.[23] Finally and perhaps most important, governments must actively participate in the process of creating the conditions under which governance takes place. They must assure that civil order prevails and democracy thrives so that collectively we are able to undertake actions designed to solve problems, meet society's needs and achieve a sustainable future.

Nonetheless, it is difficult to set up governance mechanisms of public utility privatisation and regulation especially in the context of DCs, however, it needs to be kept in mind as a means of limiting the adverse effects of privatisation (capture theory), not to constraint the operations of companies. On the other hand, it can be argued that in reality there is a complex variety of forms of regulatory governance which, whilst not involving a government agency, often involve the governments in some ways. Furthermore, the main problem with the accountability mechanism is where political pressures have typically dominated economic and commercial factors. The governments in developing countries have made progress in these areas, but still have important problems, in particular

to reduce excessive and powerful influences and improve accountability. In the end, it can be concluded that it is necessary to explore governance mechanisms of regulation, especially DCs.

Therefore, essential linkages between privatisation and regulatory governance that should be explored and developed further include the importance of governance mechanisms in government, policy responsiveness and policy coherence. Moreover, the challenge to these essential linkages should be to better understand and respond to regulatory failures.[33] Nonetheless, many more utility privatisations are under way or are being considered in DCs. Privatisation is a complex and consequently controversial part of the reform process because of the wide range of interrelated issues that must be solved. No country to date has been prepared to transfer a public utility into the private sector without imposing some degree of continuing public or social control over its activities. It can be observed that the government would benefit from the desired results to create or reform the regulatory framework, addressing rules for how competition will be allowed and the structure and role of regulatory agencies in the process of privatisation. It is vitally important that the government in introducing regulation fully understands that multiple objectives can be pursued through regulatory governance.

Conclusion

As May[25] argued that it is important to find the right fit between regulatory circumstances and the design of regulatory regimes. All the evidence in the paper suggests that better growth prospects of public utility privatization are fundamentally tied to governance structure of predictable, transparent and technically competent regulation. It is interesting that the effects of current regulatory reforms in DCs are at least debatable. So far, it would seem that serious errors in the sequencing of such reforms have had widespread and significantly negative impacts, especially on the poor, such as in Russia and China. Therefore, the principal lesson for policy in public utility privatization appears to be the need to pay careful attention to the local and developmental context with the changing role of government.

The study suggests that regulatory governance for public utility privatization is not merely a remedy to the economic problem but a by-product of political reform in Taiwan. In other words, certain political and economic preconditions are necessary for a successful privatisation. There is often a political element in the choice of the method to be used for public utility privatisation.

It is, therefore, concluded that the current literature describes privatisation as a rational process resulting from decisions and actions by the government and its administrative regulation. The study strongly suggests that public utility privatisation, at least in the context of Taiwan, cannot be explained by government action alone, but instead tends to confirm that it is a dynamic political process.

The study can be extended in some directions, when we turn to an examination of DCs, regulatory governance both internal and external to government appears to be weak in general. The reasons for this weakness need to be explored and are hypothesised to lie partly in low levels of government legitimacy, partly in government inefficiency and partly in 'political capture'. There is therefore a link between privatisation and regulatory reform. Political factors may be taken to represent an opportunity for commitment to effective regulation as well as a potential source of inhibition or resistance. Moreover, the new method includes a multiple criteria (particularly qualitative variables) analysis process and reflects regulatory expert's opinions and therefore is very useful for finding a more broadly acceptable solution to regulatory policy making problems. However, future study should include some case studies to make the process practicable.

Table 1
Scale for pair-wise comparisons

Verbal scale	Numerical values
Equally important, likely or preferred	1
Moderately more important, likely or preferred	3
Strongly more important, likely or preferred	5
Very strongly more important, likely or preferred	7
Extremely more important, likely or preferred	9
Intermediate values to reflect compromise	2, 4, 6, 8

Resource: Saaty[40]

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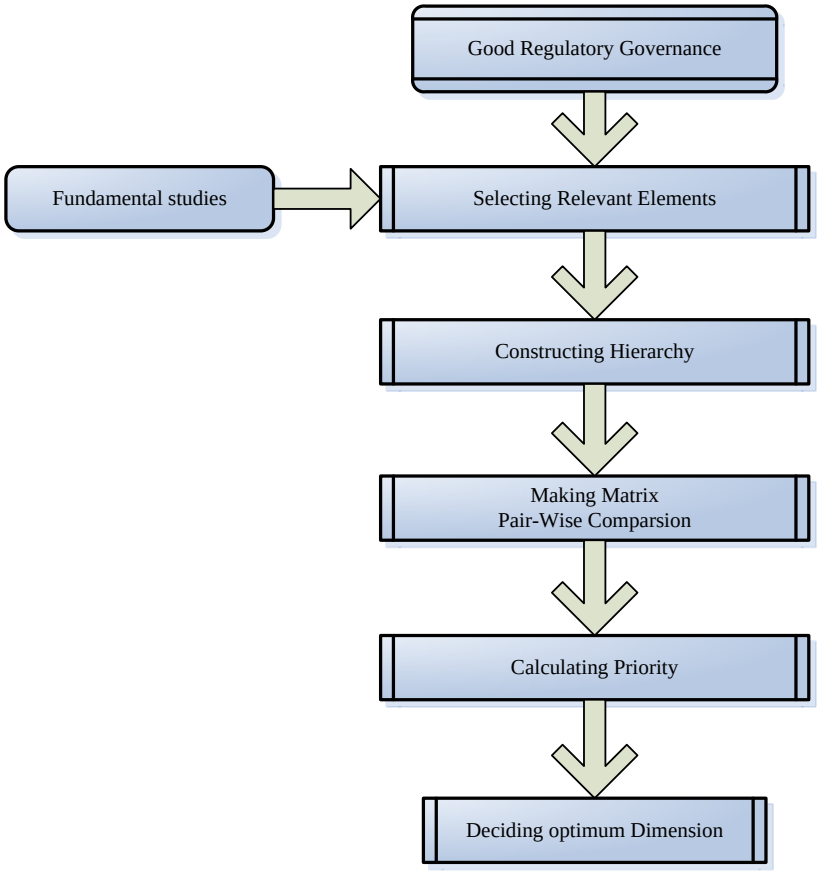

Fig. 1: AHP based research process

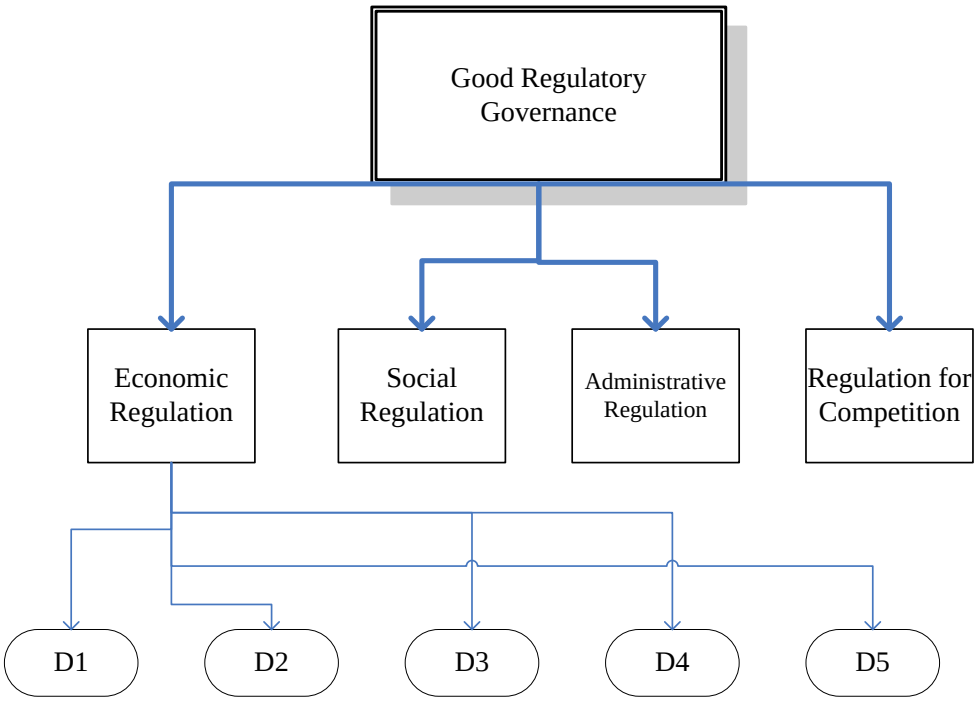

Fig. 2: The Structure of the Hierarchy

Table 2
RI values

n	2	3	4	5	6	7	8
RI	0.00	0.52	0.90	1.12	1.24	1.32	1.41

Resource: Saaty and Vargas[42]

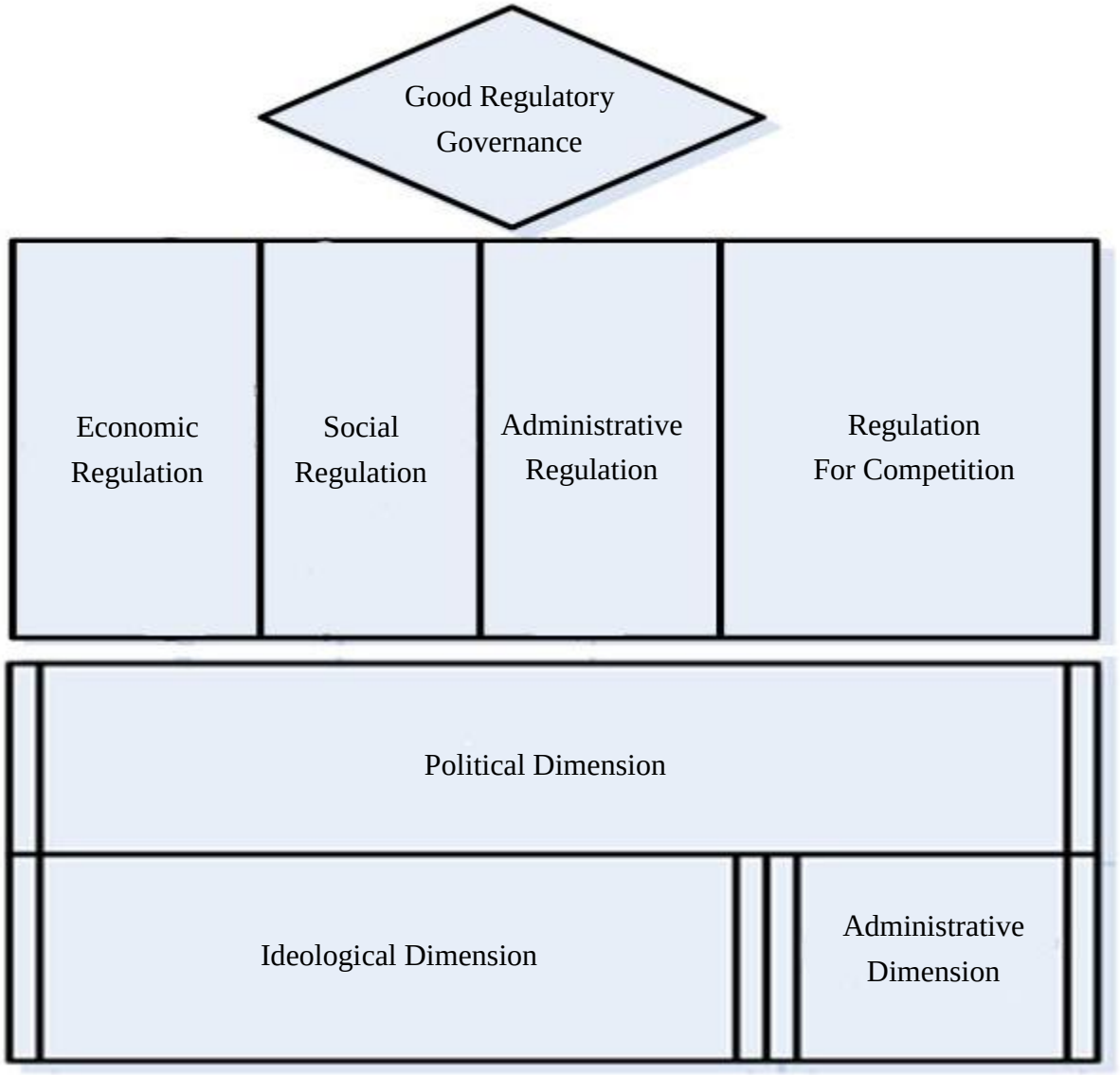

Fig. 3: Structure of Good Regulatory Governance

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Table 3
Priority by the level and overall priority

Level 1: Regulatory Modes		**Level 2: Dimensions of Regulatory Environment**		**CI**
Economic Regulation	0.164	Economic Legal Administrative Ideological Political	0.088 0.126 0.176 0.257 0.354	Inconsistence=0.06
Social Regulation	0.186	Economic Legal Administrative Ideological Political	0.09 0.127 0.192 0.242 0.348	Inconsistence=0.05
Administration Regulation	0.276	Economic Legal Administrative Ideological Political	0.087 0.127 0.179 0.265 0.342	Inconsistence=0.06
Regulation for competition	0.375	Economic Legal Administrative Ideological Political	0.088 0.130 0.183 0.261 0.337	Inconsistence=0.08

Overall Consistence index (CI)=0.05 < 0.1

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