

A Dynamic Systems View of Economic and Political Theory

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Introduction

Since the Early Modern period, political theory has assumed methodological individualism, similar to the atomistic mechanism that prevailed in physics. This leads to a combinatorial, linear political theory centred on individual actions serving individual interests. Similar trends developed in economics from the time of its origin as a separate science. Today, through game theory, the same formalization has been applied to both economic and political theory (e.g. Binmore 1998, Gauthier 1986, Skyrms 1996), with only the values and circumstances differing from one domain to the other. However, in physics it has been discovered that the corresponding atomistic methodology is inadequate for complex systems, and that one must allow for open, self-organizing systems that cannot be reduced to linear combinations of their components. We will argue that this sort of open dynamical systems theory should be applied to political theory as well, with results that diverge quite strongly from the ideals of Modernist political theory. We will classify several competing current approaches to political theory and its relation to economics, and indicate how some recent versions (Hayek 1949, 1988, Luhmann 1988, 2000) try to deal with complexity, but (unsuccessfully) use closed autopoietic systems models.

Our approach assumes some degree of autonomy for both politics and economics, but also assumes that each interacts with the other as an environment. We call this *interactive autonomy*. Autonomy emerges in general, on our view, through self-organization of biological and social systems. Heinz Von Foerster, who was one of the founders of self-organization theory, stressed that a self-organizing system is in close contact with an environment with which it is in a state of perpetual interaction (Von Foerster 1960: 221). For social systems this means that society and social systems are not closed systems, but that the autonomy of social systems is based on their openness and interconnectedness with other social systems and their

environment. This allows the emergence of differentiated systems whose governing laws or principles are different but dynamically interconnected. The scope of these laws can vary depending on the scope of the system, and some emerging systems will be nested within others, all being nested within the social system in general. The complexity of the overall social system is the product of successive self-organization and resulting differentiation.

We will base our discussion on contemporary circumstances, but our overall view is highly general, and we see economics and politics as differentiating within a common societal system some time in the past, each organizing around their own basic principles and scope, but with a common ground for interaction. The concept of interactive autonomy implies that a complex system functions according to its own logic and that it can only work as a system if it perpetually interacts with its environmental systems. Polity and economy are both autonomous and interconnected at the same time.

There are several possibilities for conceiving the relationship of the economic system and the political system, as laid out in Table 1. Reductionist approaches reduce political processes to economic process, i.e., they consider the economy as a more fundamental and determining system. These are economic approaches. Projectionist approaches see political processes as determining economic processes; they consider polity as the centre of society. Dualistic approaches consider the two systems as independent; they assume that each system functions according to its own logic and that there are not many interactions and influences between the systems. Obviously the amount of interaction between the two systems is a matter of degree. Game theoretical approaches are a special case that shares aspects of dualism and reductionism in that they share a common deep logic, but the differing values and circumstances of economics and politics can determine different games, with their own logics, with mutual constraints on each other when values and/or circumstances overlap (see section 2.1 below). The complexity approaches that we prefer to consider the two systems as relatively autonomous, i.e., each functions according to its own logic, but these functional logics are coupled, they depend on each other and produce each other. As we will argue, this implies a qualitatively different sort of interaction between the two systems in which the results are not determined merely by mutual constraint.

Table 1: Conceiving the relationship between economy and polity

	Economy	Polity
Reductionism (Economism)	Determining	
Projectionism (Politicism)		Determining
Dualism	Independent	Independent
Complexity	Interactive Autonomy	

Traditional Approaches for Relating Economy and Polity

Economic Reductionism

The best-known form of economic reductionism has been put forward by certain forms of Orthodox Marxism where the economic system (the base) has been considered as determining polity and culture (superstructures) in the last instance. The economic base for Louis Althusser (1969) is the unity of the productive forces and the relations of production. He argues that the superstructure contains two levels, the political-legal one (law and the state) and ideology (religion, ethics, etc.). Althusser assumes that a society is determined by several economic, political, and ideological contradictions and that change is caused by a specific contradiction that over-determines the other ones. He argues that the capital-labour contradiction is the fundamental contradiction that is always specified by the historically concrete forms and circumstances in which it is exercised. Althusser (1969) assumes two fundamental principles: 'on the one hand, determination in the last instance by the (economic) mode of production; on the other, the relative autonomy of the superstructures and their specific effectivity'. He assumes a certain independence of superstructures, but asserts that their autonomy is always overdetermined by economic production processes, i.e., class relationships. Hence superstructural forms such as the nation-state are considered as always serving mainly economic interests. For Althusser relative autonomy means that a fundamental change of economic structures does not automatically change superstructures. But nonetheless he assumes that all fundamental changes have economic roots, hence change is driven by economic conditions.

The emergence of the New Social Movements (students' movement, ecological movement, feminism, anti-globalization movement, anti-racism, civil rights movement, peace movement, etc.) has shown that political processes do not necessarily derive from economic

classes alone. Many contemporary forms of Marxism such as French regulation theory have acknowledged the relative autonomy of polity and culture. Regulation theory assumes that a capitalist mode of development consists of a regime of accumulation (economy) and a mode of regulation (polity) that both have their own specific antagonistic structure, and that a capitalist crisis can find its origin in either system (cf. Fuchs 2004a).

Game-theoretic approaches form another type of economic reductionism. ‘Game theory is the study of the ways in which strategic interactions among rational players produce outcomes with respect to the preferences (or utilities) of those players, none of which might have been intended by any of them’ (Ross 2004). Game theory has both a descriptive and prescriptive side. If the players are rational, they will act according to game theory, so game theory describes the behaviour of rational players. On the prescriptive side, in a given situation, with well-defined strategies, outcomes and preferences, game theory tells us what rational players should do. Given its general form, game theory applies equally to economics and politics. Though much of its early development was in economics, it was soon applied to political problems and reasoning. More recently it has been applied to understanding morality and political theory (Gauthier 1986, Skyrms 1996, Binmore 1998). In our classification of the relations between economy and polity game theoretic approaches can be considered as economic reductionism because in game theory rationality is conceived as economic rationality in which agents try to maximize their reward. Qualitatively different values, intentions, and motives of agents are not taken into account and one is left wondering if creative agency has any role to play.

Dualistic Approaches

Dualistic positions argue that the political and the economic system are independent and that political intervention into the economy is harmful or has an unpredictable outcome. Such positions are characteristic of the dominant neoliberal ideology and can be found, for example, in Evolutionary Economics that stands in the tradition of Friedrich August von Hayek and in the strand of systems thinking that has been influenced by Niklas Luhmann. This approach is of special interest to us because it tries to incorporate some basic principles of complexity theory.

Friedrich August von Hayek argued that the market economy is a spontaneous order that doesn’t serve specific purposes and continually

produces new system states. There are only abstract contextual rules, and predictability of the system's development is very limited. Hayek calls spontaneous orders *cosmos* or *catallaxy* and holds that intervention into spontaneous orders like the market by systems like the state would harm society. He conceives the economy as a fully autonomous system that is capable of steering and organizing itself. Hayek's main thesis is that spontaneous orders cannot be steered and that outside intervention is harmful. For Hayek society is guided by Adam Smith's invisible hand so social relationships are not actively planned, but are unconsciously and spontaneously organized. 'We are led — for example by the pricing system in market exchange — to do things by circumstances of which we are largely unaware and which produce results that we do not intend' (Hayek 1988: 14). The market and other institutions would enable the human beings to use widely dispersed information that no central planning agency could ever know, possess or control as a whole. Prices would coordinate separate actions of different people, the price system being a 'mechanism for communicating information' (Hayek 1949: 86f). The extended spontaneous order could not be designed and consciously shaped by human beings, because complexity and knowledge would be created continually by people making many decisions independently from each other according to their own purposes. The market would spontaneously and undesignedly coordinate the activities in such a way that order is created. Some actors would gain economic and competitive advantages, but these advantages would be communicated to others over the market. This would allow them to adapt to these changes, advancing economic evolution spontaneously, without human guidance. It would be a 'self-ordering process of adaptation to the unknown' (Hayek 1988: 76). The political system would only be necessary for providing abstract rules that secure private property, i.e., protect individuals from invasion to their 'free sphere' (Hayek 1988: 63).

Some representatives of Evolutionary Economics who stand in the tradition of Hayek argue that the theorem of the invisible hand of Adam Smith shows that the market economy is a self-organizing system, that the market can fully regulate itself and that hence human intervention would be harmful (e.g. Witt 1997; Kelly 1995, 1999). The self-regulation is of the same sort proposed by game theory, so these authors are calling for complete independence of the market, without even the overlapping constraints allowed in game theory when there are common values or overlapping circumstances between the economic and political spheres.

The other important dualistic approach besides Evolutionary Economics is Niklas Luhmann's social systems theory. Scientists that stand in this tradition argue that modern society is inherently centreless because each subsystem would have its own logic and mode of self-organization. Due to the complexity and networked character of modern society, it would have a polycentric and decentralized character and it wouldn't be possible for one subsystem to influence, steer, or regulate others. Luhmann (2000: 215f) argues that the welfare state tries to solve all problems of society, but that this is impossible because polity is just one subsystem of a functionally differentiated society and is swamped with solving problems of other subsystems. For Luhmann all subsystems of society (polity, economy, family, legal system, education, mass media, religion, science, etc.) are functionally differentiated, i.e., they have their own autonomous self-referential autopoiesis. Hence it would be impossible for one subsystem like polity to steer others. 'In a functionally differentiated society there is neither a top nor a centre that could represent society in society and hence could give access to its "essence". [...] All function systems realize a dramatic increase of their own relevance and of their own efficiency in society, but none of them can make a claim on representing society in society' (Luhmann 1988: 253).

Luhmann mentions that due to the activities of the state other systems can realize their own self-constitution without continual intervening physical force (Luhmann 2000: 57f), and says that economic topics play a significant role in politics (Luhmann 2000: 111). He also mentions that the liberalization of economic action is in need of 'corrective and compensating measures of the state' concerning unjust distributions of wealth and the basic conditions for the functioning of the economy (Luhmann 2000: 209). This shows that Luhmann did not believe as much in the autonomous, self-regulating capacity of market forces as Hayek did.

Richard Münch (1993) agrees that Luhmann's theory of self-referential communication systems and functional differentiation of modern society results in the concept of a society without a centre. For Luhmann each functionally differentiated subsystem is focused on one specific function and one specific criterion of success or failure, so that it is blind to other interests and values. Münch objects that in reality the activities of systems are based on many ends at the same time with a 'multiplicity of action-orientations' (Münch 1993: 54) that cannot be separated strictly. Generalizing this critique we can say that Luhmann is blind to the openness and interconnectedness of

systems; he conceives them as closed and fully self-sustaining. We believe that Luhmann's concept of function systems misrepresents the reality of contemporary networked society where systems are increasingly open and interconnected. Furthermore Luhmann excludes human beings from social systems (for him they are sensors in the environment of a system) and he ignores social problems (Cf. Fuchs 2003b, 2003c, 2006b). Hence Luhmann's theory is uncritical and tends towards affirming society as it is. Armin Nassehi (2005) argues that Luhmann's theory does not reject or refuse the participation of human beings, but a closer look at it shows that for Luhmann actors do not creatively produce communication processes, but are treated as passive bearers of communication structures that do not emerge from their activities, but are imposed on them.

Many scientists who have been influenced by Luhmann's thinking argue that society is inherently centreless, polycentric, uncontrollable, and unregulable (e.g. Dunsire 1996, Little 2001; Kickert 1992a, 1993b; Willke 1989, 1995). Andrew Dunsire applies Maturana's and Varela's concept of autopoiesis as self-reproducing systems to governance and argues that due to the autopoietic character of governance social systems are 'unregulable from any centre if not altogether ungovernable' (Dunsire 1996: 301).

These examples show that based on a certain interpretation of the notion of self-organization one can argue that all subsystems of society are operationally closed and autonomous, so state intervention is harmful and has unpredictable outcomes. Hayek's theory has been highly influential, having tremendous consequences for contemporary policy design. Hayek's reductionistic misconception of society leads to the assumption that all deliberate intervention is harmful, hence humans should not intervene into social structures. This hypothesis ignores the role of creative human agency in social development, and that the self-organization of society is not something that happens only blindly and unconsciously, but depends on conscious, knowledgeable agents and creative social relationships that result in actions that have both planned and unintended consequences. Hayek's approach sees only the unintended consequences of intervention in complex systems, and labels these as harmful because the operation of the invisible hand is seen as inevitably beneficial.

Hayek's assumptions have been empirically falsified. State policies in the industrialized countries have during the last 20 years been increasingly based on a reduction of social intervention into the economy. Hayek's assumption that the economy is capable of ordering

itself spontaneously without regulation has been put to test. The result has not been what Hayek and other believers in the beneficence of the invisible hand predicted. There has been an increase of general wealth, but the increasing rise of poverty, unemployment, wage inequality, asymmetrical distribution of income and wealth, and a massive increase of insecure and precarious living conditions has shown that an elite benefits at the expense of the majority. These consequences of economic liberalization contrast with the general rise in median wealth and redistribution of wealth, at least in developed countries, during the period of politically motivated social investment in the decades following the Second World War.

Theories like those of Hayek and Luhmann are ideologically biased; they try to scientifically legitimize a rigid capitalistic order and the near global dominance of economic logic. The practical realization of Hayek's theory of spontaneous order formation and of Luhmann's theory of functional differentiation can be characterized as neoliberal ideology. Neoliberalism aims at creating a framework for the economy that makes it possible to raise profits by minimizing the costs of investment, reducing social security, preaching the capability of the market to regulate itself without human intervention, as well as self-help and self-responsibility of the individual for his/her problems. This results in deregulation, precarious job relationships, the dismantling of the welfare state, deterioration of labour and social policies, lowering of taxes on capital, flexible labour times, the privatization of formerly public services and industries, the liberalization of international trade policies, the rise of new free trade associations (EU, NAFTA, APEC, AFTA, MERCOSUR, etc.), etc.

Neoliberal ideologies claim that the economy is independent from society, that the market is the best means of organizing production and distribution efficiently and globalization requires the minimization of state spending especially for social security. These developments are presented as inescapable, self-evident and without alternative. Neoliberalism results in precarious living and working conditions of a large, steadily increasing part of the world population. Neoliberalism has resulted in the dominance of the economic system in society; economic logic permeates all social realms. This is a form of centralization, showing that 'spontaneous market-based order formation' does not lead to decentralization, as assumed by Hayek and Luhmann. The structural coupling between the economy and other subsystems of society is becoming more rigid in the direction that the economy influences these subsystems. We will argue in section four

below that this is a more or less inevitable result of applying neoliberal ideology, and that deregulation of the economy, far from leading to social stability, leads to social instability.

The dualistic separation of polity and economy has been questioned by the tradition of Marxist political analysis. This tradition was started by the works of Marx and Engels who considered the state as an engine of class despotism and has been continued, for example by French structuralist and poststructuralist thinkers like Nicos Polantzias, Gilles Deleuze, Félix Guattari, or thinkers like Robert Jessop and Joachim Hirsch who are representatives of regulation theory. They all have in common that they stress the close relationship and mutual enforcement of the capitalist economy and the state system. Gilles Deleuze and Félix Guattari (1992: 587-655) argue in this context that the state is an apparatus of capture of flows of people, commodities, money, etc. that realizes the capitalist axiomatic.

Projective Politicism

Opposed to the views of Hayek and Luhmann, one finds scientists that argue that the organization of society is based on human intervention and that the state must function as a centre of society in order to enable the functioning of society. Polity is considered as a central and foundational system of society.

Walter L. Bühl (1991) argues that applying autopoiesis to society supports the ideas of deregulation and the state having to retreat from society in order to guarantee the latter's continued functioning. Luhmann, Willke, Teubner and others who argue that functionally differentiated society is becoming centreless would deny aspects of domination and preach abstention from action as well as resignation. Problems of design, control, and planning do not disappear by saying that one should stress autonomy instead of control. The thesis of the non-steerability of complex systems would result in the legitimization of inactivity and of an incapability to act. Bühl stresses the possibility of acting in and controlling autopoietic systems to some extent.

Matthias Beyerle (1994) argues that the human being is the central feature of society and that Luhmann ignores its importance. Luhmann and others would have the state be detached from the real conditions of its existence; the dethronement of the subject would be accompanied by a dethronement of the state. Polity, according to Beyerle, is a system that secures the self-protection and reproduction of society, guaranteeing the living conditions of the individuals and solving col-

lective problems. The state is a coordinating centre (Beyerle 1994: 240) of society, emerging through the autopoiesis of society. It has the task of leadership and makes use of force in order to exert its influence. Heteronomy as an organization principle of the state would guarantee the self-organization of society as a whole. According to Beyerle, Willke's notion of a centreless co-ordinating state is illusory because the realization of such a conception would result in 'endless talks'; the *possibility* of authoritarian decisions is the foundation for all political co-ordination. Carl Schmitt (1985) used the same argument in attacking democratic systems by arguing that they are based on 'endless discussions' and for advancing totalitarian concepts of society. Beyerle suggests that the state should use its authority in order to promote and 'advertise' solidarity and co-operation of all subsystems and individuals.

Such approaches overemphasize the role of the state in contemporary society and do not see that neoliberal policies weaken state activities and that idealizing the nation-state is dangerous because it contains totalitarian potentials as Fascist systems and the Soviet system have shown.

An Interactive, Dynamic Complexity Approach to the Relationship of Polity and Economy

An alternative to these three approaches is a complexity approach that avoids rigid immutable logic, considering polity and economy as self-organizing and mutually connected, i.e., each system has its own logic of operation, but its continued existence and development requires that it is open, mutable, and receives inputs from other social systems. This reflects the insight that systems can only be autonomous and self-organizing if they are open and networked. We first want to explain the autonomous logic of self-organization of both the economic and the political systems in modern society.

The Self-Reproduction of the Economic System in Modern Society

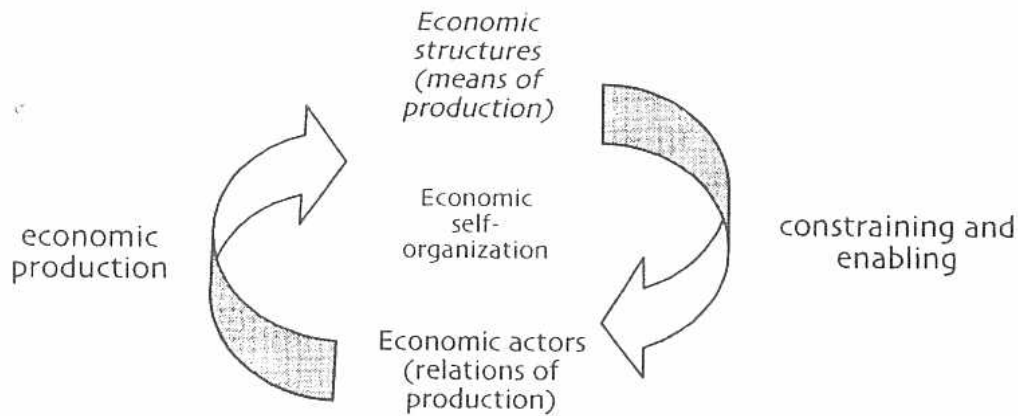
Economy, polity and culture in modern society are based on asymmetrical flows and accumulation of capital, power and hegemony. These accumulation processes are autopoietic or self-producing in the sense that the system reproduces itself by transforming its elements, thereby creating its unity. Such processes can be described in

terms of self-organization through the mutual production and interconnection of social actions and social structures (cf. Fuchs 2003b, c). The resulting structures are both the medium and outcome of social actions; furthermore, they both enable and constrain social actions. In this sense social systems are re-creative. Re-creativity is based on the creative activities of human actors, since social structures exist in and through their productive practices and relationships. Social self-organization is a self-referential, cyclical, reflexive, interconnected, double-sided process of mutual production (Fuchs 2003c).

In the economic cycle of self-organization more capital is produced from an initial amount of money capital. Through a dialectical process between productive forces and relations of production, where relations of production describe the ways of social mediation between the opposing classes that act as agents in economic processes, and productive forces are a systemic totality of living labour force and factors that influence labour. Living labour and its factors change historically, dependent on some concrete social formation (such as capitalism). The influencing factors are personal ones (physical ability, qualification, knowledge, abilities, experience), social ones (technology, science, amount and efficacy of the means of production, co-operation, means of production, forms of the division of labour, methods of organization), and natural ones. The forces driving the economic dynamic can only be viewed in their relationship to living labour. The system can never be reduced to its component forces; it is more than the sum of its parts, being an integrated whole that binds together and gives being to specific economic processes.

Human beings make use of productive forces as foundations of production processes to change the material state of nature. As a result nature is appropriated, differentiated and transformed into a social fact, i.e., economic goods that satisfy human needs. The production of economic resources takes place within relations of production that have a specific historical form such as in. Produced economic goods are distributed and consumed, thereby entering the system of the productive forces to function as part of the foundational system of human labour. Hence the whole process takes on the form of a productive cycle that interconnects productive forces and relations of production in such a way that we find the continuous dynamical emergence of economic resources from human labour practices (cf. figure 1).

Figure 1: The process of economic self-organization



In modern society this process takes on the form of capital accumulation, i.e., the autocatalytic expansion and creation of capital based on the extraction of surplus labour (Fuchs 2004a, Fuchs and Schlemm 2005). Economic goods take on the form of commodities, their character in the economy is determined by their exchange value, and relations of production take on the form of class relations.

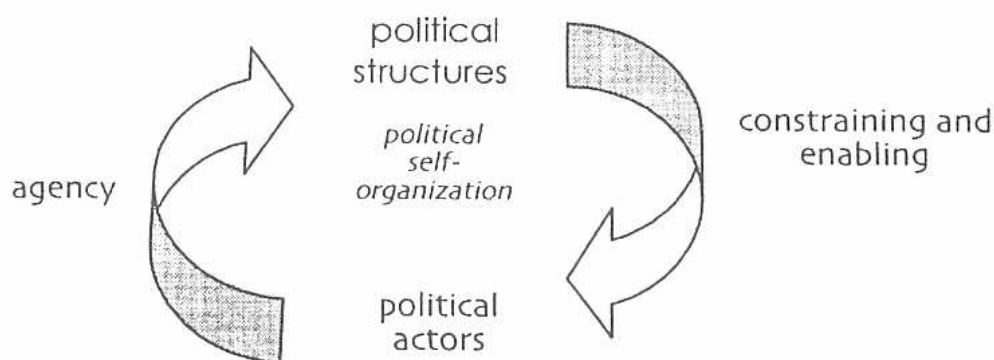
The Self-Reproduction of the Political System of Modern Society

In modern society, the state is the predominate unit of political self-organization. It is based on organized procedures and institutions (representative democracy) that form the framework of the competition for the accumulation of power and political capital. Various groups compete for power; an increase of power for some groups automatically means a decrease of power for others. The state is a form of political self-organization that is based on asymmetrical distributions of power, domination, the permanent constitution of codified rules (laws) through legislation, sanctioning and controlling execution of these rules and punishment of disobedience and violation of these rules (jurisdiction). Political parties/groups want to shape these processes according to their own will and hence compete for influence and the accumulation of power.

The political system deals with collective decisions concerning the way life conditions are set (including how economic resources are used and how they are distributed). In modern societies the political relationships that individuals enter based on political forces are political groups (political parties and political organizations in civil

society) and relationships between these groups that follow organized procedures (political discourse, elections, protests, parliamentary discussions, etc.), through which a specific disposition of political power is formed and political conflicts may arise. This results in the emergence and differentiation of political forces. The important political force is power. Power can be defined as the disposition over the means required to influence processes and decisions in one's own interest; domination refers to the disposition over the means of coercion required to influence others, processes and decisions. Power is a social force in the sense that it can be considered as a materialization of the relationships of political groups. Collective decisions (such as laws), power structures (such as government, parliament, councils etc.), political institutions (such as ministries, bureaucracy, courts, public offices and departments) reflect the existing power relationships and the existing distribution of power.

Figure 2: The process of political self-organization



Political relationships determine how power is constituted, distributed, allocated and disposed. Political forces are both the foundation of political relationships and are differentiated and developed by political relationships. In modern society, basic political relationships are laws and the state. They influence individual actions/thinking and political forces. Political re-creation/self-reproduction is a double process of agency (decision procedures) and enabling/constraining. This is the basic cycle of political re-creation/self-organization (Figure 2, cf. Fuchs 2004b, 2006c). In relation to available power resources, decisions are reached in polity in order to organize the functioning of society. Political relationships result in the emergence of new power structures. These structures enable and

constrain the actions of the human beings in a society and result in new political activities that set themselves goals of changing or maintaining existing rules and dispositions of power. On the structural level of the political system we find a mutual relationship of political relationships and political forces: The active relationships between political groups (governmental parties, opposition parties, non-parliamentary opposition and support groups) result in the emergence of new political forces/power resources (decisions, laws, rules, political institutions, allocation of offices, appointment of civil servants, etc.). These forces enable and constrain the political actions of political groups and result in further political commitments, new goals, ideas, etc. The political system is a dynamic system that is based on the continual emergence of new power structures. Political agency is a creative activity that results in new properties of society, based on knowledgeable, reflective human actions new political realities are constructed and established. Based on the fundamental human properties of creativity and innovation, polity itself is a (re-)creative system that continually reproduces itself in and through political agency.

The basic process of self-organization of the state is the competitive relationships between political groups that result in a particular distribution of power and the continual emergence of new features of this distribution (laws, regulations, cases, filling of public offices and civil services according to specific political interests, etc.). These new emergent qualities enable and constrain political practices and political engagement for stabilizing or changing a certain constellation of power. Political practices that constitute the modern state include running for political offices, elections, parliamentary debates, the working out of bills, the passing of laws, political discussions (also in everyday life), political media coverage (press, television, radio, Internet, etc.), protests (petitions, demonstrations, strikes, etc.). Existing laws and political events (the outcomes of the enactment of laws and the processes of establishing new laws) stimulate political organization, they result in new, emergent properties on the level of political groups, i.e., in new ways of thinking and acting that try to stabilize or change the existing distribution of power. The development of the state is not a static, but a dynamic process; it is based on the continuous political interactions of various political groups that result in the emergence of new political capital/power structures that stimulate further political actions which try to stabilize or change the existing distributions of power. Competition and

accumulation of power are fundamental aspects of the self-organization of the modern nation state.

Elections are important mechanisms for stabilizing and changing existing distributions of power within the state. Political parties compete for votes that determine the distribution of power within the system of rule. Elections and economic markets have certain similarities. Joseph Schumpeter stressed that modern democracy is a product of the capitalistic process (Schumpeter 1950: 471) and Anthony Downs' main hypothesis was that parties in a political system are analogue to corporations in a profit-based economy (Downs 1968: 295). Both the economic and the political system of modern society are based on accumulation and competition. Modern representative democracy is based on the accumulation of power and votes; the central motive of politicians is the pursuit of power in order to realize their political ideas and programs. Politics in modern society is oriented to its exchange value: Political decisions and positions that are based on a certain amount of votes are exchanged for an increase or decrease of votes during the next elections. Politicians strive for increasing their power by being positively evaluated by the voters after the end of a legislative period. Elections are based on the exchange of representation/decisions and votes. They are procedures for increasing and decreasing the power of political groups that are part of the system of rule. Parties also try to increase their (political and economic) power by increasing the number of memberships.

Elections take place every few years; this means that the distribution of power within the system of rule changes slowly. The electoral subsystem of polity is reproduced in a process of slow, conservative autopoiesis whereas the autopoiesis of the whole state system continually reproduces itself due to synergetic interactions between political groups that result in new qualities. If one compares the self-reproduction of the modern economy with the self-reproduction of the system of rule one discovers that the economic reproduction process (i.e., the accumulation of money capital) takes place continually, i.e., the total amount of economic capital is continually increased and re-distributed. This is a very dynamic process. Political power also changes continually in the sense that new political groups, laws, views, ideas, regulations, etc. emerge, but the distribution of power between the elements (parties) of the system of rule only changes slowly. Chance and discontinuity are only introduced once every few years into the system. Representative democracy and its electoral system are based on conservative types of

autopoiesis. This conservative type of self-organization results in dichotomies and asymmetrical distributions of political power. It functions through dichotomies of government/opposition and parliament/people. This means the constitution of exclusiveness and the delegation of the competence for reaching decisions to certain political groups. In the representative political system we are confronted with asymmetries and dichotomies in a double sense: First, the dichotomy of electorate and the ones elected; second, the dichotomies of government/opposition and majority/minority. The organization of the state functions in accordance with the principles of exclusion and competition, the political laws that are produced are exclusive social structures. In modern society, laws are constituted by a specific subsystem of polity (government, parliament). This type of political autopoiesis is inherently hierarchical, asymmetrical and a type of top-down-constitution of decisions. In contrast, dynamic types of political self-organization where decision power is redistributed and reproduced continually occur in organizations and systems that are based on the principles of direct democracy and self-government. In such systems there is a more symmetrical distribution of power and all individuals concerned by certain collective decisions participate in the constitution of these decisions. In processes of discursive communication they try to reach a consensus on certain decisions.

The state is not just made up of institutions and parties; the system of political rule interacts with the civil society system which comprises all non-parliamentary political groups. Hence the state should be understood in an integral sense as 'political society + civil society' (Gramsci 1971: 263).

The Complex Relationship of Economy and Polity

Economic values (wealth, subsistence) and political values (freedom, security) are not entirely independent, though many economic processes and political processes can go on without any interaction with the other realm. In particular, economic subsistence is required for political security, and for most situations in modern society some wealth is required for most freedoms to be exercised. Similarly, some freedom and security are required for the pursuit of wealth in any realistic circumstances. Thus there is some coordination of basic economic and political needs, and in this sense there is an overlap of values. On the other side it should be recognized that concentrations of wealth convey political power to at least some degree (at the very

least because wealth conveys greater freedom, if not security). Likewise, concentrations of political power at least make it easier to attain wealth, all other things being equal.

In relating economy and polity we do not want to automatically give primacy to one of the two systems because this can result in deterministic and simplistic arguments that derive the logic and functioning of one system from the logic of the other system. The approaches presented in Section 1 are all restrictive: either the economy or polity is considered as a determining system or the domination of the economy is legitimated by assuming the existence of closed, fully autonomous systems. The latter approach is also deterministic in the sense that it sees social development determined by closure and does not take into account networking and openness of systems, hence it is undercomplex. Why is a complexity approach superior to linear thinking and mechanistic determinism?

- Mechanistic determinism sees human beings as incapable of acting and transforming social systems and gives priority to structures over human practices.
- Mechanistic determinism underestimates the importance of social action.
- Mechanistic determinism underestimates aspects of chance in social systems.
- Mechanistic determinism gives simplistic explanations.
- Complex explanations are more realistic and credible than simpler ones.
- Mechanistic determinism is characteristically uses a one-dimensional rationality.
- A globalizing society dynamically increases its complexity; hence complexity approaches are needed in order to explain global society.

The problems can be readily seen in Hayek's preferred relation between polity and economy. Hayek's main thesis is that spontaneous orders cannot be steered, but lead to the best result themselves; therefore, outside intervention is harmful. However the subsystems of modern society are not closed systems that can realize their self-organization independently and autonomous from the human being and other subsystems. The economy is not fully autonomous because it is based on antagonisms that produce crises and 'market failures'. For example, since economic success increases the likelihood of further

economic success, concentrations of wealth are autocatalytic. Left unfettered, concentrations of wealth will tend towards large scale monopolies. The results are not socially sustainable. The problem has been recognized for some time now in the form of anti-trust legislation. Likewise, concentrations of political power are autocatalytic, and are subject to the same internal justification in political terms as concentrations of wealth are in justifiable in solely economic terms, but such concentrations are socially unstable. Regular elections and means to encourage new parties and NGOs are now well-recognized to be necessary controls on the concentration of political power.

As our notion of interactive autonomy stresses, social systems are open and interconnected. This logic is necessary to explain the networked, complex, global character of contemporary society. Economy and polity are mutually dependent; each can realize its self-organization only with the help of the other. It is simply wrong to claim as Hayek and others do that the economy can and should be an autonomous system and that state intervention caused the crisis of modern society. Such arguments are unrealistic constructions that serve certain ideological purposes. The modern economy has never and will never be autonomous from the nation-state. If either the nation-state or the system of capital accumulation broke down or lost its fundamental functions, this would also mean the collapse of the other system.

The assumption that human beings should not politically intervene into the capitalistic economy implies that the possibilities of participation shall be minimized and that economic interests shall become all-determining. It is not feasible that a system like society works the best way when responsible, decision-oriented political action is missing. Such theses overlook that humans are active beings who possess the ability to change the reality in well-rounded and responsible ways such that all can benefit. Human agency and political practices are aspects of all societies; they are necessary conditions for the functioning, differentiation, and cohesion of all social systems. The global problems of society are not due to the fact that there is not enough 'free market'; they are due to the antagonistic and conflicting character of modern society. The capitalist economy is a crisis-ridden, antagonistic system that in its development produces market failures. The state as a regulatory system tries to compensate for these failures in many respects; hence conscious state intervention is a necessary condition for the existence of capitalism. All societies need mechanisms that enable the cohesion of social relationships. A mode of regulation

describes the institutional framework of the important social processes. These institutions have public, semi-public and private character and are oriented on decision-based actions. Decisions are necessary elements of the development of all social systems; hence polity is an aspect of all social systems and societies. The self-organization of a system such as the economy is in need of political regulation. Without political regulation, i.e., decision-oriented human action, there can be no society and no economy. Hence it is wrong to argue that economic systems can or should be self-sustained and that political intervention is harmful.

It is an illusion that modern society functions better by minimizing regulation. Neoliberalism has individualized regulation, but state activities are still decisive in guaranteeing capital accumulation. Neoliberal capital accumulation, as it currently stands, is based on a great deal of state intervention in the areas of subsidising economic corporations, and increasing the degrees of self-observation, self-description and self-containment of society.

Economy and polity are *relatively* autonomous systems, they both have their own practical and structural logic that in modern society is one of accumulation and heteronomy, and they are connected to and based on social processes in other systems. Economy and polity are neither autonomous nor externally determined; they are systems that are based on external and internal social determination.

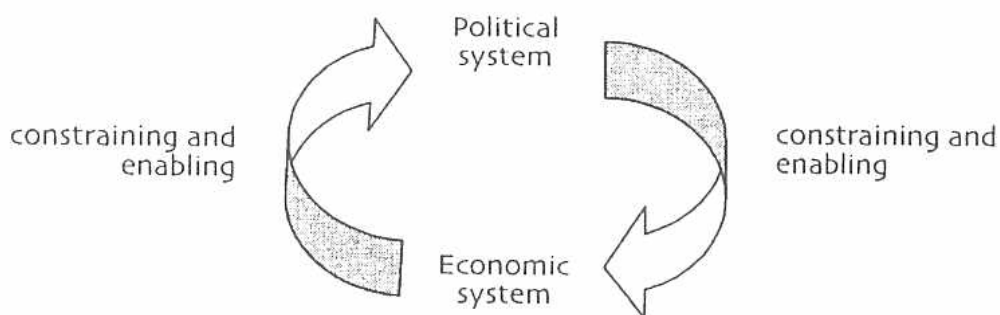
Society has an economic base, i.e., humans must firstly produce subsistence (food, shelter, etc.) before they can reach political decision and become artists. The base is formed by those systems of society that are necessary for its immediate existence, whereas superstructural systems are only indirectly necessary. Society consists of interconnected subsystems (ecology, technology, economy, polity, culture). Polity is not the mechanical reflection, i.e., a linear mapping, of the economy: it cannot be deduced from or reduced to it. All human activity is based on producing a natural and social environment. It is in this sense that the notion of the base is of fundamental importance. We have to eat and survive before we can reach decisions and enjoy leisure, entertainment, arts, etc. The base is a precondition, a necessary, but not a sufficient condition for the superstructure. The superstructure is a complex, nonlinear creative reflection of the base; the base is a complex, nonlinear creative reflection of the superstructure. This means that both levels are recursively linked and produce each other: economic, political, and social practices and structures trigger creative cultural processes, and cultural

practices and structures trigger creative economic, political, and social processes. The notion of creative reflection grasps the dialectic of chance and necessity/indetermination and determination that shapes the relationship of base and superstructure. There isn't a content of the superstructure that is 'predicted, prefigured and controlled' by the base, the base 'sets limits and exerts pressure' on the superstructure (Williams 2001: 165). The base sets limits and exerts pressure on superstructures, it enables and limits their variety, the superstructure sets limits and exerts pressure on the base, it enables and limits the latter's variety.

Basic social and economic production processes constrain, but do not mechanically determine, superstructural ideational practices and structures. They are a necessary, but not a sufficient condition for polity and culture. Economic capital has specific enabling and constraining effects on polity and culture. Culture and polity that form the superstructure influence the economy in processes of downward causation. Base and superstructure are both socially constructed and hence material in nature.

We argue that the relationship of economy and polity is complex and hence not automatically determined and pre-stabilized. It is a result of historical processes and social struggles, i.e., the relationship of economy and polity can change historically. In modern society the self-production of the economy and of polity depend on each other, i.e., they produce each other — the self-production of the economy produces the self-production of the political system and the self-production of the political system produces the self-production of the economic system. Economy and polity form a mutually producing hypercycle of self-organizing processes (cf. Figure 3).

Figure 3: The complex, mutual productive relationship of economy and polity



Why is the economy based on polity in modern society? The state regulates economic autopoiesis, i.e., its own autopoiesis organizes certain necessary conditions of economic accumulation. The maintenance and actualization of property rights is an important aspect of the autopoiesis of politics that enables the autopoiesis of the modern economy. The state and the economy are structurally coupled and mutually dependent: the economy is in need of certain laws that enable economic accumulation, while the state depends on economic accumulation and the taxes derived from capital and wage labour. Economic and political autopoiesis are mutually dependent and coupled; their autonomy is only a relative one. This means that in order to make capital accumulation possible for a certain period of time, political regulation of the economy is necessary. French regulation theory has shown that a regime of capital accumulation needs a mode of regulation: there is 'the need for extra-economic institutions to compensate for partial or total market failure' (Jessop 2002: 43).

The state realizes in its autopoiesis certain general conditions necessary for economic autopoiesis. The economy cannot cope with its own complexity; it cannot contain in itself all the conditions necessary for its autopoiesis. Hence the state takes over certain of these tasks and integrates them into its own autopoiesis and helps to reduce the complexity of the economy. These activities of the state can include welfare, wage policy, labour legislation, subsidies, taxation, property rights, regulation of competition, antitrust laws, contract laws, research politics and subsidisation, central bank policies, etc. The capitalist economy is a crisis-ridden, antagonistic system that in its development produces market failures. The state tries to compensate for these failures in many respects. The basic conditions of economic autopoiesis secured by the autopoiesis of the state can also include the organization and maintenance of infrastructures like transportation, energy supply, communication, education. These infrastructures *can* have and frequently do have a public character, but this need not be the case as the privatization and deregulation of public infrastructure that has taken place in many countries in recent years shows.

Why is polity based on the economy in modern society? The autopoiesis of the state is in need of taxation, i.e., on money stemming from the economic production process. Taxation means that a certain share of wages and profits is collected by the state in order to finance its own autopoiesis. The autopoiesis of the modern economy is based on the accumulation of money (capital). The state decreases the mass of accumulated money and distributed wages and hence negatively

influences the autopoiesis of the economy in order to employ these means as a foundation of its own autopoiesis. Not only economic autopoiesis is based on the state, all activities that constitute the autopoiesis of the state are based on economic autopoiesis. Taxation is in need of a specialized bureaucratic apparatus (revenue offices, tax collectors) that monitors and accredits the income of all members of society. Hence taxation is bound up with the surveillance operations of the state. The participants in modern society have the duty to pay taxes; the state monitors whether all subject to this duty try to evade taxes. Money stems from economic autopoiesis; its foundation is produced by the self-valorization of capital. The state controls and regulates in addition to the tax system the money system, thereby reducing the complexity of the economy.

An Alternative: Co-operation and Self-Organization

The subsystems of modern society are neither determined systems nor closed systems that can realize their autopoiesis independently and autonomously from the human being and other subsystems. The economy is not fully autonomous because it is based on antagonisms that produce crises and 'market failures'. Economy and polity are mutually dependent: each can realize its autopoiesis only with the help of the other. The state depends on taxes that it derives from the production process and is related to economic conflicts and struggles, the economy depends on regulatory frameworks that the state guarantees with its monopoly of violence.

Transnational corporations (TNCs) are important political actors today; the globalization of the economy has changed the character of the nation-state — the competitive state has emerged (Fuchs 2003a). It is wrong to argue that the role of the state has not changed and that it still can be considered as the top and centre of society, but it is also insufficient to argue that the state has almost disappeared and has become unimportant. The character of the nation state has changed, but it remains an integral feature of modern society.

No single subsystem of society can determine the behaviour of others, but there are mutual dependencies and influences and the coupling in each direction can have different degrees ranging from low (loosely coupled) to high (strong, rigid coupling). Society is a complex system with multidimensional causality. Causes and effects cannot be mapped linearly: similar causes can have different effects and

different causes similar effects; small changes in causes can have large effects, whereas large changes can result in small effects (but nonetheless it can also be the case that small causes have small effects and large causes large effects). Modern society is based on the logic of accumulation and competition in all subsystems, this logic stems from the economy. This shows that there is a certain penetration between the subsystems of modern society and that the economy is a dominant, but not a determining system.

In post-Fordism the structural coupling between the economy and the state is becoming more rigid in the direction where the economy influences the state system. Economic logic permeates polity (and culture) increasingly and political decisions are frequently governed by economic interests and by *Standortlogik* (logic that shall secure the conditions that stimulate economic investment). TNCs have become major political actors; the autonomy of the political system is undermined by economic logic. The nation-state is permeated by economic logic in the sense that it must save expenses in the public sector in order to facilitate competitiveness and remain attractive for capital investment. A means of cutting public expenses is the shift of certain collective political functions from the system of rule to the system of civil society. NPOs (non-profit organizations) and NGOs (non-government organizations) play an important role in the reorganization of the nation-state. The state's collective welfare function is today continuously eroded due to the economisation of politics, hence the individual is frequently left alone and on itself in a world where he faces increased risks and competition.

The dominant form of economic globalization substitutes Keynesian modes of regulation with neoliberal ones based on market-based regulation. For the solution of the global problems new, uniform, global forms of regulation are necessary, economic globalization must be shaped humanistically, a political and cultural globalization of realized human rights, co-operation, participation and solidarity is necessary. New forms of regulating the world society seem to be necessary. A unitary world society could be an alternative form of globalization, but is in need of alternative, democratic modes of political regulation. Technological and economic networking and globalization give us an impression of the possibilities that we already have today. However, human reason still lags behind the material possibilities and is shaped by economic reason.

Technological networking of the world pits forward a new principle: all-embracing, participative, networked co-operation. The emer-

gence of numerous NPOs and NGOs are not only simply the 'vicarious agents of neoliberalism', their modes of decentralized, networked self-organization show that political globalization can be based on global co-operation: they stress dialogical communication and co-operation and hence facilitate new progressive principles. Many of the political NGOs that engage in critique in the new protest movements have a transnational character, global practices and address universal issues. They constitute a political form of globalization.

Helmut Willke (1989, 1995) points out the conception of decentralized context steering can be an adequate mode of governance in a complex world. The central features of this notion are:

- The self-organization of autonomous actors and the coordination between actors in a network.
- A heterarchic network of connected, partially autonomous units, heterarchy means that there is no pre-determined hierarchical top, but that in certain situations it might be necessary that single subsystems steer the whole because they have optimal knowledge of the situation.
- No direct invention from one system into the other.
- Contextual intervention: there is the setting of conditions in the environment of one system by other systems so that the system can choose its options in a way that is compatible with its environment.
- A reflexive, decentralized steering of the control conditions of each subsystem of society and self-referential self-steering of each subsystem.
- Transferentiality: the system sees itself with the eyes of its environment, observes and tries to put itself into the position of systems in its environment in order to understand their position.
- A certain degree of common orientations of the subsystems is necessary.
- There is a heterogenous, rational discourse between the autonomous actors in order to achieve a consensus concerning their shared contextual conditions.
- Reflexion: each system tries to anticipate what influences its actions might have on the environment and tries to act in such a way that negative influences can be avoided; the system observes its own effects on its environment.

What Willke describes is not an existing system, but a utopia of a more democratic and participatory society where polity and economy are harmoniously coordinated in decentralized processes. Modern society is characterized by the tendency of increasing influence of economic autopoiesis. A mode of regulation that is based on decentralization, self-organization and cooperation is not compatible with such a strict dominance of the functional logic of one societal subsystem. Actors like TNCs today have a centralizing influence on society and the latter's logic of autopoiesis. The logic of accumulation and competition that shapes modern society contradicts forms of decentralized steering that would be necessary for a sustainable and participatory form of social self-organization. Both hierarchic and market-based forms of regulation have proved to increase the social problems. The mode of governance of the contemporary mode of development of society to a certain degree advances regulation by market forces as well as new heterarchic, networked forms of governance where NGOs and NPOs from civil society play an important role. Bob Jessop (2002) suggests that so-called metagovernance mechanisms coordinate the interactions of various forms of governance, and that they organise the conditions for governance and self-organization. All forms of governance and metagovernance of modern society operate within large structural antagonisms and hence are prone to failure. Hence it does not seem to be sufficient to argue that new forms of political governance are needed that are based on participation, networking, cooperation and decentralization, similar operational modes of self-organization are also needed for the economy. The latter is today still dominated by centralization that makes use of decentralizing means and methods of organization and functions as a subsystem that increases its centralistic dominance over society and imposes its logic upon it. The autopoiesis of the world economy in its internal operation is increasingly based on decentralization, cooperation and network structures, but concerning its relationship to other societal systems and concerning the distribution of its results and means there is a widening lack of these principles.

Civil society that is constituted by NGO-, NPO-, and protest-systems is not only a part of the political system that is gaining increasing importance (Fuchs 2003a, 2006b). It is also a system that increases the dynamic character of contemporary political systems by challenging the centralization of power (and capital). Whereas elections are conservative forms of self-organization that result in a slow-changing political systems, the direct democratic grassroots form of

organization of civil society-organizations anticipates a more participatory form of society and hence can be understood as a call and attempt for realizing a participatory political vision. Protest movements are collective actors and social systems; they are part of the civil society system. They form dynamic social systems that continually produce and reproduce events and political topics that signify protest against existing social structures and the search for alternative goals and states of society. Protest movements are a reaction to social problems, an expression of fear and dissatisfaction with society as it is and a call for changes and the solution of problems. Protest movements are political phenomena and part of civil society, as oppositional and alternative movements (i.e., they formulate alternatives to the dominating condition of society) they have an important role in modern society because by producing alternative topics and demands they guarantee the dynamic of the political system that is given by the confrontation of dominating structures by opposition (for a discussion of the self-organization of social movements cf. Fuchs 2006a, b). The political system is based on the dispute between different values and views. Conflict guarantees possibilities of change and dynamic. A political system without opposition is static and totalitarian; protest and critique are important aspects of democratic political systems. The role of protest movements in modern society is that they point out ways of social change and transformation.

The interactions in social movements often have a cooperative grass roots character that is different from the traditional centralistic style of organization in parties, bureaucracies, and labour unions. Not all protest movements are organized in a decentralized and direct democratic manner, but many of them are indeed characterized by a flat organizational structure. Applying the notion of self-organization to society enhances notions such as co-operation, participation, direct democracy, respect, solidarity, responsibility, and tolerance. Because of the fact that the concept of self-organization is closely related to the ideas of self-determination, self-management, and the reduction of heteronomy and centralized authority, one can argue that grassroots social movements are the embodiment of an authentic form of self-organization that could serve as a model for the participatory design of society. The fascination that these movements exert on many people is partly due to the fact that they make grassroots democracy vivid, noticeable, and sensible within a world of heteronomy and alienation. Direct democratic practices are an anticipation of an all-embracing democratization of society, a germ form of a global

democracy and a practical expression of democratic values. Modern society is a system that is based on dynamic accumulation processes (of money, power, etc.) shows tendencies of unlimited concentration of both capital and power that can result in an (economic respectively political) totalitarian character of society. The principle of grassroots self-organization can limit these tendencies by strengthening democracy in economy, polity, and society as a whole.

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