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**# 15**

**Dynamic Implications of the Impurity Principle in Capitalist  
Societies**

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**AVANCES DE INVESTIGACIÓN**



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Capitalist Societies.**

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## **Abstract**

Drawing on modern economic thinking and, especially, on Hodgson's "impurity principle", we propose in this paper that it is possible to analyze capitalist-democratic societies by breaking them down into five evolving social subsystems: the market, the State, the realm of individuals, civil society and the natural environment. We explore the possibility of conceiving these structurally dissimilar subsystems as co-evolving at the very basis of capitalist change. Looking at capitalist-democratic systems through this lens may allow us to overcome some limitations of earlier theoretical approaches, and it might bring a clearer focus to our understanding of important imperfections of these societies. We suggest that phenomena such as unemployment and social frictions as a consequence of fast economic change, or environmental damages, could be interpreted as global properties emerging from the uneven development of the previously mentioned social subsystems.

**Key Words:** Impurity principle, Evolving systems, Co-evolution, Capitalism

**JEL-Code:** B52, P17, P51, Z13

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## **1. Introduction**

Drawing on recent developments in evolutionary theory, in this paper we aim to explore the possibility of deriving some of the dynamic implications of Hodgson's "impurity principle". In agreement with Hodgson (1999), we will use the term "impurity principle" referring to the idea that for all socio-economic systems to be viable they must be composed of, at least, two structurally dissimilar sub-systems. Hodgson proposed this principle after carrying out a historical-institutional analysis (Hodgson, 1998) which led to his criticism of various economic theories for not taking into account the impurities necessarily inherent in capitalist systems, characterized by the pre-eminence (but not omni-presence) of the market as a mechanism to allocate resources in society.

Non-market structures have received very little attention by significant sectors of economic theory (such as, for example, the nucleus of the General Equilibrium Theory -Arrow and Debreu, 1954 - or the Austrian School of economics - for example Hayek, 1945, and Kirzner, 1992). However, it must be pointed out that the "mixed" nature of capitalist-democratic societies has been recognized by most present-day economic thinking. In this way, a careful reading of a selection of wide-ranging authors such as Keynes (1936, 1937), Schumpeter (1943), Hirschman (1970), Georgescu-Roegen (1971), Becker (1976) or more recent ones such as Nelson and Winter (1982), North (1990) or Stiglitz (1994) shows that, at least tacitly, they all see economic systems as being systems made up of distinct structures. This can be seen in, for instance, the connections that some of these authors make between the market and the role of the State, in charge of guaranteeing the "rules of the market", inducing the production of non-market forms of knowledge, stabilizing capitalist cycles and correcting market failures.

Furthermore, several of the above-mentioned authors propose that economic analysis is useful to understand phenomena associated with non-market structures such as the family (Becker, 1981), political parties (Becker, 1958) or lobbies (Becker, 1983). Other authors point out the existence of mechanisms which are not strictly commercial (such

as loyalty or voice) and which act as routes via which economic bodies are able to detect misbehavior (Hirschman, 1970). Likewise, for authors such as Georgescu-Roegen (1971) or Meadows et al (1972), the natural environment, under its own natural laws, must be considered in the analysis of economic processes. Other authors justify the relevance of these inherent impurities in capitalist-democratic systems not only from a theoretical point of view but also from an empirical one, identifying distinct varieties of capitalism with roots in very different traditions, innovation systems with a national identity, “market societies” based on diverse cultural foundations and so on (see, for example, Dosi, 1988; Nelson, 1996; or Groenewegen, 1997).

Given the above, our starting-point will be that the “impurity principle” is relevant for the analysis and correct understanding of the functioning of capitalist-democratic societies (which we define below) and we will attempt to discover the implications of this principle from a dynamic view point. To be specific, we maintain that recent developments within the realm of evolutionary theory offer a suitable framework of thought in which to appreciate these implications.

The conception of socio-economic systems as evolving systems is to be found in the roots of modern evolutionary economics (Nelson and Winter, 1982; Foster and Metcalfe, 2001; Witt, 2003; Hodgson and Knudsen, 2004). Although the concept itself of evolutionary economics is a fuzzy one because of the wide variety of approaches it includes, the contributors to this line of thought are in general agreement in that certain phenomena, such as technical change, institutional change, industrial dynamics or economic growth, share common features which suggest we should address their analysis from an evolutionary perspective. Starting out from the ideas of these authors, we will look into the possibility of analyzing the dynamics of capitalist-democratic societies as the result of, more or less organized, processes of co-evolution among five structurally dissimilar subsystems: the market, the State, civil society, the realm of individuals and the natural environment. These subsystems all appear to a different degree in Economic Theory (see, for example, Polanyi, 1944; Buchanan and Tullock, 1962; Olson, 1965; Georgescu-Roegen, 1971; Becker, 1981) although they are rarely studied together in a dynamic framework. Through the lens of evolutionary theory we will see how the analysis of these subsystems in coupled dynamic interaction may be

enlightening in understanding important systemic imperfections of capitalist-democratic societies.

In order to address our task, this paper is organized according to the following structure: in Section 2, we propose our theoretical interpretation of Hodgson's "impurity principle". Then, in Section 3, we extend the "impurity principle" to a dynamic framework and we explore the possibility that the market, the State, the realm of individuals, civil society and the environment might be considered as co-evolving at the basis of capitalist-democratic societies. We shall see that evolutionary theory provides us with a suitable analytical framework for a dynamic interpretation of the "impurity principle". In Section 4, we explore the possibility that certain imperfections might emerge in the evolution of capitalist-democratic social systems because of an uneven development of the distinct subsystems. Finally, we end the paper with our concluding remarks.

## **2. The "impurity principle" in capitalist-democratic societies.**

In this and the following section we will explore the possibility of conceiving capitalist-democratic societies as socio-economic systems made up of five structurally dissimilar subsystems which may be considered as co-evolving: the market, the State, the realm of individuals, civil society and the natural environment. Firstly, we define a capitalist-democratic society as that in which:

- 1) There are defined property rights on exchangeable goods and services.
- 2) A general institutional framework allows the free settlement of contracts, freedom of enterprise and freedom of expression for citizens.
- 3) A public authority whose sovereignty is based on democratic elections guarantees the aforementioned rights.
- 4) Most productive activity takes place via private profit-seeking firms which contract workers who in turn freely offer their work in exchange for a salary.
- 5) There is an extensive use of markets to exchange goods and services on a monetary basis.

Although these points could describe a wide range of actual societies (which may, on the other hand, differ in important aspects), this definition clearly shows that *the market, the State and civil society* subsystems are general structures which are common to all capitalist-democratic societies. In addition, it is obvious that, in any society, the *natural environment* (defined as a source of resources necessary for life and economic activity driven by its natural rhythms) is an essential subsystem for socio-economic existence and change. Finally, regarding what we call the *realm of individuals*, we will see that the development of certain kinds of business, political or social organizations for whom the market, State or civil society are their fields of action is closely linked to the changes produced in the individuals which make up society.

We will show that, at least three of these five subsystems - the market, civil society and the realm of individuals - share two common features that recommend approaching their dynamic analysis from an evolutionary perspective.<sup>1</sup>

Firstly, underlying many processes of change typical of these subsystems (such as industrial dynamics, changes in family values or public opinion formation in policy issues) we find *heterogeneous entities* (firms, individuals, civil organizations, political parties and associations, etc.) whose size can change as a result of the entry or exit of individuals or groups, generations of successors and other forms of qualitative change. In fact, we may regard some of these bodies as fulfilling the needed requirements suggested by Hodgson and Knudsen (2004) to be considered as cohesive *interactors*<sup>2</sup> within their respective social environments. The firm, the individual, or social organizations (political parties, civil associations, trade unions, NGOs etc) may be conceived as cohesive wholes carrying a component set *R* of *replicators* (routines, values, habits, skills and collective ways of reacting/thinking, organizational dispositions to energize collective action –politically or socially- when facing specific social stimulus, etc.) that replicate, to a greater or lesser degree of success depending on certain properties of the firm, the individual or certain properties of the social organizations evaluated within their respective social subsystem.

Secondly, these entities *dynamically interact* engendering *endogenous structural change* (in the sense of differential growth of entities) and the production of *novelties*. We propose that, according to the definition of *selection* proposed by Hodgson and

Knudsen (2004)<sup>3</sup>, these three subsystems (the market, realm of individuals and civil society) can be conceived, at least partially, as evolving according to specific *selection processes*.

With the aim of specifying in what sense the market, realm of individuals and civil society evolve, we will devote the rest of this section to explore:

- 1) What are the heterogeneous entities which may be characterized as interactors and replicators for each of these three subsystems.
- 2) What could be the specific replication and selection processes which, affected by the appearance of novelties, allow us to explain the development of each of these three subsystems.

Tables 1 and 2 synthesize the contents we will develop in parts 2.1, 2.2 and 2.3.

**Table 1. Heterogeneous entities within each subsystem**

<b>Subsystem</b>	<b>Interactor</b>	<b>Purpose</b>	<b>Replicators</b>
Market	Firms	Profit-seeking	Firms' Routines
Realm Individuals	Individuals	Well-being-seeking	Values, Habits, Skills
Civil Society	Civil Organizations	Influence-seeking	Organizational Routines, Social Values/Ideas, Proposals of Collective Action

**Table 2. Dynamic Interactions within each subsystem**

<b>Subsystem</b>	<b>Replication</b>	<b>Selection</b>	<b>Novelty</b>
Market	Imitation Tech. transfer	Market competition	Tech. Innovation
Realm Individuals	Emulation Communication/Learning	Social integration/exclusion: -labor market; -conformity to social standards	Individual Innovation, Market-induced, Civil Soc.-induced
Civil Society	Imitation, Social/Political Persuasion, Social/Political Pressure	Social/Political Competition, Democratic Elections	Org. Innovation, Soc/Pol Innovation

## 2.1. The Market

The large amount of writings in the last twenty-five years or so with regard to the label *evolutionary economics* (Nelson and Winter, 1982; Foster and Metcalfe, 2001; Witt, 2003) show that the arguments in favor of considering markets (and even entire “market economies”; see, for example, Metcalfe, 1999) as evolving systems are well-known. Herein we will consider that markets are evolving social subsystems where monetary exchange takes place on the basis of the following principles:

- (1) Boundedly-rational (Simon, 1983) and profit-seeking firms produce, imitate and innovate according to their specific technologies, capabilities and behavioral routines. The profitability dynamics of firms, driven by competitive market selection, acts as the needed stimulus to unleash specific actions. Drawing on the analysis of Knudsen and Hodgson (2004), we will assume that firms may be considered as the interactors within evolutionary market processes.
- (2) Imperfect path-dependent learning and innovation entail persistent heterogeneity and the ongoing emergence of new product and process technologies, new firms, the emergence of new sectors, etc. (Coriat and Dosi, 1994).
- (3) Multiple scattered interactions with demanding agents in a regime of competition perform as a selection mechanism giving rise to the differential growth of firms (market selection on the basis of evolving profitabilities). If we consider multisectoral economies, there are multiple levels of structural change - not only market competition at the intra-sectoral level but also changes in the relative importance of sectors driven by different sectoral income elasticities.

The deployment of evolutionary market processes may be considered as underlying the observable dynamic paths of production, income, employment and prices characteristic of capitalist-democratic societies, and they generate an enormous amount of information. All these emergent paths will allow us to link the market to the other subsystems within capitalist-democratic societies in Section 3. For now, let us just note that the demand structure within markets, the ability of firms to adapt better than their rivals to demand, and the technological and economic conditions underlying a firm’s

cost structure are the key drivers of each firm's profitability. Therefore, these factors condition the selection environment of firms and the replicative capacity of different routines within *the market* social subsystem.

## 2.2. *The Realm of Individuals.*

The *realm of individuals* means the private life of individuals and the relationships which these establish with other individuals and their surroundings. As we can see in Table 1 above, we propose that "well-being-seeking" *individuals* may be considered as the *interactors* in this realm; this is due to the fact that the individual may be considered as a cohesive entity which interacts with the environment and carries habits, values and personal skills as replicators. The replicative success of individual habits, values or skills may depend on certain properties of different individuals assessed within society (such as their status, income, conformity to social standards, success in the labor market, etc.). A few examples of individual values, habits and skills would be ecological concerns, the propensity to spend time on a specific activity or the ability to manage new technologies.

We can consider that *replication* takes place in this realm via *emulation* (Veblen, 1899) and *personal communication and learning* (see Table 2). The family, educational systems, circles of friends, mass-media or the participation of individuals in the market or civil society are areas where a replication of values, habits and skills can be found (with imperfect replications often giving way to the appearance of novelties). It is in these situations where individuals observe and communicate with each other allowing for the emergence of the imitation or learning of certain behaviors which can eventually become habits, values and skills.

Furthermore, there are selection processes (explicit or tacit ones) between individuals in every society which determine their degree of *social integration and success or social exclusion* (see, for example, Lundvall and Johnson, 1994; Hodgson, 1999). Individuals as interactors carry with them certain replicators (skills, habits, values) which allow them a better or worse degree of adaptation to their social environment. Hence, this degree of adaptation to their environment, clearly depends on the suitability of these individual skills for the labor market or on the degree of conformity of individual values

and habits to certain social standards (see Table 2). In this way, individuals with unfavorable replicators may be socially excluded more easily; this would be the case, for example, for unskilled individuals with difficulties for labor integration in technologically advanced societies.

Given the above, we can see that the realm of individuals can be understood as an evolving subsystem within capitalist-democratic societies. The suitability of specific skills, or the degree of conformity to social standards which are characteristic of certain habits will depend on how the productive structure of society changes, and on the dynamics of civil society and the evolution of behavior patterns of the majority. Likewise, the dynamics generated within the realm of individuals will condition the evolution of civil society, that of public opinion in policy-making, the demand structure for goods and the evolution and characteristics of the supply of work etc. These casual relationships between social subsystems will become highly significant in Section 3 when we lay out the map of connections between different social subsystems within a process of co-evolution underlying capitalist-democratic socio-economic change.

### 2.3. *Civil Society*

In capitalist-democratic societies free individuals have the right to give opinions and join together to exercise influence on political and social questions. These individuals are, of course, also the ones who decide (via a democratic election) which social group will take charge of forming a government and running the State. We define civil society as the social subsystem where political and social debate takes place, understood as a continuous process of social selection between values, ideas and different proposals for collective action built-in what we will call *civil organizations* (foundations, trade unions, political parties, NGOs, other kinds of associations etc). Civil organizations can be defined as groups of individuals who share common traits, habits of socio-political thought, values and objectives and who set up a formal organization to gain influence in society. These organizations can gain social influence via persuasion and the progressive capture of social support or by exerting social pressure.

We propose that civil organizations can be characterized by the following features (see Tables 1 and 2):

- 1) They can be considered as bodies whose main objective is to obtain social influence (they are *influence-seeking* organizations). This means that civil organizations carry out their social actions with the aim of transmitting specific values, ideas and/or proposals of collective action within society. Thus, civil organizations could be conceived as holders of different values, ideas and proposals on how social-collective action concerning many different questions should be organized. In the specific case of political parties, they act as *vote-seeking* organizations which try to gain access to direct government and legislation from the State by winning the favor of citizens (individuals) in democratic elections.
- 2) Imperfect learning and organizational innovation also entail persistent heterogeneity within the realm of civil society. It can be seen that, in the case of civil organizations, *learning and innovation* may consist of:
  - a) Incorporating new internal practices or improving certain organizational routines to gain social influence (for example, the search for new channels of communication, adoption of new technology, protocols for discussion, mobilization and action when faced with certain stimuli etc) rather than profits.
  - b) Reformulating values, ideas and proposals for collective action and social organization or even designing new ones.
- 3) These organizations maintain scattered interactions with the State, market organizations, other civil organizations and individuals trying to extend and apply their ideas and proposals. Situations relating to competition between civil organizations can arise from these processes. These may result in distinct civil organizations capturing different levels of membership, different shares of social support, different degrees of influence in the regulatory and governmental action of the State and so on.

As we can see, civil organizations may be considered as cohesive wholes interacting with their social environment while carrying specific organizational routines, values, ideas and proposals for collective action and social organization. Clearly, the differential replication of certain values, ideas, organizational routines, decision-making about collective action and proposals for social organization can depend on the properties of the civil organizations carrying these traits. That is to say, to be precise,

that the persuasive capacity of different organizations and the degree of suitability of their proposals to the needs, values and beliefs of a large number of individuals are factors which favor the replication of organizational values, social views and proposals of collective action. This leads us to believe that civil organizations may be good candidates to be considered as the *interactors* within the social subsystem we call *civil society* (see Table 1).

Civil organizations, defined as *heterogenous* organizations which *compete socially* for their view of society to prevail, can exert a significant influence on the policies and regulations drawn up by the *State* via social pressure. The efficiency of each civil organization's pressure on the State depends on their relative importance within society and the harmony of their proposals and objectives with those of the State. In democratic societies, the State is managed by a Government which emerges from a competitive process among political parties participating in democratic elections. The share of votes captured by each party determines its degree of political influence in legislation and governance.

With respect to the abovementioned, it must be pointed out that one of the main ways with which a civil organization can gain social influence is by achieving a successful replication of their values, ideas and social proposals within society. This kind of civil replication of values, ideas and proposals for socio-political action takes place between organizations but it may also happen between organizations and individuals, via the social assimilation of social viewpoints and values, via the creation of new civil organizations with similar values, ideas and proposals, and via the application of effective pressure on the State.

To sum up, the proposed concept of civil society as the social realm where heterogeneous civil organizations defend and try to extend different values, ideas, social visions and proposals for collective action, giving way to a process of social selection where old and new positions win or lose social influence clearly allows us to characterize civil society as an evolving system (see the synthesis of the argument in Tables 1 and 2).

Finally, it can be seen that changes produced in subsystems such as the realm of individuals or the State because of the effect of the evolution of civil society, can clearly condition the selection environment within which the market and civil society itself evolve. What is more, the evolution of civil society has an influence on the values and ideas which prevail within the realm of individuals and it can also affect the action of the State. Having characterized our fundamental subsystems as evolving systems in this section, we will now devote Section 3 to presenting our arguments on how these subsystems might be co-evolving at the very base of capitalist-democratic socio-economic change. In Section 4 we will deduce some of the properties of the process of socio-economic change laid down in Sections 2 and 3.

### **3. The co-evolution of structurally dissimilar subsystems**

In this section, we will explore the possibility that the market, realm of individuals, civil society, State and natural environment subsystems may be conceived as co-evolving underlying capitalist socio-economic change. To this end we will assume that:

*“Two evolving populations co-evolve if and only if they both have a significant causal impact on each other’s ability to persist. Such causal influence can proceed through two avenues: (1) by altering the selection criteria or (2) by changing the replicative capacity of individuals within the population...”* (Murmans, 2003, pg.22; see Nelson, 2001, for further arguments on the relevance of co-evolution in certain economic phenomena).

In accordance with this definition we must establish in what sense a causal influence between the studied subsystems can exist and in what way this causal influence can alter: (1) the selection criteria or (2) the replicative capacity of the entities within the subsystems. We can see that the routes along which these kinds or relationships between subsystems can be established are the transference of *information* and the existence of flows of *action* between them.

Although we could mention multiple flows of information and action between subsystems, in Figure 1 we synthesize some of those which can exercise an influence on the replicative capacity of entities and on the selection processes within different subsystems.

[Figure 1]

For the flows and their directions as shown in Figure 1 we have considered that:

- 1) All subsystems emit some kind of information and generate specific action flows which emerge from their evolution.
- 2) These flows of information and action can have an influence on the processes of selection and replication of other subsystems. This occurs as certain entities in different subsystems capture and assimilate the information generated in different subsystems and convert it into useful knowledge for their own action. Besides this, the actions of certain entities in a subsystem can restrict or encourage determined actions of entities in other subsystems.
- 3) The entities within each subsystem act in accordance with their aims (see Table 1 in Section 2) taking into account information and actions produced within the subsystem itself and also those of other subsystems. These flows of intra-systemic information and action are key driving forces of the process underlying capitalist-democratic change.

Bearing in mind the above, we start by considering some significant causal relationships formed between the market, realm of individuals and the State as they appear in Figure 1. These relationships can be seen in more detail in Figure 2 below.

[Figure 2]

We stated in Section 2 that the demand structure of the market, the capacity of firms to match this demand better than their rivals and the technological and economic conditions underlying the cost structures of these firms make up the selection environment of firms and condition the replicative capacity of routines dependant on the profitability of firms. We can clearly see that we can find elements originating in the realm of individuals beneath the demand structure and certain conditioners of

production costs (such as the availability, qualification and cost of the labor factor). Hence, underlying the *structure of demand* we may find diverse consumption patterns rooted in the habits and values of individuals and which depend on the distribution of income in society. On the other hand, the structure and other characteristics of the *supply of labor* (such as the mobility of workers or the availability of a labor force with different grades of qualification) clearly depend on the abundance or scarcity of individuals with determined labor skills and on the structure of habits and values prevailing within the realm of individuals.

A closer look at the casual relationships underlying the co-evolution between the market and the realm of individuals shows that the demand structure for goods and services conditions the selection process in the market, exercising an influence on the productive and sectorial structure of society in the mid- and long-term. Likewise, the changes in the productive structure of a society brought about as a consequence of economic change, transform the kind of labor skills firms require, the distribution of the sectorial demand of labor and, possibly, the distribution of income in society. These transformations affect the degree of adaptation to the environment of these individuals with their different habits and skills and can alter the replication capacity of certain habits and skills within the realm of individuals. As the interest for learning specific skills increases or the emulation of well-considered behavioral patterns emerges, the structure of habits, values and skills prevailing in society can change significantly in the mid-term.

These causal relationships explained above allow us to explore, for example, some of the consequences of the increasing *globalization* of economic activities and its effects on the rate of technological change and the intensity of competition in markets. The demand structure for goods and services as well as the technological, economic and strategic conditions underlying supply are affected by the extension of markets beyond national borders. National firms will have to support a higher rate of technological progress and higher levels of competition. One of the effects of this is that firms will demand a higher degree of learning capacity and skills acquisition than in traditional closed economies. Moreover, certain new habits (such as functional and geographical mobility) become features which can either help or hinder the integration of individuals in the labor market. As we will see in the following section, the replication of certain

habits and skills within the realm of individuals is not an automatic process. Furthermore, if a harmonious co-evolution between the market subsystem and the realm of individuals is not produced, important social problems such as unemployment or an excessive polarization in the distribution of salaries among others can occur.

It can also be seen from the flows of Figure 2 that *advertising* is also a powerful instrument with which firms can gain influence for their benefit in the structure of demand. The conception of the market and realm of individuals as co-evolving allows us to observe that certain business practices which consist in linking specific consumption patterns to the life-style of high social status individuals (such as celebrities or other rich people) can favor the progressive adoption of these behavioral patterns, in this way strengthening certain habits within the realm of individuals. At the same time, as soon as the structure of habits and values changes, the structure of market demand becomes a different one too thus transforming the market selection process. The need to reply to the strategies of rivals and the possibility of favorably influencing demand structure means that firms progressively intensify their publicity practices, thus generalizing their effects on the realm of individuals. This is another clear example of how flows of action and information from the market can affect the replicative capacity of certain individual habits and values which may end up transforming the market selection process.

Another aspect, as we can observe in Figure 2, is that the co-evolution process between the market and the realm of individuals influences and is influenced by interactions with the *State* and the *natural environment*. Hence, State intervention via policies and the regulation of market affairs can condition the result of the competitive process and the behavior of individuals. The State can exercise an influence on the replicative capacity of certain business routines and on the social distribution of individual behavioral patterns through the restriction or encouragement of specific practices and behaviors. Examples of this would be State intervention limiting the extraction of certain natural resources, demanding minimum levels of quality in products or taxing certain goods. The State can also exert a direct influence on selection processes in the market and realm of individuals via regulation or political intervention. This is the case of protectionist policies which attempt to defend national industries against international

competition, or the case of labor integration policies based on the formation of individuals with special difficulties to obtain suitable skills.

Regarding the natural environment we can point out that the characteristics of the realm of individuals underlie the demand structure to the degree of environmental sensitivity of the demand itself. Given that the demand structure conditions the selection process in the market, we can observe more or less sustainable paths of industrial change that, in turn, can end up influencing the individual values and habits prevailing in society.

In Figure 3 (below), we show certain flows of information and action which allow us to identify co-evolution mechanisms between civil society, the realm of individuals and the State (see Figure 1 also).

[Figure 3]

The differential growth (in terms of membership, social support, etc.) of the distinct civil organizations within the realm of civil society reflects the fact that some organizations gain influence while others lose it. The changes in the social influence of different organizations can make certain individual behaviors (associated with the social vision of the organizations themselves) more visible and more attractive. This in turn can lead to eventual transformations in the structure of habits and values within the realm of individuals. At the same time, the strengthening of certain habits and individual values affects the selection process within the realm of civil society, benefiting some organizations at the cost of others. This process takes place because of the implication of individuals in the socio-political scenario via what we call *participation* (see Figure 3).

The capacity for *persuasion* of certain civil organizations, together with a greater or lesser degree of harmony of their ideas and social proposals with the needs and opinions of a large number of individuals, are important factors underlying the gain or loss of the social influence of said organizations. It can be noted that specific *needs* of certain individuals often stem from their direct or indirect relationship with market activities. In this way, an interest for guaranteeing the quality and reliability of exchanged goods and services, the need to set up labor relationships respecting certain fundamental rights or

the wish to avoid certain negative externalities arising from the extraction and unsuitable use of certain natural resources are examples of personal uneasiness which may explain the harmony of many individuals with different organizations. Examples are consumer and user organizations, labor unions and certain environmental groups. In cases where some of the problems mentioned relating to market dynamics occur, the reaction of the affected individuals can confer increasing social support to specific civil organizations.

Furthermore, civil organizations can gain social influence on the State via *social pressure and action* as seen in Section 2 (see Figure 3). Citizens' mobilizations (strikes, demonstrations ...), the setting up of networks connecting certain lobbies or other groups with public decision-making bodies or the use of the mass-media to influence public opinion are all examples of pressure which can refocus public regulation and policies in favor of certain organizations. These measures can exert important effects on other subsystems such as the market or the realm of individuals. The causal relationships we have drawn up based on Figure 3 show a clear process of co-evolution between different social subsystems.

With reference to the specific case of *political parties and democratic elections*, the transformations in individual habits and values underlie changes in the structure of public opinion regarding different questions and, hence, lead the evolution of political preferences in society. These processes of change are then reflected in the electoral results, deciding what kind of political party (a specific kind of civil organization) reaches power and affecting the makeup of certain public bodies and administrations. State actions and decisions (policy, regulation), along with what we may call the *State's performance* (scandals, corruption, management efficiency levels), can restrict or encourage certain individual behaviors and, therefore, affect the replicative capacity of the routines, ideas and social views of certain civil organizations.

To sum up, Figures 1, 2 and 3 represent significant flows of action and information between different evolving subsystems which affect the selection and replication processes operating on the interactors and replicators mentioned in Tables 1 and 2 in Section 2. As we will see in Section 4, the co-evolution mechanisms between the five structurally dissimilar subsystems we have proposed reveal the possibility that

significant imperfections can emerge from the development of capitalist-democratic societies. The aim of Section 4 is not to project a catastrophic image of capitalist-democratic societies, though. Rather, it simply aims to show that the fact that systemic imperfections can emerge in the case where different subsystems do not co-evolve harmoniously, can be deduced from the proposed process of co-evolution. This is one of the fundamental dynamic implications of Hodgson's *impurity principle*.

#### **4. Uneven evolutions and systemic imperfections**

In this section we pose a question whose answer may already be known given the above-mentioned in section 3. If we accept that capitalist-democratic development may be understood as resting on the co-evolution of five structurally dissimilar evolving subsystems, can coordination problems appear in the processes of capitalist-democratic socio-economic change?

Via the analysis of two remarkable examples, we will see that the answer is affirmative - systemic imperfections within capitalist-democratic societies due to uneven evolutions between the five mentioned social subsystems can appear. In order to illustrate our argument, firstly we are going to explore the possibility of unemployment and social frictions emerging as a consequence of rapid economic change; we will see how, in certain circumstances, fast-changing advanced societies may undergo dynamic paths from which socio-political instability may arise. Afterwards, in our second example, we will highlight social conditions in which the uneven evolution of social subsystems could produce environmental damages that may jeopardize the sustainability of certain socio-economic activities.

##### *4.1. Unemployment and economic change*

Economic change in modern industrial economies is characterized by the manufacturing processes and products themselves of certain core sectors becoming more and more complex and sophisticated (see, for example, Hodgson, 1999). As a combined effect of technological sophistication and the intensification of international competition, some

authors point out that economic change processes in advanced economies may be speeding up (Lundvall, 1998). The rapid transformations in productive systems and in the means of production due to these facts explain why firms require increasing degrees of skill, high adaptability and specialization from their workers.

As seen in the previous section, the adaptation of the supply of labor to the new demands of the market is not automatic. The replication of skills through education, training or on-the-job learning requires suitable institutional conditions which chiefly depend on the existence of a social consensus regarding the educational priorities in society and how this educative process is organized and financed. What is more, the acquisition of new skills and the adaptability to fast-changing working conditions require certain behaviors from individuals which may contradict their previous habits. The replication of new habits replacing contrasting earlier ones is not an easy process at all. Learning and internalizing new behavioral patterns takes time and effort on the part of individuals and these processes must take place in a socially and institutionally favorable environment.

Bearing in mind what the abovementioned in Section 2 about the role of labor markets as social selection mechanisms between individuals, we can easily conclude that, as learning new skills and acquiring new habits neither take place automatically nor in a homogenous way within the realm of individuals, some people can successfully be integrated into the productive system while others may be excluded (or receive a worse treatment) from this selection process. This can create important systemic imperfections in advanced societies. In this way, it is very probable that individuals who delay acquiring suitable habits and skills (or who simply cannot change direction) will remain unemployed. It is also possible that the demand and supply of labor will be progressively polarized in terms of skilled well-paid workers and unskilled low-wage workers. The consequences this kind of polarization may have on the distribution of income are clear. Finally, if the replication of the needed habits and skills does not take place at the rate required by the market, then the possibility of “skilled labor rationing” appears along with the negative consequences this would have for the rate of economic change.

All these possible imperfections lead us to the idea that perhaps the State can play an important role in favoring the harmonious development of the system, drawing up education and training policies to prevent the problems we have detected. In this sense, it must be pointed out that the multiplicity of organizations (market and civil organizations), with different interests and needs, that form capitalist-democratic societies, together with the typical inherent uncertainty of fast economic change can hinder decision-making by the State along the lines of favoring a coordinated development of the productive system and the supply and demand of labor. Those individuals or firms affected by unemployment, salary polarization or “rationing” can group together or set up new civil organizations to try and exercise pressure on the State. The limited character of public resources, uncertainty problems and the possibility of pressure in the opposite direction place the State in a difficult position. The possibilities of errors or social tension due to the abovementioned systemic imperfections can only be minimized by social cohesion and responsible democratic dialogue between the State, market organizations and other relevant civil organizations (professional associations, labor unions etc). If these favorable circumstances are not in place, an even more serious kind of imperfection may be produced.

Hence, for example, we know (Section 2 and 3) that certain civil organizations can gain influence and social support through persuasion and the harmony of their ideas and proposals for collective action with the needs of a large number of individuals. Consider a social scenario in which, as a result of the acceleration of an economic change, the unemployment rate and the degree of both salary inequality and uneven distribution of global incomes have increased. If it were not for the existence of the previously mentioned social consensus, this situation could worsen to the point that the most negatively-affected individuals decide to join forces in civil organizations (or join already existing organizations) with the aim of influencing the State and market organizations so as to change the present situation. We know that social pressure is one of the mechanisms via which civil organizations can try to exercise an influence on public regulation and policy. Social pressure includes mobilizations and boycotts which, if they are not successful, can raise the levels of social tension to the point where confidence in fundamental institutions (such as, for example, the government itself or bodies and mechanisms of dialogue between firms and unions) can be eroded. The

deterioration of these institutions may generate a socio-economic crisis which jeopardizes the viability of the whole system.

#### *4.2. Environmental damages and sustainability*

Nature has always provided the necessary raw materials for our production of goods. However, over the last one hundred years the increase in the use of these resources has been exponential. This has been due to an increase in population over the same period by a factor of 4 and, far more significantly, an increase in industrial output by a factor of 40. Hence, the demand for natural resources has also grown at the same time: the use of energy has multiplied by 16, fish captures by 35 and carbon dioxide emissions by 10 (Arrow et al, 2004).

This increase in demand for natural resources has been caused by certain technological progresses and determined institutional conditions. In the case of *fisheries*, for example, the introduction of freezer ships, new sonar technologies and the lack of definition of fishing rights for different areas would partly explain the fact that the amount of fish captured leapt from 19 million tons in 1950 to 93 million tons in 1997.

In parallel to this extraction rate of natural resources, certain sectors of civil society have formed the opinion that these rates of extraction do not correspond to the natural rates of regeneration of said resources and that this fact could lead to irreparable consequences. This has led to the emergence of many civil organizations devoted to environmental questions, especially from World War II onwards.

We can consider, as seen in Sections 2 and 3, that processes of change in the values and beliefs of certain individuals underlie the constitution of these environmental civil organizations. Likewise, the consolidation of some of these environmental civil organizations has contributed to the expansion and consolidation of the same values, habits and environmental practices that they propose. It must be pointed out that a certain amount of the environmental restrictions and regulations the State imposes is due to the social pressure that these kinds of organizations can exercise.

However, there are also many cases where excessive market demands have not respected the natural regeneration of resources, leading to their temporary collapse. For example, Brown (2001) mentions, among other cases, the collapse of ocean fisheries in Canada (1992) or the breakdown of fishing in the Aral Sea (1997). In the framework of Sections 2 and 3, these cases make up clear systemic imperfections rooted in the uneven evolution of the market and natural environment.

The question we can pose is what factors have impeded (in the abovementioned examples and others) the emergence of socio-political correctors within the co-evolution between civil society, the state and the realm of individuals (see Figure 3) which could have avoided or stopped the breakdown forming in the co-evolution between the market and the natural environment (see Figure 2).

However, the answer to this kind of question is not easy. Firstly, the levels of income and material well-being derived from the increases in industrial output have created a generalization of habits and values within the realm of individuals which, far from applying a brake to the industrial development process, has in fact reinforced the growth of certain production and extraction activities to the point that they jeopardize ecosystems. In addition to this, although groups of individuals (including civil organizations) perceive environmental risks at an early stage<sup>4</sup>, we have seen in the previous sections that the process of diffusing ideas and achieving a social influence within the realm of civil society may take a long time; moreover, this process can stall or even retreat if the organizations do not connect with the needs, values and beliefs of enough individuals or with the sensitivity of the State. Finally, we can observe that State intervention via the regulation of certain production and extraction practices occasionally involves the erosion of the production framework which supplies goods, services and income to wide social and geographical areas (for example, the mining region of the Rhur or fishing zones of Galicia, Spain). In these cases, the State finds itself in a difficult position which may delay decision-making until it is too late.

## 5. Concluding remarks

In this work we have explored some of the dynamic implications of Hodgson's impurity principle. Drawing on concepts from evolutionary theory, we have looked at the possibility of interpreting capitalist-democratic socio-economic change as the result of the co-evolution between five structurally dissimilar subsystems: the market, State, realm of individuals, civil society and natural environment.

This attempt is, somehow, new with respect to previous theoretical contributions. These subsystems have all been taken into account in one way or another in previous works but they have rarely been analyzed together from a dynamic viewpoint. As shown by the systemic imperfections mentioned in Section 4, the consideration of these five subsystems in coupled dynamic interaction allows us to focus on the study of capitalist-democratic socio-economic change from a new perspective. It must also be pointed out that without the support offered by the concepts and thoughts of evolutionary theory, it would have been extremely difficult (or even impossible) to analyze such a complex system as proposed in this work.

Although, due to limitations of space, we conclude this work with certain systemic imperfections of advanced societies, we must point out that our proposed framework does not necessarily imply a catastrophic vision of capitalist change. In fact, this framework would allow us to explore which factors can favor a harmonious development of capitalist-democratic societies. Thus, a future challenge will be to address certain questions from the perspective of co-evolution such as: How can the formation of efficient institutions which favor the prosperity of capitalist societies be explained within this framework? What does this approach say about the viability of alternative paths for sustainable development? Can new light be shed on the classic questions regarding the relationship between capitalism and democracy from this perspective of co-evolution?

Given the inherent difficulty in these questions and the recentness of the developments presented in this document, for now we will have to leave these and other questions for future research.

## Notes

[1] Although we could also consider the State and the natural environment as evolving systems, we leave this option aside for future research.

[2] Basically, Hodgson and Knudsen define *interactor* as a cohesive whole that interacts with its environment and carries certain traits (*replicators*) that may show differential replication depending on certain properties of the interactor within its environment. We may understand by *replication*, the relationship that exists between a source and a copy such that it satisfies four properties: *causation*, *similarity*, *information transfer* and *duplication*.

[3] “Selection involves an anterior set of entities, each interacting with their environment, thereby being transformed into a posterior set, where all members of the posterior set are sufficiently similar to some members of the anterior set, and where the resulting frequencies of posterior entities depend upon the properties of the members of the anterior set evaluated in their environmental context”. Hodgson and Knudsen (2004, pg. 293). The case for the market is clear.

[4] See, for example, the history of the North American conservationist movement.

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**FIGURE 1- Capitalist-Democratic Society**

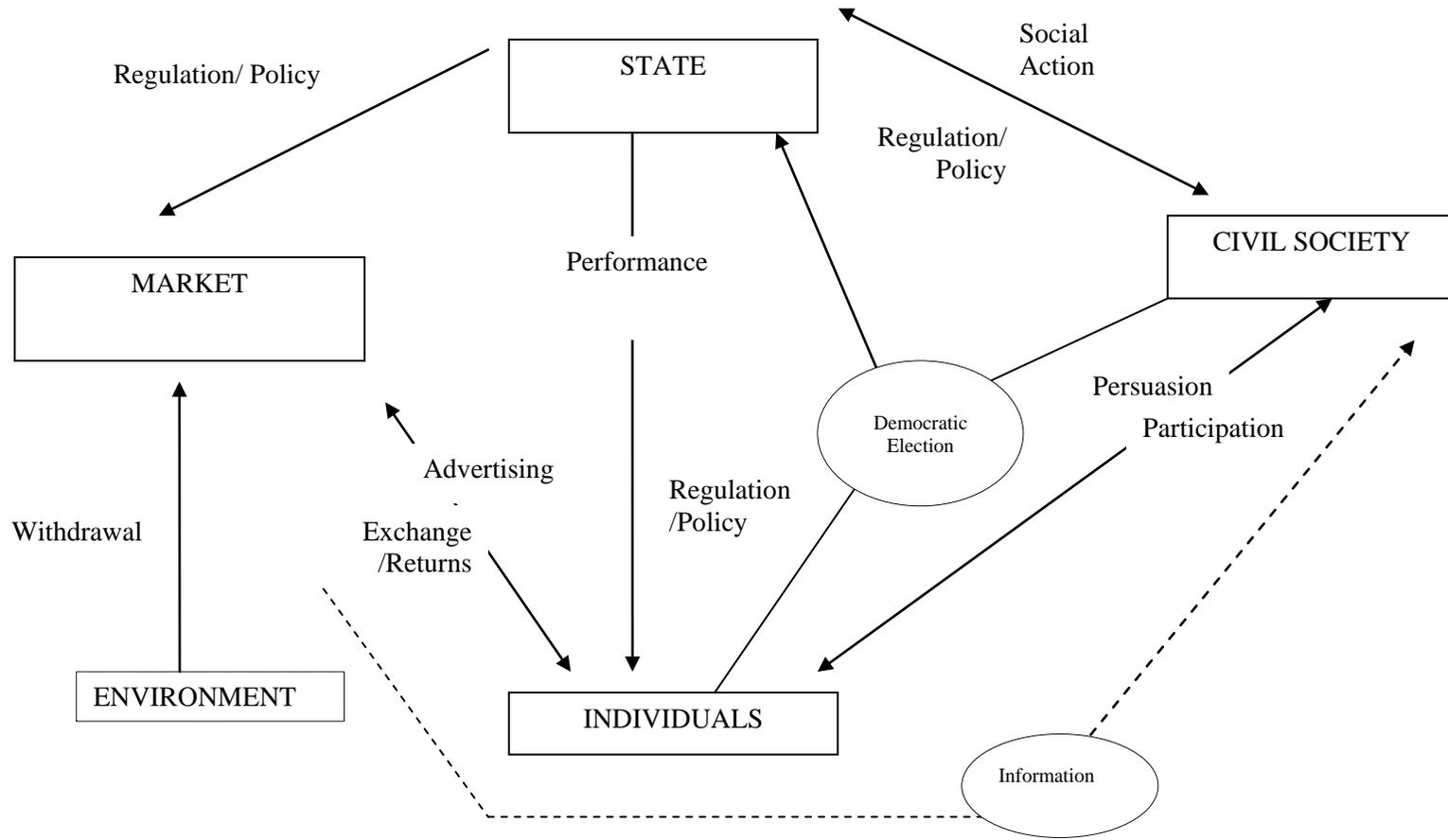


FIGURE 2- Market-Individuals-State-Environment

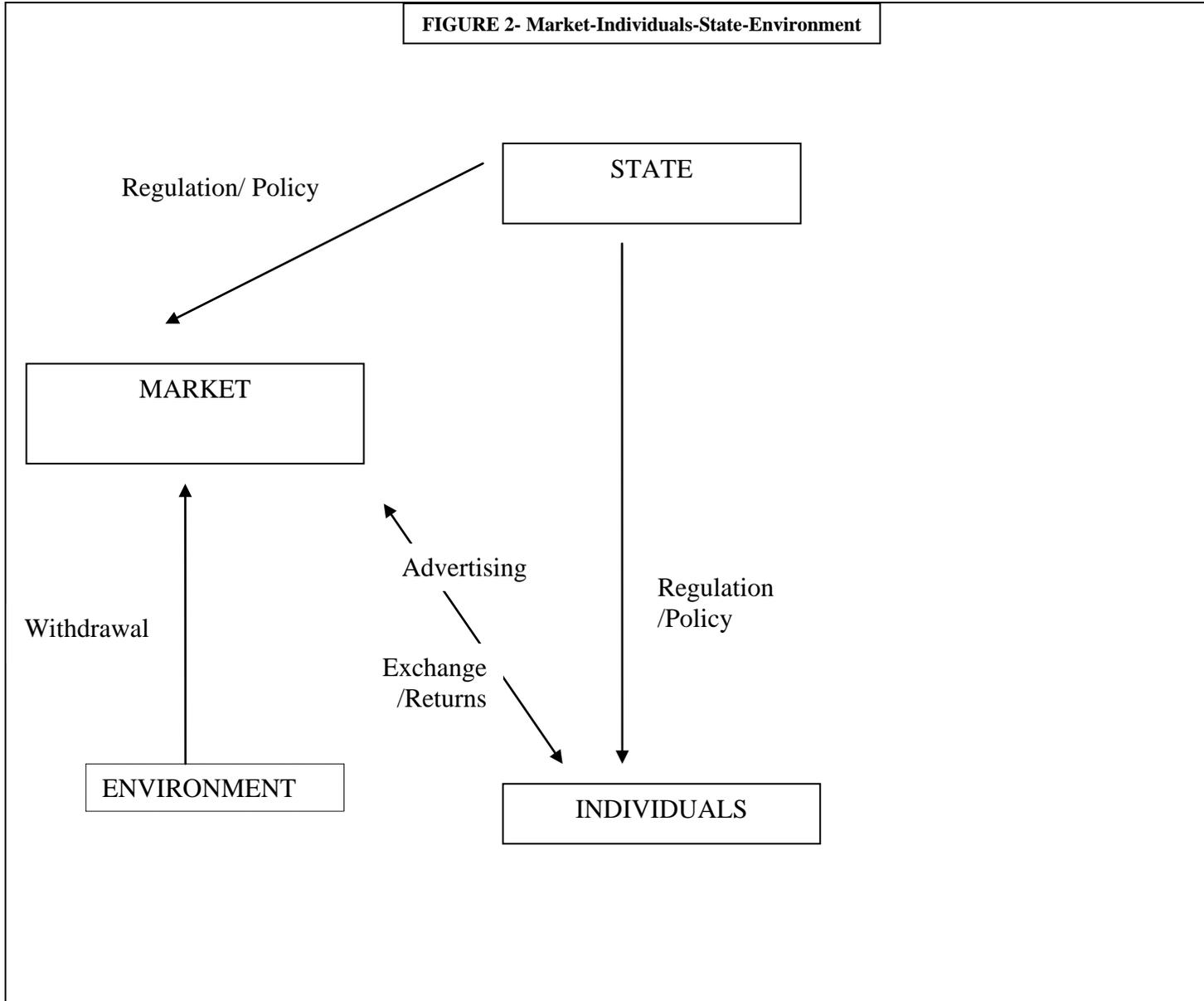
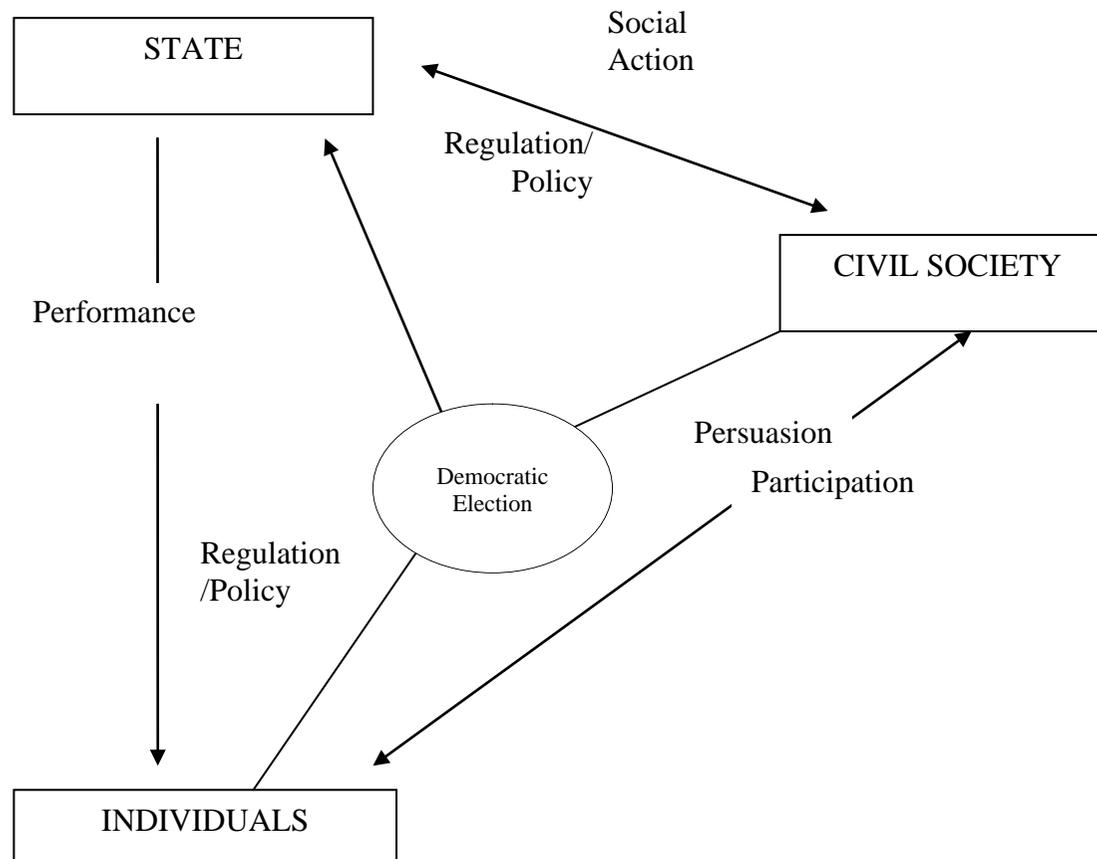


FIGURE 3- Individuals-Civil Society-State







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