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Abstract

This survey is an overview on the literature that investigates the relationship between the institutions and development processes. The attention it has been focus, in sequence, on the ways in which it has been performed the empirical and the theoretical analysis of the relationship between the economic development and the role of institutions. As it is clear the first difficulty is the definition of what an institution is, so the survey gives dig relevance to the different manners to conceptualize the notion of institution. Another difficulty arises from the perplexity about how the efficiency of the institutions can be evaluated. This problem is related to the necessity to close off in the right way the weight and the influence of the institutions respect to the other variables on the economic development. The analysis of the complementarities involved in the development processes, can be a useful way to explain some kinds of relationship between institutions and development processes especially in the short run. The use of more elaborated indices to measure the influence of institutions in the economic system and of the coentegration models can improve the reliability of the empirical analysis. In the same manner the supermodularity and the supermodular games can efficiently explain the mechanism of the strategic complementarity between different kinds of institution generating virtuous development processes from a theoretical point of view. Necessarily, in the future, both the analysis must be integrated but, for the time being, the state of art in the two approaches represent a very good starting point for new outcomes related to the investigation on these type of kind of economic phenomena.

1   Introduction

The analysis of institutional framework and of its influence on the economic performance is universally recognized from both economic theory and social and historical fields. The wealth distribution, the allocation of economic power, the new opportunities of development are strictly connected with the institutional environment.

It is well known that the increase of the wealth in the economic system is strictly connected with radical structural changes concerning the productive system, the level of consumption and the intensity of trade, but it is also clear that it is not possible to separate these phenomena from essential institutional change.

The institutional variables become fundamental in the development processes when they are no longer to considered exogenous, but assume an endogenous feature inside the mechanism of the economic changes. The use of the institutional variable, to explain development processes, is mainly considered strictly connected to the alterations of the investments level. From an investor point of view it is more profitable to invest in countries where exist an institutional framework that creates the conditions to reduce the uncertainty and to facilitate the task of the economic agents. From this perspective it is an undeniable fact that an institutional context, diffusing signals of reliability, provides incentives to invest since reduces the probability of unexpected events and stimulates a self - feeding (self feeds) virtuous circle.

The previous comment can be considered trivial but it is important to starting from this prosaic consideration in order to organize an original and incisive content analysis of the main contributions concerning the relationship between the institutional variables and the level of development. From an orthodox point of view the economy is a system in which interact agents with a perfect knowledge of the reality, after this assumption all the developed analysis meet several difficulties to explain exactly what happens in the reality. Even after starting to consider other variables like the time and the uncertainty on the states of the world, an institution as the firm is nothing else but a simple production function with the objective to maximize the profit. This type of theoretical approach doesn't consider the existence of other institutions and reject the possibility that the public sector could be an active variable in the description of the economic context. It is an incontrovertible evidence that there are market institutions and no market institutions, they interact each other and determine the level of production and the resource's allocation, this is a situation of complementarity generating relevant implications on the economy and in particular on the economic

development.

Starting from the beginning of last century the relevance of the institutional variable assumed more and more relevance in the economic analysis on the strength of the historical, sociological and economical view. Mises (1920) began to consider the property rights as relevant factor in the economic analysis criticizing the predominant tendency to regard the market as the unique solution to determine the economic performances.

Commons (1931) faced the analysis of the institutional variable retaining that the collective action was fundamental to explain the economic dynamics, thus the institutions came out from dynamic economic interaction determined by the collective actions and the conflict of interests. He started his careful scientific observation thinking that the main difficulty to face is to find an exhaustive definition of institution and this is actually a preeminent problem in the economic literature[1].

Coase (1937) radically changed the conception of the firm introducing it in an institutional dimension and stating that the transaction costs were the main reason of the firm existence. Furthermore he affirmed that the efficiency of the economic system was strongly influenced by the way in which the firms behaved and carried out the mechanism of trade with the other economic agents (Coase, 1991).

A further evolution it was represented when became important to taking into account the existence of different level of knowledge of the reality between the economic agent (Von Hayek, 1945). Considering the existence of an heterogeneous level of the reality's perception it implies that different agents, at same time, are influenced from disparate experiences, consequentially they behave in different ways and interpret some circumstances from unlike points of view. If the agents belong to the same institution then they show an homogeneous level of perception of the reality, whereby it is unmistakable that the presence of institutional forms further the diffusion of knowledge and, as a consequence, the same behavior between them.

Starting from these primordial but, at same time, fundamental methods to face the analysis of the institutions in the economic system it is possible to mention several contributions developed during the subsequent years, able to explain more and more the role of institutional variable in the economic analysis.

The traditional institutionalism represents the starting point of others two approach that actually are the main manners to analyze the institutions in the economic framework. It is well known that these kind of approach are constituted by the Institutional Political Economy and the New Institutional Economics.[2] Besides it is not useful for the topic

of this article to focus the attention on the general differences and analogies between the two kind of literatures in the Institutional Economics, seeing that the principal objective is to point out which is the contribute of the economic literature to explain, if there exist, a way to explain the role of institutions in the development.

The aim to consider the main contributions of the economic literature related to the relationship between development processes and institutional framework represents a point of departure to underline some necessary aspects that can encourage further original analysis.

2 The role of Institutions in the economic system: an overview on the main features

The connections between institutional environment and opportunities of development in an economic system must be described considering a multiplicity of perspectives, both related to the development phenomena and connected to the different definitions of Institution given from economic literature. The analysis of these relationships become an useful instrument to delineate a propitious "atmosphere " for positive evolution of the economic system. This is strongly supported from the evidence that both reach countries and poor countries start to grow when there are some circumstances that reduce the decreasing returns and stimulate economies of scale. As an instance, considering the case of human capital, it is well - rendered that positive externalities are induced by learning processes and that, in this particular case, the role of institutions able to support development process is not uniquely linked to what happens in the market. Thus in this context the institutions operate outside the market, but, in the same breath, they influence a variable directly involved in the market mechanism making easier the diffusion and the quality of the human capital's education.

Thinking about the theory of endogenous growth it seems to be clear that the institutions can influence the development in the long run but it is equally clear that this approach doesn't split the effects on the economic performances influenced by different type of institutions. The last careful consideration is just mentioned as an example of how the explanation and the description of the causes that determine the development processes cannot be made using a representation extremely simplistic of the reality. Each economic phenomenon is very complex and, for this reason, it is likely that could be some mistakes when the analysis considers only a part of the variables useful to explain the development processes (Adelman, 2002).

Many times, in the field of the theories on the economic development,

outcrop radical changes based on the interpretations of the phenomenon founded on extremely contrastive positions, this situation proceeds from the use of criteria that tries to explain the underdevelopment taking into account a single motivation and, consequentially, this implies the suggestion of single remedy to promote virtuous mechanisms in the economic system.

Thus it is necessary to underline that the development process is a highly no linear phenomenon, therefore it is not possible, as an example, to consider the existence of the same production function for all the countries of the world. Inevitably the multiplicity of the different contexts implies that the path of the development is no uniquely determine for all the economies and, furthermore, the conditions that characterize initially the economic system considerably influence the subsequent development process. In fact the development path, that can be followed by each single country, not only is characterized by peculiar uniqueness, but it is also easily influenced by particular features proper of each economic system up to determine different results of policy (Adelman,2002).

In some institutional contexts the productive structures has showed ability from a quantitative and a qualitative point of view, acting autonomously, without an extreme reliance on unannounced periods of economic crisis.

As an example it is possible to analyze the role of the institutions in the different theories of endogenous growth considering: the source of growth, the externalities or the coordination problems involved, the influential institutions and organization forms, and finally the economic policy instruments (Amable, 2000). In this way becomes clear how is incorporated the notion of institution in several growth model and the role of the main hypothetical links between institutions and endogenous growth but it is not very guaranteed that every implications considered can be all - encompassing of the any possible economic scenarios.

However, using this type of approach, allows to begin a preliminary distinction between the probable externalities, the policies decisions and the role of institutional structures. In this way becomes feasible to point out any complementarities affecting on the development processes, indeed it is more simple to underline the influence of particular type of institutions on the development than to specify their joint effect on the economic performances.

Before to go ahead, analyzing the role of externalities, it is necessary to illustrate the main empirical contributes to explain the relationship between development and institutions.

From a theoretical point of view there are many roles assigned to the institutions, thus it is important to outline a preliminary scheme

on the different way to consider the function of the institutions within the economic mechanism. Defining the institutions as a set of rules determining the members' behavior of the community, it is possible to pinpoint it ( ) as internal rules of the game and it can be separate in three different categories.

The first category is represented from the constitutional rules, consisting in fundamental principles passed on in writing form or in oral form. The second category is constituted by the institutional arrangements corresponding to the rules of the collective or individual choice.

The third category is the cultural system as the behavioral rules, the religious belief, the habits and the customs that necessarily influence the manner to face the economic interactions in agent's behalf (Buchanan,1990), (Kaiser, Ostrom, 1982), (Feeny, Picht, 1993).

The "rules of the game" are important for two main reasons. Firstly they guarantee a fundamental set of environmental conditions to make easier the human interactions and, at same time,they ensure that the behaviors of economic agents, in the specific contexts can be predictable, this facilitates the individual decisions and the bargaining between the counter - parties, eliminating the uncertainties and, consequentially, as an example, the actions of two agents can be coordinate and can generate efficient agreements in the transaction. Secondly the rules contain some wasteful behaviors and can stimulate convenient actions for all the agents (Nelson, Sampat 2001).

Thus it becomes clear that the more useful tool for a theoretical analysis able to describe the institutional mechanisms is the games theory. In succession, within this section, there will be a particular review starting from the observation on the institutions like the rules of the game and concluding with the North's design of the institution. This type of structure represents a functional choice to get an original perspective of the economic literature concerning the concept of institution and the development processes.

2.1 How different kinds of institution has been modeled

One of the first definitions of the institutions as complex rules of the game was given by Shubik (Shubik, 1975), afterward Schotter (Schotter,1981 and 1986) pinpointed the institutions as the manner in which the games was played, while the rule of the game could emerged spontaneously or on the base of a decision to devise a system (rules) ordered by a higher sphere.

The theoretical structure of the repeated games in the analysis of the institutions was applied by Sudgen (1989) properly to underline the coordination's problems between the agents and the importance of the cooperation, these two features establishing the main points on which it can be possible to develop a newsworthy analysis of the institutions.

The Transaction Cost Economics represents a manner to face the study of the phenomena related to the firm and market, clearly this field is strictly related to the study of the economic institutions. After the initial and fundamental contribution of Ronald Coase (1937) it was implemented by the significant scientific activity of Williamson. The existence of the opportunistic behaviors it is one of the causes that determine transaction costs (Willamson 1975 , 1985), but it is also important to consider the transaction costs due to the existence of other phenomena as: the agency costs that arise among the different agents operating in the firm environment (owners, managers, debt holders etc..) (Jensen and Meckling, 1976); the costs justified by the necessity to obtain informations (Stigler, 1961); the costs connected with the coordination of input in the production (Alchian and Demsezt, 1972); the measurement costs determined by the necessity of the buyer to precisely estimate the attributes of the traded items. The source of these costs is clearly represented by the bounded rationality, the uncertainty and the opportunistic behaviors. Furthermore it is also important to mention the relevance of the transaction - cost politics (North, 1990), in this way it is pointed out the influence of transaction costs on the efficacy of the policies on the economic system, in particular become very important the role of the "instrumental rationality" in the economic and policy decisions In this perspective the transaction cost politics must be considered as a conceptual framework to understand the phenomena linked to the economic policy making (Dixit, 1996). This kind of problems can be rise mainly in case of the delegation, in which very easily it is possible to observe difficulties in the control and monitoring, uncertainty of the opportunistic behavior and the impossibility of binding the actions of agency successors, that is because, obviously, the policy agents are characterized from bounded rationality. Considering transaction costs politics, in other words starting from the existence of asymmetric information and limited commitment possibilities in the political processes and economic policy - making, it is possible to underline the hypothetical effects on the economic system of less development countries (Dixit, 2003). In this case it is highlighted the importance to introduce an efficient reform of the rules and institutions able to facilitate the interaction between the agents acting in the political game, thus the design of appropriate constitutions, institutions, organizations and incentives can

guarantee the better opportunities for the economic and policy system.

Furthermore it is important to consider the relevance of the scholars' efforts to point out the fundamental role of the Adverse Selection and the Moral Hazard. This type of problems is faced, mainly, in the Principal - Agent model and in the economics of organization, the tangible difference from the approach of the transaction cost economics is that the agents maximize their own utility putting into effects selfish behavior leaving out other typology of choices determined by the willingness to cooperation with other agents. In this framework the high asymmetric information holds a fundamental role, following this logic this situation can prevent the development of the transaction costs (Akerlof, 1970); numerous links exist also in the case of the literature related to the sharecropping, in which it is analyzed, with particular attention, the case of the underdeveloped countries using a theoretical framework that, afterward, will evolve in the principal agent theory (Stiglitz, 1974). This types of approach represent a way to formalize the existence of some institutions that avoid the problems generated by the imperfect information, especially using the theories of mechanism design.

The institutional framework of an economic system narrows and binds the possibilities for the agents to behave in the business climate and, at same time, patterns the incentives and organization for collective action. Considering the theory of collective action (Olson, 1965) it is clear that the institutions play a fundamental role in order to avoid the collective action problems. It is well known that the agents, belonging to the large groups, can cooperate when there are institutions able to promote the cooperation, the monitoring and the right punishment of deviators. As an example it is useful to mention the analysis of the different irrigation systems in the South India (Bardhan, 2000) in which it is pointed out that these systems are better safeguarded when there exist some people responsible to monitor and punish the rule breaking and able to evaluate if the cost is divided in proportion of the user's size. In the same analysis there is an important result concerning the negative effects of the group size on the cooperation.

The cooperation between the agents operating in institutional environment is a fundamental characteristic that affects the collective decisions, it can emerge spontaneously or can be fruit of norms purposely created and structured that can facilitate the diffusion of cooperative behaviors between the agents. In case the cooperation is favorite from norms (formal institutions), it is the consequence of an exogenous structure that corresponds to the rules of the game; when does not exist a formal structure that induces the agents to pursue cooperative behaviors, it is reasonable that the spontaneous cooperation is fruit of the

knowledge, diffused between the agents, that it is necessary to interact continuously and repeatedly in order to obtain positive outcome (Axelrod, 1997).

It is not right to forget the role played by property rights that can be essential to make an economic system efficient and advanced. They become more important when they are articulates in such way to allow to the agents to act without uncertainty and if they are properly settled with enforcement's mechanisms (Alchian, 1965, Demsetz, 1964).

To the purpose of the present analysis regarding the links between institutions and development it is relevant to consider a framework of the property rights inside of which it is clearly defined the enforcement, especially in the case when the resources become insufficient because of the increase of the population or in the case of technological changes (Demsetz, 1967).

Following the New Institutional Economics approach in the effort to incorporate the institutional variable into the neoclassical theory it is possible to point out many different type of relationship between institution and economic phenomena. Beyond the theories relative to: the property rights, the economic of imperfect information, the collective action and the evolution of cooperation norms. There are other possible perspectives to mention as: the distinction between institutions and organizations (North, 1990), the studies on the Governance structures (Furubotn and Richter, 1997) (Willamson, 1981), the corruption's phenomena (Nye, 1967), the concept of Social Capital (Putnam, 1983) (Sobel, 2002), there can be possibility to continue this list of different literature's contributions, but take into account this wide range of perspectives it becomes necessary to rationalize the description of the linkages between institution and economic development focusing the attention on the metodology used to introduce this kind of relationship.

2.2   The New Institutional Economics perspective

The North's analysis considers the institutions substantially efficient and mainly it can evolve trying to maintain their efficiency (North, 1981); afterwards his attention is concentrated to point out the centrality of the " path dependency" concept in the institutional framework analysis. This characteristic corresponds to the stability of the rules generated by the conventions and the strengthened uses that are respected even if they demonstrate their inefficiency. In brief North underlines the low reactivity of the institutional mechanisms to the changes picked by the new evolutionary tendencies.

The main reason of the " path dependency " is related to the fact that the costs of the institutional changes, in most of the cases, bear down on a set of agents that doesn't correspond to the totality of the agents that, after the switch, will make use of the new institutional arrangement. Given that the set of agents paying these costs will get in the future less benefits and on the other side the remaining part of the agents will enjoy of these benefits without any sacrifice. In this type of situation the institutions tend to maintain their framework even if they generate inefficiency in the economic system (North, 1990). The framework of the repeated games with multiple equilibria, generated from a specific set of informations and expectations for each players, can be a useful representation of the "path dependency" concept.

North retains that the institutions evolve towards an efficient model at the time that they reach the objective to reduce the transaction costs corresponding to the costs of the evaluation of the assets and the conditions of the change and to the costs to protect the rights and contract conditions. Following this perspective become perceptible the importance of the way in which the institutional framework of the economic system changes during the time rather than the outcomes reached in the assets' allocation. The attainment of Pareto efficiency is achievable following an efficient evolutionary path of the institutional switching that allows to take advantage from the optimal exchange.

The fundamental issue is to characterize the reasons that determines the existence and the persistence of divergent development paths. In point of fact there exist some informal institutional constraints covering fundamental role in the early stages of development processes. Well defined cultural conditions, in some cases, prevent the evolution of the economic institutions towards a model able to stimulate the innovation, the protection of the competition and the respect of contracts. In such context it is unmistakable that can be generated rules able to shrink the entrance, prevent mobility of the factors and encourage the corruption.

Bardhan (1991) analyzes the stability of the institutions that react slowly to the innovative pushes. In fact the "path dependency " depends from the costs due to the changes that burden on a part of all the agents belonging to the society, this implies their resistance. Furthermore even if some agents can get advantage from the changes, they refuse because they can damage the group of society at which they belong. Ultimately the length of specific institutional framework does not depend from the economic results but from other factors like social structures and cultural values.

Following the North's perspective it is clear that the institutions have to reach a complete arrangement to the "informal constraints" existing

in the economic system. In many cases it can be observed that a contrast between formal institutions and informal institutions cannot be extended for a long period of time.

It is crucial in the North's analysis the relationship of interdependence between formal and informal level of the institutions. The lack of correspondence between cultural level and ethics of a society with the institutions and formal rules determines dyscrasias encouraging contrastive behaviors with legal rules and coercing the formal institutions to adapt to informal institutions. Taking into account this concept become important to point out that the lack of respect of the rules orients the evolution of the economy towards less efficient goals and slows down the economic growth.

The equilibrium condition in the institutional framework correspond to a situation in which no one players want to change strategies to modify the rules up to the time of one of the player perceives the prospective advantage coming from a change and, at same time, attains to impose it to other players. It is not ruled out the possibility that the change could be organized by some agents that want to build an institutional arrangement less efficient than the previous, this type of problem could be solved adopting a system that allows only to more efficient solution to grow up. Thus the common willingness to determine an efficient change represent the most important factor in order to generate an effective and durable shift in the institutional framework.

From this point of view North analyzes the motivations for which, in some cases, the institutions tend to evolve so that the economic development is encouraged and assumes self - sustained characteristic while different situations could be a barrier to the progress and improvement of economic conditions (North, 1990). This is a fundamental step because,

on the base of it, the institutions are considered equally to the preferences and the technological constraints. In this way they influence the economic environment that is around the development processes, furthermore appears clear that an institutional framework cannot be consistent with whatsoever type of organization. Starting from this split - up it is possible to consider the institutions as rules of the game and the organizations, that correspond to the groups of individuals having the same purpose, as a single player. However there exist differences in the interior dynamics that characterize the institutions and the organizations, but on the other side the interpretation of their role is fundamental to determine the source of the economic decisions and the their consequences. Analyzing the North's contribution to the interpretation of the institutions' role in the economic system it is obvious to define the institutions as a formal and informal framework that influences and

determines the interactions between the economic agents.

There are an other way to classify the institutions considering different hierarchical levels as proposed from Williamson (2000). He distinguishes four different levels in which are set in different types of institutions, this hierarchical scheme is organized taking into account the frequency of change of the institutions belonging to each level. In the Level 1 he considers the informal institutions strictly connected to the social structure of the society as tradition and social norms. Clearly this type of institutions change in a very long time and he estimates a minimum time of change corresponding to one hundred years and a maximum period of change equal to thousand years. He brings in the Level 2 the formal institutions corresponding to the rules related to the property rights, bureaucracy system and the distributions of powers across different levels of government, the frequency of change is included between ten and one hundred years. In the Level 3 he introduces the rules relative to the transactions among governance structures and that one related to the regulation of the contractual relationships, they have a frequency of change between one and ten years and are clearly influenced by the types of change in the Level 1 and Level 2. The level 4 is composed from rules that in‡influence the resources' allocation as the social security systems and capital flow controls, this type of rules can be change in a very short time and can affect the employment, the prices and the outputs. The four levels are completely connected each other, the higher level (Level 1) represents a constraint for the level below and so on till the

last level considered. Thus there is a connection top down between the different levels, but, at same time, there exists a connection bottom up because the lower level (Level 4) influences the level immediately above and so on till the first level by a feedback reaction. The many interactions between institutions belonging to different levels give the idea that a change in the institutions located in some level can generate a chain of changes in the other levels, the change in the Level 4 represents the impact on the economic system of the all previous changes happened in the levels above. In this way the institutions can significantly affect the development processes and the economic development can in turn influence the institutional framework by feedback action, clearly it can happen in a very long period of time considering that the first level of institution could be changed in at least one hundred years.

Inside the perspective of New Institutional Economics Aoki (2001) distinguishes the institutions as: rules of the game, players of the game and equilibrium strategies of the game. The first definition is strictly related to the North's conceptualization of the institutions, the second one is arise from the Nelson's classification of institutions as players and the

last one has different kind of implications. In fact the notion of institutions as an equilibrium strategy of the players in a game can be describe from a two different points of view: in the evolutionary game approach the conventions and the agents coevolve determining the equilibrium strategies of the game and, so, the institutions, Young (1998), Bowles (2000); in the repeated game approach, considering the concept of subgame perfect equilibrium, it is clear that the strategy of each player is a comprehensive plan of actions contingent on future states, so each action of the game is a Nash Equilibrium and self - enforcing because is an action prescribed for determined contingency, that implies the existence of an institutional mechanism that arises in particular circumstances (Greif, Milgrom, Weingast, 1994), (Milgrom, North, Weingast, 1990).

Aftyer this analysis, mainly focused on the many aspects characterizing the New Institutional Economics approach, becomes clear that it is not very simple to define, from a theoretical point of view, the institutions and, for this reason, it is also too difficult to point out the main relationship between the institutional framework and development process.

The study of the dynamics related to the institutions can be faced from different perspectives, there can be different approaches because it is possible to distinguish the institution on the base of several characteristic. It is well known that the economic system can be influenced from the presence of: legal institutions, political institutions, social institution and economic institutions. Thus the influence on the economic performance of a given country can be explained from a different standpoint and using different research areas, that feature contribute to make more complex the attempt to explain any possible relationship between institutional framework and development processes.

3 The institutional variables and the economic development in the empirical analysis

The empirical investigations relative to the relationship between institutions and development gives rise to many scientific contributes especially during the last part of previous century and the first years of the present one. It would be more correct to point out that a wide part of empirical investigations considers the relationship between the institutions and growth that is different, as it is well known, from the concept of economic development. These analysis are characterized from different concepts of institutions, more precisely they concern to analyze partially the effects of the institutions on the growth because they consider only some aspects of the institutional components that must be taken into account

in a more complex way. Besides this crucial and critical aspect will be considered in a more specific way in the next part of this article. The existence of corruption is considered as a way to deviate from the formal duties by actions or activities implemented without the respect of the society's legal framework, thus there can be a negative relationship between corruption and investment (Mauro, 1995) mainly considering as a measures of the institutional variables two indexes: the Index of Institutional Efficiency and the Index of Bureaucratic efficiency. The first index is made up by nine indices and the second one by three indices[3].

The main result of this contribution is that the institutional inefficiency, determined also by the level of corruption, causes a low investment thus the institutions by lowering the investment rate negatively affect the growth rate. There could be a sort of linkages between corruption and instability due to the existence of the strategic complementarity determined by the willingness to get a high bribe rate today to the detriment of economic performance and, in that way, generating instability because the government will be less probability to save the power in the future.

That encourages the other politicians to do the some behavior when they will get the power, for this reason raise up coordination problems generating multiple equilibria (Mauro, 1995). There are other two types of indices used to investigate empirically the relationship between institutions and economic growth, as the International Country Risk Guide (ICRG) and Business Environmental Risk Intelligence (BERI)[4], they are put into relationship with the annual GDP per capita growth and the Private Investment over GDP in the period 1974 - 1989 (Keefer and Knack, 1995), the main result is that one standard deviation increase of ICRG index of 13.5 determines an increase of annual per capita income growth rate of 1.24.

Alcala' and Ciccone (2004) use a different Index of Institutional Quality based on the bureaucratic quality, the property right protection ant the kind of law and order, reaching the result that this kind of measure of institutional quality has a positive impact on the GDP per capita.

Knack and Keefer (1997) investigate as well how the average annual growth per capita income and the ratio Investment over GDP are influenced by the level of Trust and by the Civic Norms. They consider the period 1980-1992 and reach the conclusion that there is a positive relationship between the Trust and the annual rate per capita income growth, but it is still open the debate in literature on how is possible to measure the level of Trust and of the civic Norms.

In the aim to prove the relationship between the economic develop-

ment and the institutional domain it is also used another institutional index denominated Contract Intensive Money (CIM), this index is equal to the ratio between the non currency and the total money supply, the higher is the value of this ratio the higher is the trust of the people towards the efficiency of the property rights and of the contract enforcements. That is because the economic agents prefer to use the non currency money in order to formally recorded their transactions in case of some arguing related to the contract. Otherwise in the country where there is an inefficient legal and policy environment the people prefer to use the currency to avoid government taxation or because they have a low consideration of the financial system efficiency and of the government regulation of the financial institutions. Claugue, Keefer, Knack and Olson (1999) find that the CIM is positively related to the growth, but there are also many possibilities that the value of this kind of index could be influenced by variations in financial development or by the decisions of the Central Bank in each countries in the fields of monetary policy, inflation rate and exchange rates. It is also important to mention another interesting result achieved by Esfahami and Ramirez (2003) related to the positive influence of the contract enforcement on the GDP per capita growth, so it is observable that the institutional capabilities lend credibility and effectiveness to government policy playing a key role in the development process through infrastructure growth.

Another interesting investigation was developed about the relationship between the Average Dollar Wages in manufacturing during the period 1985 - 1989 in countries like Mexico and the Freedom House Index (Rodrik, 1999)[5]. He find that there is a positively and statistically significant association between the extent of democracy and the level of manufacturing wages in a country where is observed this kind of evolution, thus he underlines that the institutions matter to distributive outcomes. As the approach of Claugue, Keefer, Knack and Olson (1999), but analyzing the GDP per capita instead of the annual per capita GDP growth, Rodrik, Subramanian and Trebbi (2004) show, using as measure of institution the Rule of the Law Index[6], how this index influences positively the GDP per capita. Using the Index of Democratization, defined by the existence of an autocratic leadership or a democratic one, Jones and Olken (2005) highlight that after the death of the leaders in the autocratic regimes the level of the Index of Democratization influences positively the annual growth.

Considering the log GDP per capita as dependent variable, Acemoglu, Johnson and Robinson (2001) investigate the influence of the protection against expropriation risk on this variable. The data set of this kind of institutional variable is concerned to the period 1985 - 1995

and they get an interesting result showing a positive correlation between the protection against expropriation risk and the log GDP per capita. using Ordinary Least - Squares Regression. Starting from this setting Acemoglu, Johnson and Robinson (2002) introduce another dependent variable as the Urbanization and other measures of institutional framework distinguished in: Current Institutions and Early Institutions. In the first group they include the protection against expropriate risk and the Executive constraints in 1990 [7], at the second group belong the Executive Constraints in 1900 and the Initial Executive Constraints [8]. Also in this analysis they point out a positive relationship between the log GDP per capita and the index of expropriation risk using as instrumental variable the Settler Mortality [9]. Following the previous analysis Acemoglu and Johnson (2005) consider a scenario in which there are additional dependent variables as: the ratio of investment to GDP [10] , credit to the private sector as a percentage of the GDP in 1998 [11] , the average stock market capitalization over GDP [12]. They also consider different institutional variables splitted in: Contracting institutions and Property rights institutions. The first type correspond to a legal formalism identified as a number of legal procedures necessary to solve a simple case of judicial controversy and the second one is moreover partitioned in: executive constraints and protection against expropriation risk. Using this type of institutional variables it is reached the result that the increase of expropriation risk and legal formalism determine an increase in the GDP per capita. Furthermore they use the following Instrumental Variables, adding to the Settler Mortality the log of the indigenous population density in 1500 in the colonies [13] and legal origins [14]. The instrumental variables permit to point out that the property right institutions have a major influence or different component as the long run economic growth, the investment and the financial development. On the other side the impact of contracting institutions is more evident on the financial intermediation but less remarkable on investment , growth and the total amount of credit in the economy.

An other way to analyze the influence of institutional environment on economic phenomena is to consider the linkages between the output per worker, where the output is obtained subtracting the value added in the mining industry, and an index of social infrastructure as measure of institutions and government policies by which are determined incentives for economic agents [15], following this approach it is been obtained that in case of one standard deviation increase in the social infrastructure index of 0.25 the output per worker raises using OLS of 128 % (Hall and Jones, 1999). Also Masters and McMillan (2001) show how the Index of Social Infrastructure, measured as the policies of the Government and

the Institutions that sustain the individuals and the firms operating in the economic system, has a positive impact on the output per worker in the tropical countries. A similar result is reached by Bockstette, Chanda and Putterman (2002) , investigating on the relationship between the State Antiquity and differences in the growth rates, point out that exists an observable link between the social infrastructure and the cross - country difference in worker productivity. Another kind of analysis, related to the role of the Index of the social infrastructure (Kogel , 2005) has clearly pointed out that this index impacts positively on the annual average Total Factor Productivity growth rate using cross country data.

Glaser, La Porta , Salines and Shleifer (2004) start to consider the possibility to discuss about the efficacy of the institutional indicators in the perspective to give a strong proof of the institutions influence on the growth, and they reach the conclusions that some countries start development processes also under a dictatorship and, in the following time, decide to make better their political institutions. They find a negative influence of the constraints on executive on the GDP per capita controlling for year of schooling and population in temperate zone, furthermore they point out that there are additional evidences proving the main influence of the human capital rather that institutions on the growth.

Using some measures of financial institutions as Private Credit, Liquid Liabilities, Bank Assets and the ratio of the Commercial Bank assets to the sum of Commercial plus Central Bank Assets, Aghion, Howitt, Mayer-Foulkes (2005) clearly affirm that the level of schooling, the geographic characteristic, the health, the politics and the institutions do not affect the significance of the interaction between financial intermediation and initial per capita GDP, and do not show any independent effect on convergence phenomenon.

The empirical investigation on the relationship between Institutions and Development is carachterized by two main problems as the Reverse Causality and the existence of a very short time series of the institutional indicators. The main literature has evaluated the linkages between economic development and quality of institution employing, in many cases, the linear regression or panel data analysis. The quality of institutions is considered as an exogenous variable and, clearly, this intrinsic assumption doesn't take into account the possible feedback between the institutions and development and viceversa, thus the existence of a reverse causality is not considered relevant in the end of the analysis. It is also necessary to underline that the use of the panel data analysis is due to the lack of long time series with the annual data, this not allows the use of the Vector Auto Regressive model or Vector Equilibrium Correction Model useful to develop a cointegration analysis in order to

highlight the existence of reverse or bidirectional causality.

4   The relevance of Institutional Complementarities in the Development Processes

The events related to the existence of the complementarities can strongly support the relevance of the links between the institutional framework and development processes. Many scholars in different ways have used the complementarities in order to explain the feature of development processes potentially generated from the presence of particular institutional variables in the economic system. The relationship between Social Capital and economic performances are considered strictly related to the influence of the organization membership on to the government quality thus due to good government quality it is possible to determine the economic development (Putnam, 1993), but there are still many problems strictly connected to the difficulty to find a right criterium to measure the social capital. Other different kinds of synergistic relations and complementarity's relationships have been pointed out in the literature related to the economic development during the last twenty years.

The role of the complementarities in the development processes was firstly considered by Rosenstein - Rodan (1943) and Hirshman (1958). As is well known the complementarities can be considered as a special type of externalities, the core's meaning of the externalities is that they take place when many agents are undertaking the same action and, for this reason, the cost of this action is lower or the benefit of this action is higher. Clearly this kind of interaction between the agents in an economic system can generate, mainly, manifold effects as the presence of multiple equilibria, the fact that the equilibrium reached in each economic system depends on the characteristic of the initial conditions of its and, finally, the possibility that short run decision can have long run effects in the economy. In Rosenstein - Rodan (1943) and Hirshman (1958) are considered the complementarities between different sectors of the economy and the possibility that the economic system, because of this link, can reach good or bad equilibria. Focusing the attention on demand complementarities (Murphy, et al., 1989a) considering the possibility that a Big Push in industrialization can determine the change from a bad to a good equilibrium. This point of view can bring into question in many ways, considering the case in which the demand effects connected with increasing returns industries can be less evident when they happen in an economic system with significant international trade. Furthermore the spillover effects can be generated by many other

18

factors as the introduction of new technologies, the existence of new rules, the role of the government and so on. This kind of blind points allow to strongly underline that the study of the complementarity in the economics it is very useful to understand better the complexity of the economic system. Thus the existence of the positive or negative coordination effects in the development processes comes up mainly through specific feature of the markets, particular interactions between the different agents and the presence of externalities related to the technological characteristic of the different agents operating in the economic system. As an example the behavior of one agent depends on the actions adopted by the other agents in the economic system, thus this possibility may determine different kind of equilibria in the economic system that can be the consequence of the coordination problems.

Some theoretical explanation of this kind of problems can be found in the model in which the individuals are supposed to have bureaucratic behavior and innovative behavior (Sah and Stiglitz, 1989). In case the agents choose the bureaucratic behavior they create a barrier to the innovations and this negatively influences the kind of equilibrium that can be the worse one. Otherwise if the agents decide to adopt an innovative behavior, by the existence of complementarity between the actions, the economic system can reach a good equilibrium, the best one. As a consequence the performance of the economic system can be influenced by the number of how many agents have a bureaucratic or innovative behavior. Clearly, under these conditions, rise up a coordination problem that can generate multiple equilibria because of the complementarity between the set of agents behaving bureaucratically and innovatively.

Another similar approach about the explanation on how the economy moves to an equilibrium rather than to another is given by the presence in some economic system of activities that are not productive but extract income from the productive ones (Murphy, Shleifer, Vishny, 1993). Looking at the different possibilities of allocation of the population among different activities it is possible to observe several equilibria, clearly the rent seeking activities assure increasing returns thus some part of population can decide to do rent seeking activities instead of productive activities, as a consequence the economic system can reach a bad equilibrium because there exist a high level of rent seeking that implies a low level of output given the small part of the population that decide to produce something.

An interesting application of the complementarity's conditions, in the main literature, is related to the relevance of particular institutional strategic complementarities that can develop virtuous cycles of development processes in the economic system.

The approach of Comparative Institutional Analysis strongly supports the important role of institutions in the economic development. Taking into account that exists a complementarity between the institutions it is also clear that " if one wants to change to certain sub - system, to there must also be Co-ordinated changes in complementary institutions" (Aoki, 1995 p.50).

It is possible to use the games theory approach to analyze this type of linkages, but it is furthermore fundamental to organize and articulate in appropriate way the framework of analysis , in order to describe completely and systematically the institutions. Considering two different economies in many cases they can have distinct institutional orders even if they possess the same level of technology. For this reason must be taking into account the historical and sociological aspects to explain how some institutional orders, in "atmospheres" that appears economically homogenous, assume different shapes and structures.

An important aspect of the Comparative Institutional Analysis is the interdependence between the institutions, there exist different interactions between the institutions that characterize each economic systems and this feature can generate advantages for a system rather than for an other. This is due to the fact that the agents are perfect rational, but they have a rationality that can be considered uniquely connected with the institutional framework in which interact the agents. Following this approach become fundamental the notion of complementarity, as usually it be seen the change in one institutional system determines coordinated switching in the complementary institutions. The aim is to consider the role of institutions in a context of a theoretical framework given that the variety of institutional framework is essentially due to the existence of strategic complementarity between them. The multiple equilibria in a classical economic system originate from the fact that each agent tries to solve his maximization problem taking into account the action of the other agents and without consider the equilibrium price, that is the main reason determining the achievement of a sub - optimal equilibrium, so there can be different equilibrium level that correspond to distinct levels of activity in the economy. That can happen in case of institutional complementarities generating "multiple institutional equilibria " in the game between agents involved in the institutional change, obviously these equilibria can be "bad" or "good". Thus the structure of the classical games theory, in which the agents using the perfect rationality to obtain informations, to develop their expectations, to make beliefs on the effects of their and other agents behaviors, can easily explain the self - enforceability in the institutional structures as regulations, contracts and the setting up of governance structures. In case of insti-

tutions as conventions and social norms the most appropriate analytical framework to describe the self - enforceability of this phenomena is represented by the evolutionary games where the players have a bounded rationality and their decisions and behaviors are mainly influenced by imitations and inertia. On the base of these main tools to represent the dynamic of institutional environment Aoki defines an institution as a " self - sustaining system of shared belief about how the game is played" (Aoki, 2001 p. 26).

From an analytical point of view the appropriate way to describe the complementarity is the supermodularity and so the games with strategic complementarity are called supermodular games. The properties of the supermodular function are the theoretical tools that effectively define the notion of complementarity in economics. The definition of the supermodular function's properties needs of a set of preliminary notions in order to explain how the concept of supermodularity and complementarity fit completely each other. Following Topkis (1978, 1998) it is possible to define preliminarily the concept of the partially ordered set.

Definition 1 *A partially ordered set, is a set A on which there is a binary relation $\preccurlyeq$ that is reflexive, antisymmetric and transitive (Topkis, 1998).*

It is expedient to define the concept of the binary relation and recall the definitions of the each properties mentioned in the definition 1.

Definition 2 *A binary relation $\preccurlyeq$ on a set A specifies for all a and a' in A either that $a \preccurlyeq a'$ is true or that $a \preccurlyeq a'$ is false*

Definition 3 *A binary relation $\preccurlyeq$ on a set A is reflexive if $a \preccurlyeq a$ for each a in A.*

Definition 4 *A binary relation $\preccurlyeq$ on a set A is antisymmetric if $a' \preccurlyeq a''$ and $a'' \preccurlyeq a'$ imply $a' = a''$ for all a' and a'' in A.*

Definition 5 *A binary relation $\preccurlyeq$ on a set A is transitive if $a' \preccurlyeq a''$ and $a'' \preccurlyeq a'''$ imply $a' \preccurlyeq a'''$ for all a' , a'' , a''' in A.*

After these definitions it is possible to specify the additional fundamental concept of *lattice*. Considering the partially ordered set A and a subset of A identified as A', if a' is in A and $a \preccurlyeq a'$ for each a in A', then a' is defining an upper bound for A'. In case a' in A' is an upper bound for A', then it is possible to affirm that a' is the greatest element of A'. On the other side if a' is in A and $a' \preccurlyeq a$ for each a in A', then a' is a

lower bound for A'. If a' in A' is a lower bound for A', then it is possible to affirm that a' is the least element of A'.

If it is considered an element a' in A' and there isn't another element a'' in A' with $a' \preccurlyeq a''$, so a' is a maximal element of A', clearly if there is an element a' in A' and there isn't another element a'' in A' with $a'' \preccurlyeq a'$, so a' is a minimal element of A'.

In short it is observable that a greatest element correspond to a maximal element and a least element correspond to a minimal element, considering the definition of partial order set it is easy to conclude that in this type of set there can be at most one greatest or least element but there can be the possibility that there are no maximal or minimal element. After these important elementary definitions it is possible to consider the existence of two elements a' and a'', in case they are belonging to a partially ordered set A and have a least upper bound in A they are defined as a *join* and can be indicated as $a' \vee a''$ while if they have a greatest lower bound in A they are defined as a *meet* and can be specified as $a' \wedge a''$. In conclusion it is possible to define a *lattice* as a partially ordered set in which belong the *join* and *meet* of each pair of its elements.[16]

After the definition of the *lattice* it is important to consider the concept of *sublattice* identifying a set A_i as subset of $\mathbb{R}^{m_i}$ and $A = \times_{i \in N} A_i \subseteq \mathbb{R}^m$, clearly $m = \sum_{k=1}^{n} m_k$ thus it is possible to write the following definition

Definition 6 *A is a sublattice if it is a partially ordered subset of $\mathbb{R}^m$ and if $a, a^* \in A$ then $a \wedge a^*$ and $a \vee a^* \in A$*

In other words if A is a *sublattice* of *lattice* $\mathbb{R}^m$ then it contains the *join* and *meet* of each pair of elements that are the same as the *join* and *meet* of the exactly same elements in $\mathbb{R}^m$.

In case of strategic complementarity it is well known that an increase in the strategies of player i's rivals will increase the value of playing a high strategy for player i, that's implies the existence of increasing difference in his utility function. Thus another fundamental concept strictly connected with the theoretical framework of supermodular games is the presence, in the player's utility function, of increasing differences, that it is easy to define in the following way

Definition 7 *a function $u_i(a_i, a_{-i})$ has increasing differences in (a_i, a_{-i}) if, $\forall \ a_i, a'_i \in A_i$ and $\forall \ a_{-i}, a'_{-i} \in A_{-i}$ such that $a_i \geqslant a'_i$ and $a_{-i} \geqslant a'_{-i}$, holds the following inequality*

$$u_i(a_i, a_{-i}) - u_i(a'_i, a_{-i}) \geqslant u_i(a_i, a'_{-i}) - u_i(a'_i, a'_{-i})$$

So u can be considered as a pay off function exhibiting increasing first differences if u_i has increasing first differences for $i = 1, \dots, n$. Now taking into account the concept of *join* and *meet* it is possible to define the supermodular function

Definition 8 *A function $u_i(a_i, a_{-i})$ is supermodular in a_i if for each a_{-i} holds the following inequality*

$$u_i(a_i, a_{-i}) + u_i(a_i', a_{-i}) \leqslant u_i(a_i \wedge a_i', a_{-i}) + u_i(a_i \vee a_i', a_{-i})$$
$$\forall\ a_i, a_i' \in A_i\ \ and\ \forall\ a_{-i} \in A_{-i}$$

Clearly by using the supermodularity it is guaranteed that the existence of increasing first difference determines strategic complementarities, there can be the possibility that a function satisfy increasing first differences but is not supermodular, in case there is a pay off function that has increasing first difference and is not supermodular the best response function of a single player it is not monotonically non decreasing in the strategy of the opponent.

After the definitions of: partial order set, lattice, sub lattice, increasing first differences and supermodular function it is possible to define a supermodular game.

Definition 9 *A game $\Gamma = (N, A, u)$ is supermodular if hold the following conditions for all the players i :*

the set of strategies A_i is a sublattice of $\mathbb{R}^m$

the pay off functions of the players u_i has increasing differences in (a_i, a_{-i})

the pay off functions of the players u_i is supermodular in a_i

Taking into account the definitions of the supermodular function it also possible to define the supermodular game using two other alternative definitions

Definition 10 *A game $\Gamma = (N, A, u)$ is supermodular if the set of strategies A_i is a sublattice of $\mathbb{R}^m$ for all i and*

$$u_i(a \vee \widetilde{a}) + u_i(a \wedge \widetilde{a}) \geqslant u_i(a) + u_i(\widetilde{a})\ \forall\ a,\ \widetilde{a} \in A$$

Definition 11 *A game $\Gamma = (N, A, u)$ is supermodular if $\frac{\partial^2 u_i(a)}{\partial a_i\ \partial a_j} \geqslant 0\ \forall\ i, j \in N, \forall a \in A$*

Considering these different but equivalent definitions it is easy to understand that inside this type of theorethical framework it is possible to consider all the economic situations in which there is a complementarity

among the action sets of the economic agents. Furthermore this type of games has very important properties from which arise some interesting consequences. The set of players actions is a lattice so the set of the player i best reply, $BR_i(a_{-i})$ is non empty and compact for every $a_{-i} \in A_{-i}$, moreover $BR_i(a_{-i})$ is a sub lattice of A_i for every $a_{-i} \in A_{-i}$. The selection of the action among the available actions in a lattice set implies that for every $a_{-i} \in A_{-i}$ the best reply of player i $BR_i(a_{-i})$ has a greatest element $B\bar{R}_i(a_{-i})$, clearly comparing two actions a_{-i} and $a'_{-i} \in A_{-i}$ with $a_{-i} \leq a'_{-i}$ intails that $B\bar{R}_i(a_{-i}) \leq B\bar{R}_i(a'_{-i})$,so the function $B\bar{R}_i(a_{-i})$ is monotonically non decreasing or, in other words, the function is upper semi continuous. That gives over and over the idea of the complementarity among the actions and it is possible to remark very significant consequences within the next Lemma (Topkis, 1998)

Lemma 12 *(Topkis, 1998) Consider a supermodular game* $\Gamma = (N, A, u)$ *for which the set A of feasible joint strategies is non empty and compact and the pay off function u is upper semicontinuous in a_i on $A_i(a_{-i})$ for each a_{-i} in A_{-i} and each i.*

1. The set $BR_i(a_{-i})$ of best responses for each player i is a non empty compact sub lattice of $\mathbb{R}^m$ for each $a_{-i} \in A_{-i}$.

2. The set $BR(a)$ of best joint responses is a non empty compact sublattice of $\mathbb{R}^m$ for each a in A.

3. There exists a greatest and a least best response for each player i and each a_{-i} in A_{-i}, that is, each $A_i(a_{-i})$ has a greatest element and a least element.

4. There exists a greatest and a least best response for each a in A; that is, each $BR(a)$ has a greatest element and a least element.

5. The best response correspondence $BR_i(a_{-i})$ is increasing in a_{-i} on A_{-i} for each player i.

6. The best joint response correspondence $BR(a)$ is increasing in a on A.

7. The greatest best response (that is, the greatest element of $BR_i(a_{-i})$) is an increasing function from A_{-i} into A_i for each player i and the least best response (that is, the least element of $BR_i(a_{-i})$) is an increasing function from A_{-i} into A_i for each player i.

8. The greatest best joint response (that is, the greatest element of $BR\,(a)$) is an increasing function from A into A and the least best joint response (that is, the least element of $BR\,(a)$) is an increasing function from A into A.

Other important conclusions has been reached from Milgrom and Roberts (1990) respect to the definition of the supermodular games properties, these conclusions represent another important step in order to understand from an analytical point of view the relevance of the complementarity relationship that can generate the existence of the multiple equilibria in the supermodular games. The fundamental theorem that Milgrom and Roberts produce is the following:

Theorem 13 *(Milgrom and Roberts, 1990) Let $\Gamma = (N, A, u)$ be a supermodular game. For each player i, there exist largest and smallest serially undominated strategies, a'_i and a''_i. Moreover, the strategy profiles (a'_i; $i \in N$) and (a''_i; $i \in N$) are pure Nash equilibrium profiles.*

The consequences of this Theorem are very important because it stated that all the undominated strategies belonging to an interval $[a'', a',]$ where the largest and the smallest Nash equilibria correspond to maximum and minimum points.

Furthermore it is also important the next theorem (Topkis, 1998) in order to completely describe how the properties of the supermodular games fit totally with the economic concept of the complementarity.

Theorem 14 *(Topkis, 1998) If $\Gamma = (N, A, u)$ is a supermodular game, the set A of feasible joint strategies is non empty and compact, and the pay off function $u_i(a_i, a_{-i})$ is upper semicontinuous in a_i on $A_i(a_{-i})$ for each a_{-i} in A_{-i} and each i, then the set of equilibrium points is a non - empty complete lattice and a greatest and a least equilibrium point exist.*

Other theorethical analysis show that in the non - cooperative games with strategic complementarities the equilibrium set is non empty and has an order structure inside which there are values between a minimum and a maximum element to being a complete lattice (Vives, 1990), also it has been showed that in the same types of games the best response dynamic converges to a set of values bounded from the greatest and least elements in the set of Nash equilibrium (Milgrom and Roberts, 1990).

After this necessary overview on the theoretical literature about the supermodular games, it is clear that, following Aoki (2001), in case
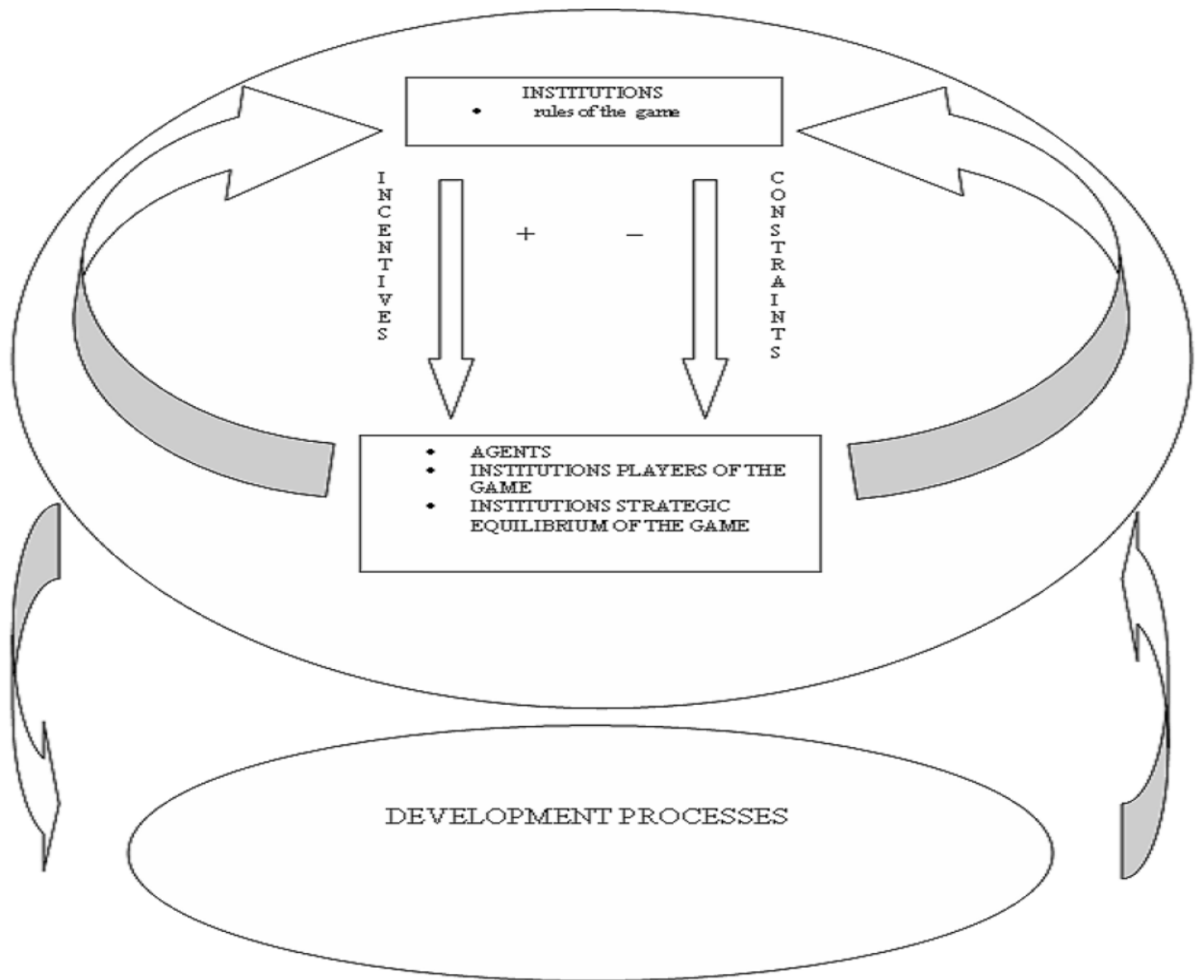
there exists institutional complementarity between two institutional domains there exist also supermodularity conditions and thus it is as well possible to observe multiple equilibria that correspond to a multiplicity of institutional arrangements. Furthermore there is the possibility that the institutional arrangement corresponds to a Pareto sub optimal equilibrium, generating a bad institutional trap, because all the players coordinate their actions in order to get the worse equilibrium and not the best one in the set of all possible equilibria that can be a possible outcome of the game. This kind of coordination failure is due to the existence of institutional complementarities and to the properties of the supermodular games, that can explain how some kind of institutions, if they are complementary domains, can negatively or positively influence each other. Thus changes in one institutional domain can determine changes in the other institutional domain and this mechanism is self sustaining, in this way the quality and the efficiency of institutions can improve or get worse.

These type of complementarities can be observed in organizational structure, financial transaction, polity domain and corporate governance (Aoki, 2001), but an open question it is also to explain how to detect the perceived link between the institutional complementarities and the development processes.

To the purpose of the answer to this question it is useful to introduce an simple figure that can give a more clear description of the actual state of art in the literature related to the institutional complementarity.

Considering the institutions, at same time, as Rules of the Game, Players of the Game and Strategic Equilibrium of the Game it can easily point out the possibility of the existence of several possibilities of institutional complementarities. The scheme represented in the Figure 1 is substantially divided in two parts. In the institutional domain there are different institutions that can have distinct characteristics depending on the types of interaction in which they are involved, this means two fundamental things: firstly the institutions are the expression of a multiplicity related to the different role that they can play in the interactions existing in the economic system; secondly there is a mutually interaction between the rules of games that can impose incentives and constraints but can be changed as well from whose stand their action. This structure guarantees the existence of the complementarities and the presence of a synchronic structure of institutional linkages, furthermore the analysis of these kind of relationships is very complex because of the perceptible difficulty to detect the authentic institutional links and the real interdependency among different institutional contexts.

The second part is represented by the development processes, it is

INSTITUTIONS
- rules of the game

INCENTIVES

+ −

CONSTRAINTS

- AGENTS
- INSTITUTIONS PLAYERS OF THE GAME
- INSTITUTIONS STRATEGIC EQUILIBRIUM OF THE GAME

DEVELOPMENT PROCESSES

clear that the development processes can be influenced by what kind of the complementarities are inside the institutional domain but it is also observable that the development processes can determine changement in the institutional domain. Sometimes, after positive switching in the economy, sourced by the economic development, new institutions are made up on the base of new economic environment. This kind of feed back it is relevant because introduce an additional possibility of complementarity in the long run such that better institutions can generate development processes and better economic conditions can require the existence of better institutions and so on. At same time, the underdevelopment that rise up after economic crisis can encourage the creation of a bad institutional environment beginning a vicious circle. That is what it is possible to define as the probability of the existence of a "bad institutional trap"

5   Conclusions

The aim of this survey is basically to give an overview on the literature that investigates the relationship between the institutions and the phenomena of the growth and development. In order to do this it has been necessary to recall the main strands of the literature on the institutional economics. Like a funnel - shaped the attention it has been focus, subsequently, on the ways in which it has been performed the empirical and the theoretical analysis of the relationship between the economic development and the role of institutions. Why it is a common belief that there is a link between the institutions and the economic development? Each of us can easily perceive that it is easier to do some economic actions in a context where all the types of institution are efficient, but these are just an aspect of the reality. In other words our perception of the existence of this linkage must be considered in an aggregate way and taking into account other economic variables that can influence the development.

As it is clear the first difficulty is the definition of what an institution is and that is the reason why in the survey it has given dig relevance to the different manners to conceptualize the notion of institution. The second difficulty arises from the perplexity about how the efficiency of the institutions can be measured. The third problem is related to the necessity to close off in the right way the weight and the influence of the institutions respect to the other variables on the economic development.

Taking into account these relevant difficulties, the analysis of the complementarities involved in the development processes, can be a useful way to explain some kinds of relationship between institutions and development processes especially in the short run. The use of more elab-

orated indices to measure the influence of institutions in the economic system and of the coentegration models can improve the reliability of the empirical analysis. In the same manner the supermodularity and the supermodular games can efficiently explain the mechanism of the strategic complementarity between different kinds of institution generating virtuous development processes from a theoretical point of view. Necessarily, in the future, both the analysis must be integrated but, for the time being, the state of art in the two approaches represent a very good starting point for new outcomes related to the investigation on these type of kind of economic phenomena.

The importance of the mechanisms of complementarity is mainly justified from the not plausible existence of an one-way link between institutional domain and development, on the other hand it is clearly true that there is a mutually interaction between the two spheres. Finally it is also important to distinguish, in the upcoming analysis, between the existence of determined institutions and the performance of determined institutions in the economic systems. Not always the existence of an institution determines positive or negative effect on the development and viceversa, this kind of relationship it is also under the influence of the performances of it, that gives us an idea of the complexity of the problem.

Notes

[1] "The difficulty in defining a field for the so-called institutional economics is the uncertainty of meaning of an institution. Sometimes an institution seems to mean a framework of laws or natural rights within which individuals act like inmates.

Sometimes it seems to mean the behavior of the inmates themselves. Sometimes anything additional to or critical of the classical or hedonic economics is deemed to be institutional. Sometimes anything that is "economic behavior" is institutional. Sometimes anything that is "dynamic" instead of "static," or a "process" instead of commodities, or activity instead of feelings, or mass action instead of individual action, or management instead of equilibrium, or control instead of laissez faire, seems to be institutional economics. All of these notions are doubtless involved in institutional economics, but they may be said to be metaphors or descriptions, whereas a science of economic behavior requires analysis into similarities of cause, effect or purpose and a synthesis in

a unified system of principles." Commons J. R. (1931),"Institutional Economics" American Economic Review, vol. 21 , p.648.

[2] As is well known the Institutional Political Economy strongly challanges the neoclassical approach, continuing on the same tendency followed by the traditional institutionalism, while the New Institutional economics using the theories of asymmetric and distributed information tries to combine the institutionalism with the neo - classical framework.

[3] Index of institutional efficiency: poltical stability, political chenge, probability of opposition Group takeover, Relationship with neighboring Countries, Terrorism, Legal System Judiciary, Bureaucracy and red tape, Corruption.

Index of bureaucratic efficiency: judiciary system, red tape and corruption indices. They are used in the article " Corruption and Growth " (Mauro, 1995) and it is important to point out the way to consider the corruption as the degree to which business transactions involve corruption or questionable payments.

[4]International Country Risk Guide (ICRG): composed by: protection against expropriation risk; rule of law; repudiation of contracts by Government, corruption in Government, quality of Bureaucracy Business Enviromental Risk Intelige (BERI): Composed by: contract enforceability, infrastructure quality, nazionalization potential, bureaucratic delays.

[5]The Freedom House Index is a composite index that measure the level of political rights and and civil liberties available for 172 countries from the biginning of 1970s

[6]This index is made up from some components like the incidence of both violent and non-violent crime, the effectiveness and predictability of the judiciary and the enforceability of contracts. These indicators represent a reliable measure of an environment in which fair and predictable rules are the basis for economic and social interactions. The component indicators are aggregated using an unobserved components model that expresses the observed data in each cluster as a linear function of the unobserved common component of governance, plus a disturbance term capturing perception errors and/or sampling variation in each indicator. The choice of units for governance ensures that the estimates of governance have a mean of zero, a standard deviation of one, and range from around –2.5 to around 2.5. A higher or positive value indicate greater rule of law (Kaufmann, Kraay and Zoido- Lobaton, 2002).

[7]Executive Constraints represents the operational independence of Chief Executive.(Polity II: Political Structures and Regime Change. 1800-1986. Robert Gurr, 1997)

[8]The first value of Executive Constraints in the data set Polity III (Gurr, 1997).

[9]The logarithm of estimated European settlers mortality during the Colonization, it measures the effects of local diseases on people without inherited or acquired immunities.

[10]This variable is considere in current prices average from 1990 to 1999.

[11]Considered as financial resources provided to the private sector, such as through loans, purchase of non equity sicurities and credits and other accounts receivable, that establish a claim for payment.

[12]Correspond to an average the Market value of all traded stocks over 1990 - 1995.

[13]This variable is calculated as the total population divided by land area usable for agricolture.

[14]The variable states if the legal origin of the company law and commercial code of each country are from civil law countries or from common law countries.

[15]This index is determined by two sub indices: index of government antidiversion policies and index of country's openness. The first one combines five indicators: law and order, bureaucratic quality, corruption, risk of expropriation, government repudiation of contracts. The second one defines a country open if: non tariff barriers cover less than 40% of trade, average tariff rates are less than 40%, any black market premium was less than 20% during 1970s and 1980s, country is not classified as socialist following Kornai (1992), the government does not monopolize major exports (Hall and Jones, 1999, p.16).

[16]Considering a set $A = \{(0,0), (1,2), (2,1), (3,3)\}$ it is possible to define it a *complete lattice* because $(2,1) \vee (1,2) = (3,3)$ and $(2,1) \wedge (1,2) = (0,0)$

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