Institutions and the Evolution of Capitalism: Implications of Evolutionary Economics

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Alexander Ebner

INTRODUCTION

Current debates in economic theory and policy are shaped by topics such as national competitiveness. The corresponding challenge of analysing the impact of technological innovation on economic growth has fuelled a renaissance of Schumpeterian ideas. Related to these is the systems of innovation approach which puts the analytical focus on the manifold relations between institutions, organisations and technology, especially regarding their interaction in the innovation process. This chapter follows a Schumpeterian approach in suggesting that the integration of theory and history within a dynamic conceptual framework is crucial for the analysis of innovation. It shall be emphasised that historically rooted structural and institutional varieties specify the performance of national innovation systems. A major distinguishing feature of these national systems is, for instance, the matter of investment patterns which has been differentiated according to notions such as short-termism and which has been related to certain types of economic behaviour, industrial structures or specific organisational modes of coping with technological and institutional change. Hence a historical and comparative approach to systems of innovation should consider the individual 'gestalt' of an innovation system and take into account the interdependence of the various elements by which it is constituted.

It is therefore suggested that the concept of economic style which has risen to prominence within the research tradition of the German Historical School might serve as a useful conceptual device for comparative systems of innovation. The economic style notion encompasses economic attitudes,
socio-economic structures, technological specificities and endogenous growth dynamics in order to denote the recurring institutional, organisational and technological patterns of an economic formation. Furthermore the economic style concept reflects the high degree of compatibility among Schumpeter's theory of economic development and those approaches to institutional and technological change which have been elaborated by major scholars of the German Historical School. This underpins once more the indispensable but rather implicit influence of the German Historical School on the formulation of a Schumpeterian economics in general, as well as on the system of innovation approach in particular.

This chapter proceeds in four sections. First, an outline of the systems of innovation approach is provided with special reference to comparative-historical research perspectives. As these considerations are based upon genuinely Schumpeterian concepts, second, a discussion of the institutional aspects of Schumpeter's theorising is presented which combines the matter of entrepreneurial activities with the aspect of an embedding institutional variety. Third, the concept of economic style which has been designed for the historical and institutional comparison of economic formations is discussed. This is put in the context of Schumpeter's original approach, especially his idea of analysing the institutional dynamics of economic change by the means of an economic sociology. Finally, the advantages of relating the economic style perspective to comparative innovation systems is examined and applied to the most recent discussions on the persisting national varieties of capitalism.

APPROACHING SYSTEMS OF INNOVATION: INSTITUTIONS, TECHNOLOGY AND HISTORY

The emergence of a Schumpeterian paradigm in economics results from the structural crises which have affected the OECD-countries since the 1970s and fuelled theoretical as well as policy concerns with structural unemployment, industrial competitiveness and technological innovation. Schumpeterian ideas emphasise the evolutionary character of capitalist economic life. They provide the background for the systems of innovation approach which examines the role of institutions and organisations for the generation, modification and diffusion of technologies within a territorial setting. Innovation processes are described as cumulative, marked by the interaction of various agents which are acting within a specific institutional set-up. With reference to the notion of Schumpeterian competitiveness, defined as efficiency in allocating resources to promote technical, product and organisational innovations (Dosi et al., 1989), it may be declared that the systems of innovation approach is concerned with the institutional and organisational foundations of that kind of competitiveness. Consequently, Freeman's pioneering definition denotes systems of innovation in a broad sense as 'the network of institutions in the private and public sector whose activities and interactions initiate, import, modify and diffuse new technologies' (Freeman, 1987, p. 1). Lundvall adds the following more specific assumptions:

First it is assumed that the most fundamental resource in the modern economy is knowledge and, accordingly, that the most important process is learning. Second it is assumed that learning is predominantly an interactive and, therefore, a socially embedded process which cannot be understood without taking into consideration its institutional and cultural context (Lundvall, 1992, p. 1).

The examination of interdependencies among institutions, organisations and technology in a nation-state framework was typical until recently, when the complementary role of supranational, regional or sectoral configurations has been recognised (Edquist, 1997). This multi-level perspective of the systems of innovation approach is accompanied by a comprehensive analytical framework which resembles various theoretical traditions. In order to provide an orientation, I shall emphasise the essential characteristics of the various arguments and distinguish between structuralist, evolutionary and neo-Schumpeterian biased research concepts. The structuralist strand is concerned with the role of industrial structures and inter-firm relations. It focuses on the notion of user-producer relationships in the sense of innovation supporting interactions and knowledge transfers between producers and users of certain technologies and products. User-producer relationships facilitate the communication of user needs and technological opportunities. They are thus identified as the basis of interactive learning which is perceived as the major aspect of continual knowledge creation and diffusion (Lundvall, 1985, 1992). Industrial structures and the institutional set-up establish the general framework for systemic processes of interactive learning and hence define the shape and performance of an innovation system. Related to the matter of learning by interacting, the prominent role of industrial structures within the structuralist SI perspective is due to the fact that the relation between
production and learning resembles the post-Schumpeterian ideas of Perrouxian economic structuralism which has stressed the strategic importance of inter-firm and sectoral linkages for analysing economic growth patterns (Andersen and Lundvall, 1988). This conceptual proximity to the structuralist notion of national systems of production, perceived as systemic inter-firm linkages which proceed the flow of goods, knowledge, and information is reflected in the standpoint that systems of innovation are well described as subsets of national production systems (Niosi and Bellon, 1996).

Due to the project of elaborating a non-linear and non-deterministic approach to innovations, an evolutionary perspective on the dynamic of technological change is a commonly shared motive within the systems of innovation approach (Edquist, 1997). Some rather abstract and more specific evolutionary conceptualisations of innovation systems still have been formulated recently. This perspective draws from related theories of technological change which point at elements of the innovation process such as a firm's search routines and the selective role of the market environment as well as the likewise selective social context (McKelvey, 1996). Technological change is characterised as a cumulative local phenomenon which is to be perceived as an evolutionary process based upon the systemic introduction of novelty and the creation of diversity. While the level of the firm provides a focal point of evolutionary analysis, the role of institutions is acknowledged with respect to the matter of variety. Saviotti (1996), for instance, maintains that variety is an indispensable feature of open dynamic systems. Distinguishing between output variety, process variety and institutional–organisational variety he proposes that an exploration of qualitative changes in the economic system, such as technological change in the course of economic development, needs to take into account diverse actors, activities and types of output which together constitute a particular system of innovation.

The neo-Schumpeterian research agenda is mainly concerned with the economic role of formal institutions and organisations involved in innovation activities. In addition to firms, which constitute the primary terrain where technological learning is taking place, further elements such as R&D facilities, education and training programmes or patent systems are integrated into the analysis of interactions. Systems of innovation are then described as networks of innovation–related institutions, whose emergence is portrayed as a result of the historical evolution of capitalist economies, that is, as a result of the institutionalisation of science and technology in the socio-economic sphere. This points at the Schumpeterian argument that technological as well as social innovations are the source of economic growth and development in capitalist market economies (Freeman, 1987, p. 1). Another major Schumpeterian issue is taken to the fore by relating the institutional–organisational dimension of innovations to the dynamic of technological and institutional change as it is denoted by the concept of the 'techno-economic paradigm'. Such a paradigm is defined as an ideal type of productive organisation, basically constituted by specific patterns of business organisation, radical and incremental innovations, innovator–entrepreneur types, as well as modes of investment, consumption and distribution (Freeman and Perez, 1988). A techno-economic paradigm emerges gradually, taking advantage of specific input factors of production. Its diffusion enfors a restructuring of the productive system which results in a mismatch with the institutional set-up. A temporarily stable reconfiguration may be established by the conflict–ridden adaption of the institutional set-up to the requirements of the dominant paradigm. National systems of innovation provide those institutional and organisational means which are essential for coping with paradigm changes and thus for defining a country's position in the hierarchy of the global economy. The corresponding long wave dynamic is characterised by the technological leadership of those countries which are best equipped for meeting the techno-economic paradigm requirements, as every new paradigm configuration corresponds with an ideal typical 'best practice' type of national innovation system and thus allows for catch-up growth. Outstanding examples of that particular role of national innovation systems are, of course, latecomer economies such as Germany in the 19th and Japan in the 20th century (Freeman, 1987).

Summing up, the systems of innovation approach explores the institutions–organisations–technology nexus which coins innovation-related interaction modes and technological learning processes within various settings, primarily national economies but also micro– and macro-regions. A major common theme is the institutionalisation of science, technology and learning as attributes of the endogenous dynamic of capitalist market economies. This aspect is of utmost importance, for the dominant role of technological and organisational innovations distinguishes capitalism from any other preceding historical formation. As Freeman and Soete note:
Technical innovation contributes to the everlasting uncertainty and evolutionary turmoil, which are so characteristic of capitalism. The growth of capitalist firms, industries and nations is not just a matter of the quantitative increase of inputs and outputs, ... but of the qualitative transformation of the structure of the economy through successive waves of technical change (Freeman and Soete, 1997, p. 31).

Thus it may be proposed that systems of innovation are a characteristic feature of the institutional specificity of capitalism.

While institutions constitute the conceptual core of the NIS approach, a commonly shared definition of the term 'institution' has not yet been achieved. Some authors favor a formal definition of institutions (Nelson and Rosenberg, 1993; Freeman, 1987), while others refer to the Veblenian notion of social behavior regularities (Johnson, 1992). Consequently further attempts of integrating formal and informal institutions and relating them directly to the innovation process have been formulated. According to Edquist and Johnson (1997) institutions may enable innovations as they carry information, reduce uncertainty, provide incentives, and frame various modes of governance and cooperation. Institutions therefore shape the particular modes of interactive learning and thus the outcome of the innovation process. Moreover they coin the organizational behavior of firms and other subjects of innovation. Hence 'it is difficult to imagine innovations that are not to some extent formed by the institutional set-up' (Edquist and Johnson, 1997, p. 51). Regarding the policy conclusions it follows therefore that a purposeful innovation system design is not feasible, for any design strategy will be limited by unintended consequences and externalities of the actions of the economic agents. There is thus no necessary convergence towards a first best scheme but a real typical variety of possible institutional configurations for coping with a new paradigm within an innovation system. This implies the possibility of a persisting divergence of national economies (Freeman, 1995).

The acknowledgement of institutional varieties points at the matter of comparative research which is in fact a constitutive element of the systems of innovation approach, for the major questions point at recurring growth patterns: "Why do some countries catch up rapidly at some periods and others move slowly or not at all?" (Freeman, 1995b, p. 23). An examination of this matter is in accordance with the approach of 19th century German political economist Friedrich List, who is in addition to Schumpeter appreciated as the conceptual founding father of the national systems of innovation perspective (Freeman, 1987; Lundvall, 1992). List's 'National System of Political Economy' (1841) reconsidered the situation of latecomer economies and emphasized the role of science, education and technological knowledge for the industrialization efforts of national economies.1 This cross-national perspective is well reflected in the actual comparison of different national systems of innovation (Nelson and Rosenberg, 1993), while comparative analyses of regional or continental ensembles, such as East Asia versus Latin America, have been elaborated additionally (Freeman, 1996). Especially the growth performance of the Japanese economy has provided a thoroughly examined research object which points at the limits of a purely quantitative empirical comparison due to the qualitative character of institutional configurations. From this point of view it is not enough to measure and compare systems of innovation by taking into account quantitative data sets, for an understanding of innovation processes requires additionally the analysis of ideologies and cognitive frameworks (Maddison, 1994). It is necessary to combine the comparative analysis of organizations and formal institutions with the impact of institutional-cultural elements on the structure and performance of innovation systems. Hence the role of social belief systems and ideologies as incentives or disincentives for the acquisition of scientific knowledge and the corresponding modes of technological learning have been underlined as a promising facets of the systems of innovation approach (Edquist and Johnson, 1997).

As a complement to the comparative perspective it has been proposed that an integrated historical perspective is of substantial importance. As a first approximation to this matter of integrating theory and history it has been emphasized that knowledge and learning share cumulative traits, a standpoint which is underlined by acknowledging the complex and continual character of innovation processes (Lazonick, 1994). Edquist (1997) refers to the matter historical time which marks the path-dependent sequence of invention, innovation and diffusion. A historical perspective does not simply refer to 'the past' but to a conceptualization of economic processes as indetermined and irreversible. Regarding the Schumpeterian credo of economic change as a dynamic process in historical time, it may be proposed that actually existing systems of innovation are to be understood as essentially historical ensembles. This corresponds with recent attempts to develop a theoretical framework for a 'reasoned history' of economic growth, encompassing the historically rooted interrelatedness of economic processes with the spheres of science, technology, politics and culture (Freeman, 1995b). Ideas like these point at the opportunities offered by a reconsideration of Schumpeter's theorising, especially with regard to its institutional-historical facets, for the elaboration of a reasoned history...
resembles Schumpeter's very own approach to economic sociology. Consequently, a comparative-historical perspective on innovation systems might benefit from an examination of Schumpeter's approach to the institutions-technology nexus.

SCHUMPEITER REVISITED: INSTITUTIONAL VARIETY AND EMBEDDED INNOVATIONS

Schumpeter's works were influenced by diverse theoretical schools, hence a general classification of his ideas proves difficult and is still subject to fierce controversies. Following Perroux (1965, p. 72) I would propose that Schumpeter's thought represents a synthesis of the Austrian and Lausanne schools of economics, accompanied by the German Historical School's institutional approaches as formulated by Max Weber and Werner Sombart. In what follows I will concentrate on a largely undervalued aspect of Schumpeter's theorising: his historical and institutionalist orientation which was due to his relations with the German Historical School, in particular with their representatives Max Weber, Sombart and Spiethoff. First of all it will be useful to discuss the institutional aspects of Schumpeter's theory of innovation and his genuine concept of capitalism, which leads to the matter of institutional variety.

Schumpeter defines capitalism as follows: 'capitalism is that form of private property economy in which innovations are carried out by means of borrowed money, which in general, though not by logical necessity, implies credit creation' (Schumpeter, 1939, p. 223). This capitalist credit economy is additionally characterised by specific social and institutional patterns. On the one hand, these are constituted by the capitalist civilisation, which represents all those institutional features which are essential characteristics of capitalism as an individual historical formation. Examples are the specific rationality related to the use of money as unit of account or the intellectual attitude of modern science. A common drive for quantification and rationalisation gives capitalism its historically unprecedented character. (Schumpeter, 1942, p. 123n). On the other hand, the typical features of capitalism are necessarily paralleled by pre-capitalist institutional elements and social strata. Actually existing capitalism is an amalgamation of pre-capitalist and capitalist elements. While innovations repeatedly dissolve and renew economic structures in the successive 'gates of creative destruction', a decomposition of the pre-capitalist and finally even capitalist institutional and social spheres is taking place. Thus Schumpeter formulates rather provocatively:

In breaking down the pre-capitalist framework of society, capitalism thus broke not barriers that impeded its growth but also flying buttresses that prevented its collapse. That process, ... was not merely a matter of removing institutional deadwood, but of removing partners of the institutional stratum, symbiosis with whom was an essential element of the capitalist schema. Having discovered this fact ... we might well wonder whether it is quite correct to look upon capitalism as a social form sui generis or, in fact, as anything else but the latest stage of the decomposition of what we have called feudalism (Schumpeter, 1942, p. 139)

The role of institutions in Schumpeter's approach is not simply one of constraining the capitalist process, but instead also one of enabling and supporting. Thus Schumpeter is conceptually interested in grasping the particular 'motive power' of the various agents within the economic process (Rothschild, 1986). This statement applies well to his concept of the entrepreneur, whose function of introducing innovations keeps the capitalist growth engine in motion. Innovative entrepreneurial functions are characterised by the capability for creative response. In contrast to an adaptive attitude which denotes reactive adoptions to a change in market data, creative response is neither predictable nor determined. Schumpeter therefore maintains that creative response is the decisive counter-force against the general drive for rationalisation and depersonalising automatism of the capitalist process which may in the long run, due to an institutional transformation, result in the bureaucratic Leviathan of state-socialism (Schumpeter, 1947). With creative response present, the future course of capitalist formations remains indetermined.

Entrepreneurial motivation is not guided by the kind of profit motive which characterises the economic attitude of capitalists, who provide the entrepreneur with the necessary capital funds and hence represent the typically capitalist motive sphere. The entrepreneur views profits not as ends in themselves but as means to achieve further ends. He may, for instance, strive for the material well-being of his family. Not surprisingly the latter is said to be subject to devaluation and decomposition (Schumpeter, 1942, pp. 156-163). The entrepreneur is thus driven by motivations which are basically alien to the capitalist rationale and represent an element of aristocratic leadership which resembles a Nietzschean 'will to power' (Schumpeter, 1908, p. 618). In the course of fulfilling their functions, entrepreneurs are strangers in the value setting of capitalist rationality. Their function is not based upon social or institutional sameness.
and nearness but rather upon distance and difference. It follows that the reproduction of capitalism depends on the persisting variety of institutional and structural forms which are the result of asymmetrical change. Innovations are thus embedded in an institutional set-up which is marked by a necessary degree of historically rooted variety.

The constitutive role of variety is also prevalent in the way Schumpeter conceptualises differences in the institutional set-up of nation-states. On the topic of national institutional specificities and their further impact he suggests in rather general terms:

at any given time, every nation has a certain class structure and a certain civilization. The concept of civilization comprises a system of beliefs, a schema of values, an attitude to life, a state of the arts, and so on. This ... will in general determine a nation's behaviour in its foreign and domestic affairs... (Schumpeter, 1948, p. 429).

While Schumpeter held sympathy for the idea of historically rooted national regularities in habits and thoughts, subsumed under the term Volkgeist which has been prominent among the idealist-historicist tradition of German political philosophy, he still rejected any metaphysical implication.

Instead he argued that national characteristics in the institutional sphere represent social values which have been set up by dominant ruling groups and classes in a certain historical context and exhibit a high degree of inertia (Schumpeter, 1929). He concludes:

Sozialstrukturen, Types and attitudes are coins that do not readily melt. Once they are formed they persist, possibly for centuries, and since different structures and types display different degrees of this ability to survive, we almost always find that actual group and national behavior more or less departs from what we should expect it to be if we tried to infer it from the dominant forms of the productive process (Schumpeter, 1942, p. 12).

Hence national economies differ in terms of the structured variety of production modes as well as social, institutional and organisational configurations. It is concluded 'that the spirit of a people or a time is never an architectural unity' (Schumpeter, 1929, p. 214, my translation). A comparative analysis of the growth performance of various economic formations needs to take into account these various factors. Schumpeter therefore opted for a comparative institutional analysis of economic growth. This manifestation of the interdependence between institutions, technology and economic growth exposes further implications concerning the necessity of a holistic view, as he puts forward:

Schumpeter hence formulates the outline of an institutional and historical approach to economic dynamics which should capture the specific 'gestalt', that is, the interdependent structured whole of the object under examination. This perspective of Schumpeter's has been influenced by the ideas of 'gestalt psychology' which are portrayed as highly useful for establishing a non-metaphysical concept of society for they contain that 'individual elements of any set of elements are not perceived or appraised individually but as part of the definite set in which they occur' (Schumpeter, 1954, p. 798). Relating the matter of variety to the method of contextualisation the Schumpeterian credo then maintains that economic action is embedded in social relations which are open to multiple possibilities of change while the corresponding economic phenomena are to be viewed in the context of an unitary 'gestalt' configuration (De Vecchi, 1995, p. 8n).

All these historical-institutional aspects as well as their methodological implications may be subsumed under the category of 'economic sociology' which is described in the 'History of Economic Analysis' as one of the four major research techniques among economic theory, statistics, and economic history. With reference to Max Weber's notion of a social economics, Sozialökonomie, Schumpeterian economic sociology denotes a typified, stylised or reasoned economic history, for it transcends the usual theoretical question of how people behave and what effects their behaviour produces, and asks instead why they behave the way they do (Schumpeter, 1954, p. 20). It follows: 'Economic sociology covers, first, the facts of economic behaviour from which economists forge certain assumptions and, second, the institutions that characterise the economic organisation of the societies to be studied' (Schumpeter, 1954, p. 544).

Uncovering the variety of motives and economic attitudes is a major contribution of economic sociology to the whole body of economics and characterises the latter as a genuine social science: 'Economics lacks the benefits that physics derives from laboratory experiments...but enjoys instead...man's extensive knowledge of the meanings of economic actions' (Schumpeter, 1954, p. 16). According to Swedberg (1989) economic
sociology is hence designed to address the institutional framework of the economic process, while the matter of business cycles or economic systems, for instance, is to be analysed by both economic sociology and formal economic theory.

The idea of economic sociology as an institutional approach to economic dynamics can be traced throughout Schumpeter's works. It is closely related to the research programme of the German Historical School as formulated by Gustav von Schmoller and continued by the 'youngest' Historical School's representatives Max Weber, Werner Sombart and Arthur Spiethoff. It should be emphasised that the term 'historical' as it was used within the German Historical School and repeatedly also by Schumpeter does not simply denote an account of the past in a narrative-descriptive sense, but a dynamic concept of economic development which has become established in the works of Schmoller. Therefore it has been suggested that the model of economic sociology, in Schumpeter's view, was that of the German Historical School (Shionoya, 1997, p. 778). Consequently, as derived from methodological considerations and conceptual intentions, an explicit 'Schmoller-Weber-Schumpeter nexus' has been identified (Shionoya, 1991).

Schumpeter argued against the idea of a unitary meaning of history and the related assumption of an uniform linear development nations or civilisations. His own approach of indetermed social evolution implies that social conditions become historical individuals in historical time. Consequently Schumpeter was well aware that speaking of innovations demands speaking of capitalism as an epochal economic formation. This amounts to saying that capitalism exhibits a specific 'economic style', which is, according to Schumpeter, primarily derived from the unique roles of the monetary sphere and the mode of credit-creation (Schumpeter, 1926a, p. 107). This notion of economic style denotes a comprehensive conceptual framework which is set in the tradition of the German Historical School. In fact Sombart and Spiethoff elaborated on that notion as a comparative approach which should provide insights for a historical perspective on economic formations by pointing at the matter of economic action, institutional variety and technological change. An outline of that economic style approach, and the corresponding 'economic gestalt theory' is presented in the following section.

TOWARDS A COMPARATIVE-HISTORICAL FRAMEWORK: THE CONCEPT OF ECONOMIC STYLE

The economic style notion emerged from the German Historical School as a reflection of a definition of economies as a cultural science in the tradition of humanities and the arts (Schefold, 1994). Economic phenomena have been viewed as time-conditioned, that is, as research objects which are to be understood by viewing them in their particular historical-cultural context. The point of view that historical phenomena have to be treated individually as coherent developing entities of various interdependent elements was basically kept throughout all strands of the German Historical School (Betz, 1988). The concept of economic style was soon mobilised against the deterministic stages theories of economic development. List's proto-historicist elaborations, for instance, were marked by a developmental optimism which characterised socio-economic evolution as progress in material wealth and ethical standards. The post-Schmollerian youngest Historical School subjected that kind of developmental optimism to a revision by pointing at the individual 'gestalt' of economic formations while the idea of capitalist degeneration replaced the belief in a feasible combination of economic and ethical progress (Schefold, 1996a, p. 187n).

A point of departure for the critique on capitalist perfection was the debate on the historical evolution of modern capitalism. Sombart presented the notion of 'economic system' which should grasp the economic, social and institutional features of epochal economic formations (Sombart, 1916, p. 14n). These economic systems encompass three dimensions: first a specific economic spirit, representing the dominant economic attitudes, principles, and norms; second an individual historical form of economic order which denotes typical regulations as well as other economic and social relations; third a specific mode of using technology and accumulating technological knowledge. Sombart's major work 'Modern Capitalism' combines the historical analysis of the evolution of modern capitalism with the concept of economic systems and characterises capitalism as a coherent configuration of economic institutions, organisations, and technology. Sombart's position on the role of technology is well described by the formulation that science and technology become endogenous elements of the capitalist process in the course of economic development (Krabbe, 1996). While technology is an important topic in Sombart's works, he still identifies economic spirit as the major characteristic and driving force of capitalist evolution. Consequently,
he used the Gestaltidee of economic systems as the key concept of his increasingly hermeneutical concept of economics (Sombart, 1930).

Schumpeter's idea of combining abstract theory with institutional perspectives was also pursued by Arthur Spiethoff, who used Schumpeter's and Sombart's names when he differentiated between 'pure theories' which may abstractly grasp those elements common to all known historical formations, and an 'economic gestalt' theory, which should serve an analysis of time-conditioned economic life (Spiethoff, 1932). While Schumpeter had felt uncomfortable with possible hermeneutical exaggerations of the style perspective (Schumpeter, 1926b, p.50), it was Spiethoff who maintained that economic styles should be subject to empirical falsification and thus redirected the style notion back to the Schmollerian position, Schumpeter himself referred to. Hence in contrast to Sombart and in accordance with Schumpeter, Spiethoff's economic style perspective should be compatible with formal and abstract theories. Spiethoff's work on economic styles is nonetheless built upon Sombart's economic systems concept and explicitly strives for its empirical perfection (Spiethoff, 1932). With references to List, Schmoller and Sombart, Spiethoff defines an outline of his approach as follows:

Most economic phenomena are time-conditioned and are rooted in specific geographical areas. They are subject to change over time and cannot be treated, therefore, with the help of concepts and theories purporting to be of universal applicability. Economic theory can deal with these phenomena only by differentiating patterns of economic life, patterns which have come into being in the course of the historical process. As a matter of fact, as many patterns must be delimited as there are essential and typical differences in the basic economic institutions. Patterns of this kind are here called economic styles (Spiethoff, 1952, p. 132)

Economic styles reflect a coherent system of interdependent elements, which are rooted in specific institutional configurations: 'the concept of economic style ... reflects the properties which make out of an institutional setup a unique case of economic life... The concept of economic style is the tool with the help of which uniformities in time are made available for theoretical research' (Spiethoff, 1952, p. 137). According to Spiethoff, economic styles are outlined by the following basic characteristics, elaborated as a preliminary compilation of criteria (Spiethoff, 1932, p. 76n, my translation):

I. Economic spirit: 1. Moral attitude. Striving for the Kingdom of God, striving for economic success as an indicator of divine vocation; community interests act as guideline; striving for the most sublime earthly happiness of the individual. 2. Spiritual motives of economic action. Fear of punishment, religious-moral motives (altruism, sense of duty, urge for moral action), partly moral motive (sense of honour, urge for action, enjoyment of work), egoistic motive (striving for personal economic advantage), personal impulse, striving for power. Depending on the strength of the motives the aim followed is material wealth or self-sufficiency. 3. Intellectual attitude. Habitus or innovating attitude, resulting in varieties of technology.


This catalogue reflects the comprehensive conceptual and theoretical range of the German Historical School. The first topic of economic spirit reflects Schmoller's and Sombart's works, but it mirrors additionally the influence of Max Weber's sociology of religion and his elaborations on the
institutions—cultural preconditions for capitalist development. In fact Weber has been classified as a major scholar of the economic style perspective (Müller—Armac, 1943). Furthermore the explicit way of grasping the institutional foundation of technology and technical change deserves some attention. Spiethoff refers to the dominant attitudes towards technological change within a range of habitual or innovating attitudes, a perspective similar to Schumpeter's innovation theory. Next to the criterion of economic spirit, the natural and technological foundation as well as the social and economic constitution are mentioned as style elements. Most of these aspects are also part of Sombart's approach. Especially the matter of technology is based upon Sombart's proposal that capitalism dissolves the organic procedures of craftsmanship and establishes a technological system with inorganic—mechanic features. The criteria of social and economic constitution include the modes of allocation and the social distribution of property rights. Finally the catalogue pinpoints the issue of economic dynamics which is seen as an endogenous element of economic styles, for all style dimensions are interdependent. Business cycles are classified as phenomena with a specific capitalist character, a perspective which bears evidence of Spiethoff's own contributions to research on long wave dynamics.

Spiethoff's approach to economic styles encompasses material—structural as well as institutional—cultural elements without establishing a hierarchy of priorities, thus representing the variety of material and institutional characteristics of an economic formation on conceptually equal terms. Spiethoff's approach complements the Schmoller—Weber—Schumpeter nexus of economic sociology and hence echoes decisive conceptual relations among Schumpeter and the 'youngest' Historical School. Even more than that, both the economic style approach and the corresponding Schumpeterian ideas on economic dynamics are highly relevant for the discussions within modern institutional economics. The variety aspects of Schumpeter's theory of economic development, for instance, have been interpreted in terms of systems theory (Hodgson, 1988). The impurity principle defines that each functional system contains impurities which are not typical of the whole, but which are nevertheless necessary for the reproduction of that particular system. The principle of dominance suggests that every system exhibits a dominant functional structure. Consequently socio—economic systems represent diversified pluralities which exhibit a dominant economic structure by which they may be classified (Hodgson, 1988, p. 167n). Moreover the impurity principle implies a holistic research perspective:

the impurity principle suggests a break from the Cartesian mechanistic mode of thinking where phenomena are broken down into determinate elements or parts, and through their aggregation we build up a picture of the whole. What is suggested is that parts themselves are multi—faceted and inter—penetrating (Hodgson, 1988, p. 168).

This corresponds with Schumpeter's theorising on the 'gestalt' of economic growth phenomena and also with the methodological background of Spiethoff's economic gestalt theory, which encompasses the phenomenological concepts of the economic style approach. The unifying common aspect of that rather diverse philosophical context is provided by the rejection of Cartesian mechanistic notions (Schefold, 1996b, p. 313). In spite of its conceptual advantages the economic style perspective was replaced by approaches to a plan—market dichotomy since the German economic systems debate in the late 1940s and kept its dominance during the period of East—West systems conflict. Historical—institutional perspectives gave way to the assumption of a universal economic calculus while topics such as cultural values or technological change were abandoned almost completely (Schefold, 1994). Since the breakdown of state socialism and the emergence of the East Asian New Industrialising Countries (NICs), it is even more vital to reconsider the institutional and technological features of the varieties of market capitalism on a continental, national or regional scale. This change of research perspectives towards a complementary institutional perspective is reflected by the formation of a 'new comparative economics'. Rosser, Rosser and Marina (1996) for instance differentiate in Polynesian terms between traditional—customary, market and command mechanisms of allocation, while Angresano (1996) proposes an evolutionary—institutional approach to comparative economics and refers, of course, to the tradition of economic sociology. It is a central suggestion of this chapter to reconstruct a genuinely Schumpeterian framework for the comparison of economic formations, especially regarding those elements of an economic formation which support innovations as the major driving force of economic evolution. The concept of economic style offers the advantage that it grasps the totality of various real typical economic formations, for it treats, among others, the historically specific interdependence of institutions and technologies as endogenous sources of economic change. In the following section I shall follow the practice of combining concepts of the 'old' institutionalism with
the modern economics of innovation and thus relate the notion of economic styles to the comparative analysis of innovation systems.  

A COMPARATIVE–HISTORICAL VIEW ON INNOVATION: STYLES, SYSTEMS AND TRAJECTORIES

Comparative studies within the systems of innovation approach have been primarily concerned with national systems, although framed by the debates on globalisation and regionalisation. Some authors have envisaged a decreasing competence of the nation-state in governing the challenge of globalisation by means of a neo-mercantilist ' techno-nationalism' as the national character of innovation systems seems to be endangered by regional or supranational interactions (Nelson and Rosenberg, 1993). Nevertheless Lundvall (1992) stresses the continuous relevance of the nation-state as an institutional form endowed with unparalleled policy competences and important as a provider of cultural symbolism which shapes the capability for interactive learning. Thus it has been suggested that 'nation-states, national economies and national systems of innovation are still essential domains of economic and political analysis' framed by evolving local, regional or supranational systems of innovation (Freeman and Soete, 1997, p. 315). A prominent method for delimiting national systems is provided by identifying the several links among the system units which facilitate the exchange of goods, information, knowledge and other resources (Niosi et al., 1993). Possibilities for measuring the 'nationality' of innovation systems are therefore offered by quantitative analyses of patent systems, the location of R&D facilities or material input–output structures (Patel and Pavitt, 1994; Lundvall, 1996). These quantitative procedures are limited by the qualitative character of national innovation systems, for national specificities are to a large extent derived from institutional configurations. Nelson and Rosenberg note that 'the policies and programs of national governments, the laws of a nation, and the existence of a common language and a shared culture define an inside and outside that can broadly affect how technical advance proceeds...national differences and boundaries tend to define national innovation systems, partly intentionally, partly not' (Nelson and Rosenberg, 1993, p. 16). Similarly, Lundvall accentuates that 'basic differences in historical experience, language, and culture will be reflected in national idiosyncrasies in the internal organisation of firms, the types of inter–firm relationship, the role of the public sector, the structure of financial institutions, and the nature, organisation and volume of research and development' (Lundvall, 1992, p. 13). Therefore it has been concluded: 'As long as we can identify national cultures, we should expect national differences in production and innovation' (Johnson, 1992, p. 39).  

These assertions hint at the institutional embeddedness of innovation processes and thus at patterns of economic growth and development as a result of institutional and structural specificities. Patterns such as these are stylised by the notion of national trajectories which complements the concept of techno-economic paradigms by stressing the institutional impact on shaping the actual form of a paradigm as it crystallises within the national system. National technological trajectories hence result from specificities in industrial structures, economic linkages, the social organisation, and government–economy relations (Dosi et al., 1989). Indeed they represent the performance of a national system of innovation. The conclusion is: 'Technology, like market processes, is not disembodied. It develops in communities; it has local roots. The processes of learning that drive its development are shaped by the community and institutional structure, and consequently the technological trajectories can only be defined in reference to particular societies' (Zysman, 1994, p. 130).  

Although the systems of innovation approach as well as the notion of national trajectories consider the co–evolution of institutions and technology, it is evident that both of these concepts mirror the simplifying assumption that national economies exhibit high degrees of institutional–structural homogeneity which facilitate cooperative relations among the economic agents. The systems of innovation approach reformulates the Schumpeterian scheme by taking into consideration the evolution of a systemic entrepreneurship which integrates the Schumpeterian functionalities of innovation within an interactive system. Hence an important element of innovation systems are the various modes of interaction among individual and collective agents (Edquist, 1997). It is therefore a significant question which institutional configurations enable an innovation system to fulfill the entrepreneurial function of creative response. While it is of course true that the notions of homogeneity and cooperation mirror important aspects of economic life, they still exhibit an implicit determinism which neglects the matter of institutional and structural varieties as well as the conflicts which might arise from these. Innovations in Schumpeter's terms result from
conflicts between entrepreneurial agents and their habitual environment. This has been articulated by scholars of technological evolution such as Paul David, who proclaims economics as a historical science and maintains that 'real economic actors function within many varieties of networks – social, and kinship-related, as well as commercially transactional and technological. Each of these potential webs of interaction and positive reinforcement into which individual agents may be drawn provides a theatre for the unfolding of historical drama' (David, 1993, p. 211). Innovation processes are therefore embedded in the same sense as any economic action is embedded in a specific system of social relations which have been characteristic elements of pre-capitalist economic formations and whose importance may have decreased but still persists in the age of modern market capitalism (Granovetter, 1992).

Consequently national systems may be stylised as segmented layers of institutions and production modes which integrate several regional and local ensembles such as technopoles and industrial districts with all their particular forms of industrial, technological and institutional logic (Garrouste and Kirat, 1995, p. 235n). The corresponding amalgamation of capitalist and pre-capitalist institutions and structures marks the existing varieties of national innovation systems and their persisting divergence. As Hodgson puts it: 'given the potential variety of systemic combinations, and the reality of path dependency and cumulative causation, an immense variety of institutions and forms are possible' (Hodgson, 1996, p. 419). The economic style notion captures that variety of forms underneath the surface of the national productive fabric, for the difference between an epochal economic style in Spiethoff's terms and the corresponding notion of national economic styles is basically a matter of the degree of abstraction. Consequently it may be suggested that the varieties of national systems of innovation, their structural features as well as their particular performance, reflect the features of the corresponding national economic styles.

Although the economic style approach stems from a tradition of economic thought which has rejected the use of metaphors from the natural sciences, a basic congruence with evolutionary theorising may be postulated, especially concerning the analytical focus on economic dynamics and the conceptual integration of notions such as cumulative causation. Specific implications of the economic style perspective for the structuralist innovation systems dimension can be related to the standpoint that sectoral and firm structures coin the interactive relations in the innovation process and hence the specificities of knowledge transfers and learning procedures. Economic styles then represent the historical core of these various modes of interactive learning as well as the related modes of cooperation and governance. Similar conclusions may be applied to the neo-Schumpeterian macro-perspective, where countries cope with techno-economic paradigms on the basis of the possession of natural resources plus social, cultural and political factors. As the long wave dynamic does not result in a revolving tabula rasa, it follows that the continuity of certain social, institutional and structural economic elements exceeds the successive industrial, technological and institutional disruptions. In addition to the spheres of change and restructuring which may constitute the periphery of an economic style, it is necessary to reconsider those recurring patterns which constitute the core of a national economic style and which will support the rather invariant modes of coping with as well as shaping a techno-economic paradigm. This element of continuity represents the historical core of the economic style of a national system.14

The economic style approach attempts to uncover the gestalt of an economic formation by reconstructing its historically individual shape as well as its inherent variety of forms and interdependencies. Functionalist as well as culturalist approaches to the comparative advantage of capitalist 'models' may be useful for providing ideal typical comparative perspectives, but they are inadequate for grasping the real typical character of economic formations.15 With regard to the debate on competing capitalist variants, Patel and Pavitt (1994) have stylised two types of innovation systems. Myopic systems are typical for the USA and the UK where demand-led investment in technology dominates. In the dynamic German and Japanese systems long-term investment in technology is prevalent. Different performance profiles are then derived from specificities in financial systems, methods of management and attitudes towards financial and technical competence. In a similar fashion Tylecote (1996) has compared Anglo-Saxon and German-Japanese types of market capitalism. He relates investment patterns and modes of technological learning to the hegemonial social attitudes towards labour, technology and innovation. These procedures of subsuming economic phenomena under a dichotomic taxonomy which orders national systems according to ideal typical features hints at the advantages of an economic style perspective on the various capitalist 'models', for it should aim at a holistic view by grasping the real typical individuality of national systems.16

Some guiding principles for reconstructing the core elements of national economic styles as well as for relating them to particular systems of
innovation are of course necessary. The following chart distinguishes four constitutive dimensions: (1) the economic dimension comprises elements such as economic growth patterns, trajectories of technological change, sectoral configurations, firm structures and the structure of the financial system which may be analysed concerning modes of finance and investment. Moreover the topics of industrial relations and income distribution complete the economic core dimension of an economic style. (2) The institutional dimension is concerned with the shape and impact of formal and informal institutions. The aspect of economic attitudes may be related to the matter of incentives for knowledge acquisition as well as to the social acceptance of economic and technological change. Additionally national ideologies may be examined, for instance, with regard to social mobilisation capacities. (3) The social dimension comprises the stratification and coherence of the social sphere which represents the material substance of a particular mode of economic growth and development. (4) The political dimension accentuates the role of the nation-state. Here the degree of political interference with the economic sphere as well as the institutionalisation and regulation of social interests may be explored.

This catalogue denotes the focal points for an analysis of national economic styles with regard to the varieties of national systems of innovation. It aims at an illustration of the concerns of the economic style approach, not at a rigorous operationalisation. Therefore it is designed to support a view on the innovation performance of national economies which combines the matter of institutional variety and coherence with the matter of economic dynamics. By doing so the major questions of Schumpeter's approach to economic theory and economic sociology shall be pursued within a comparative-historical framework.

**CONCLUSION**

The systems of innovation approach examines those networks of institutions which support technological and organisational innovations. The basic argument of this chapter has been that a comparative-historical perspective on national systems of innovation benefits from insights and concepts which are provided by the Schumpeterian approach to economic sociology and the related traditions of the German Historical School. One of these is the concept of economic style which denotes the essential properties of economic formations. Economic styles encompass institutional and organisational configurations, the endogenous dynamics of economic growth and technological change, as well as the socio-economic structuration of an economic formation.

These economic styles have been designed for a historical comparison of epochal formations but they are also useful as real typical frameworks for the comparison of national economies and the variety of forms by which these are characterised. It is that particular historically rooted variety of institutional forms and modes of interaction which has a decisive impact on the structure and performance of national innovation systems, for it supports the endogenous capabilities of creative response.

Research areas for an application of the economic style perspective on comparative systems of innovation are manifold. A first example is provided by the growth and innovation performance of East Asian economies. Moreover the prospects of European integration and thus of an European system of innovation may be examined in the light of the economic style perspective. This might contribute to further progress in
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comparative research on innovation systems as well as to a more reflective and sensitive way of technology and innovation policy-making.

NOTES

1. Note that Linstow's 'National System' denotes not an empirical object but a systematic theoretical approach which should counter Quesnay's 'Natural System of Political Economy' as well as Adam Smith's allegedly 'cosmopolitan' ideas.

2. Veblen himself, who has been regarded as the pioneer of an evolutionary approach to institutional economics, pointed at the importance of Gustav von Schmoller's works on the dynamics of socio-economic evolution. Veblen states that: '...the distinguishing characteristic of Professor Schmoller's work, is that it aims at a Darwinistic account of the origin, growth, persistence, and variation of institutions, in so far as these institutions have to do with the economic aspect of life either as cause or effect...'. In this line of theoretical inquiry Professor Schmoller is not alone, ..., but the sincerity belongs to him, and he is also in the lead as regards the comprehensiveness of his work' (Veblen, 1901, p. 264a). While Veblen goes on to deny that Schumpeter was a genuine evolutionary theorist, which is quite in accordance with Schmoller's reservations regarding metaphors from the natural sciences, the appreciation characteristic of this statement is well designed to counter inadequate judgements still prevalent in many accounts of the German Historical School.

3. This has been emphasised repeatedly by Schumpeter himself. In his first major volume Schumpeter differentiates between phenomena such as commodity exchange which are relevant for static economic theory, and dynamic problems such as technological change which should be analysed by a combination of theoretical and historical research. He notes that the most valuable contributions to this matter have been delivered by the German Historical School (Schumpeter, 1908, p. 617). In the 'Theory of Economic Development' this aspect is continuously underlined (Schumpeter, 1926a, p. 90a). Therefore Schumpeter not only kept a mediating position during the 'Methodenstreit', but even recommended Schmoller's approach as a conceptual source for the integration of theory and history (Schumpeter, 1926b). In the 'Business Cycles' it is maintained that economic change evolves in historical time and thus enforces an institutional approach to economic dynamics (Schumpeter, 1939, p. 220). Finally, in the 'History of Economic Analysis' economic sociology is said to be borrowed from 'German practice', that is, from the Schmollerian research programme (Schumpeter, 1954, p. 21).

4. For a comprehensive discussion of methodological topics and conceptual differences between Schmoller, Weber and Schumpeter see Shironoya (1991). For example, Schumpeter is sceptical concerning the possible hermeneutic exaggeration of the method of Verstehen which, according to Max Weber, sets human motives in relation to meaningful phenomena.

5. The term 'Wirtschaftskultur' has been translated as 'type' in the 1934 English edition of the 'Theory'. This is inadequate because the correct term 'economic style' is of course rooted in humanities and the arts and thus reflects the metaphorical orientation of the German Historical School towards the latter.

6. A comparable argument has been put forward more recently by Batalla (1988), who remarks that the generation of innovation responds to a specific cultural context which defines whether certain artifacts are useful. He differentiates between static and dynamic, respectively innovative cultures, based upon the appreciation and acceptance of novelty and change.

7. Schumpeter's approach offers the analytically most comprehensive perspective of the economic style literature. Müller-Armack for instance, who developed the concept of Germany's social market economy, stressed the impact of economic attitudes as derived from religious world views. Religious hegemony thus was his criterion for delineating economic styles (Müller-Armack, 1943).

8. Stolper comments on Spiethoff that he were 'static in proposing to construct...any number of possible economic systems by combining 20 variables in all possible ways.' He goes on to remark that 'Schumpeter could not have been more different' (Stolper, 1988, p. 16). This contrasts with Schumpeter's own statements on Spiethoff which are consistently appreciative. For example, Spiethoff's theory of business cycles is portrayed as the most indispensable influence on Schumpeter's own theorising on economic turbulence (Schumpeter, 1926a, p. 320 and p. 332). In the 'History of Economic Analysis' this positive verdict is still valid, for Spiethoff is said to have exhibited 'an outstanding performance in the field of business cycle research' (Schumpeter, 1954, p. 816). Moreover Spiethoff is characterised as a major scholar of economic sociology (Schumpeter, 1926a, p. 377). Thus Schumpeter goes on to describe Spiethoff's notion of economic style as 'highly interesting' (Schumpeter, 1954, p. 816). In contrast to that, Schumpeter's comments on Sombart are more ambiguous and range from critical acclamation in the mid-1920s to an almost complete rejection later on.

9. It is noteworthy that the term 'economic gestalt theory' has been introduced by the translator of Schumpeter's 1952 article on the historical validity of economic theories with explicit reference to phenomenology and gestalt psychology (Schumpeter, 1952, p. 135, translator's note).

10. In fact the approach of economic sociology has recently experienced a renewal as a sociological analysis of economic phenomena, broadened to a broad context (Smelser and Swedberg, 1994). This chapter does not subscribe to that definition of economic sociology and follows Shironoya, who insists on the original Schumpeterian programme which is closer to the concerns of the 'youngest' Historical School as well as to modern institutional economics (Shironoya, 1997, p. 324).

11. This practice is also followed by de la Mothe and Paquet (1996, p. 23n) who take the basic elements of Akerman's institutionalist theory of economic development as a point of reference for the identification of certain sub-games or sub-processes which are then reformulated in a modern evolutionary framework.

12. Porter, who has labeled himself a Schumpeterian, links institutional configurations to the matter of competitiveness as he formulates on the persisting role of nations: 'Competitive advantage is created and sustained through a highly localised process. Differences in national economic structures, values, cultures, institutions and histories contribute profoundly to competitive success' (Porter, 1990, p. 19).

13. This assumption bears resemblance to the Japanese ideology of consensus decision-making and cultural-anthropological homogeneity. Not surprisingly the concept of national trajectories has been designed for the analysis of Japanese competitiveness (Dosí et al., 1989). Similarly, the systems of innovation approach has been very much concerned with the Japanese case and uses the homogeneity assumption as an explicit simplification (Lundvall, 1992, p. 3).

14. Jamison maintains that 'even though there is an international technological development process, to which all countries must accommodate themselves, or a kind of technological imperative, there are significant differences as to how the accommodation takes place. There is also, ..., a cultural impact in the process of technological development' (Jamison, 1991, p. 318). He concludes that patterns of industrial innovations cannot be separated from cultural patterns and traditions. Related to such a point of view is the topic of 'social capability' as a precondition for catch-up growth which includes institutional factors such as attitudes towards economic efforts (Hurwitz, 1995, p. 124).

15. Recent applications of the economic style notion to the debate on capitalist 'models' have focused almost exclusively on the impact of cultural values on economic behaviour (Kluver, 1990). This seems to reduce economic styles to cultural values. Such a perspective may be
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compatible with single-factor approaches to economic styles, such as Mähler-Armack's (1943), but not with Spiehoff's (1992) economic 'gestalt' approach.

16. This emphasis on real types in comparative-institutional analysis distinguishes Schumpeter's and Spiehoff's ideas from Max Weber's method of ideal types which are abstracted from the complex representations of economic life.

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