



Università degli Studi di Ancona
Dipartimento di Economia

Albert O. Hirschman on Economic Evolution

Antonio G. Calafati

In: Università degli Studi di Ancona
Dipartimento di Economia
Working Papers, n. 132 (April 2000¹, August 2000²)
© by the author

Summary

In this paper it will be argued that Albert O. Hirschman's research work is a remarkable instance of a methodological shift that began in the Fifties, and of which there seems to be scarce awareness nowadays notwithstanding its relevance for some of the issues that are in the agenda of contemporary economics. In his work – so as in the work of other economists of his generation – systems theory was used as a general methodology to frame the study of structural change in the economy.

The methodological questions raised by the study of 'economic evolution', extensively discussed nowadays, were very much in evidence in economics already in the Fifties in the theory of economic development. Contrary to what it often said, attempts to build a theoretical interpretation of economic change were in fact conducted within this research programme. Indeed, the focus of Hirschman's research activity has been on the explanation of the relationship between the evolution of the social system and the economic process, and systems theory has been the methodological perspective he has relied upon in the study of this relationship. He was certainly not alone while walking along this pathway. Yet, more than other contemporary economists, Hirschman addressed, although with some elusiveness, a fundamental issue in the study of economic evolution, and *namely the micro-foundation of economic change*. Most of his research ought to be properly understood as an attempt to put forward micro-founded (meta-)theory of economic evolution.

To discuss the whole corpus of Hirschman's research work would be a too demanding task. The aim of this paper is in fact more modest. It intends to call attention to the methodology that Hirschman elaborated to address the issue of explaining 'economic evolution' – and to interpret it as a response to a class of why-questions that have constantly been prominent in the agenda of economists in the last decades.

Key words: *Hirschman, systems theory, innovation, endogenous change, economic evolution*
JEL Classification: *B3, B4, O1, O3*

Antonio G. Calafati
Università degli Studi di Ancona
Dipartimento di Economia,
Piazzale Martelli, 8
I- 60121 Ancona

calafati@deanovell.unian.it
http://calafati.econ.unian.it

“The elucidation of immediate experience is the sole justification of any thought; and the starting point for thought is the analytical observation of this experience.” (Whitehead, as quoted in Hirschman 1958, p. vii)

1. Introduction[§]

The interpretation of society as an ‘evolving and complex system’ is at the basis of much of the theoretical and empirical research that is being carried out in economics². Indeed, to understand the transformation of the social system – of some of its traits - in order to explain changes in the performances of the economy is a methodological perspective that, although widely held in this century, has gained more adherents in the last decades. Economists belonging – or even loosely linked to it – to the institutionalist (or evolutionary) tradition, the work of which is rooted in T. Veblen’s and J.R. Commons’ research programmes, have constantly interpreted the economic process as being embedded in the social system, *and the social system as being subject to a continuous process of change*. But, one ought to note that after starting to consider the economic relevance of formal and informal ‘institutions’, the shift of the focus on the ‘social system’ and its evolution was to be expected in the neo-classical paradigm too – and, indeed, it took place. In the ‘new institutional research programme’ increasingly importance is given to the economic implications of the evolution of the ‘structure’ of society³.

Notwithstanding the widespread consensus on the hypothesis of the relevance of the *evolution* social system as an object of analysis in economics, the question of *how* it can effectively be conceptualised for the purpose of understanding the performances of the economy *continues to be answered in radically different ways*. In the paper it will argued that Albert O. Hirschman’s framework deserves to be carefully re-examined against the present-day interest in the relationships between ‘institutional facts’ and ‘economics facts’. Hirschman’s work is rooted, in fact, in a methodological shift that began in the Fifties, and of which there seems to be a scarce awareness nowadays – even of the extent to which it has influenced contemporary evolutionary economics. In his work – as in the work of other economists – the significance of methodological (and epistemological) considerations in the construction of a framework to explain economic

[§] I wish to thank the Max-Planck Institute for Research into Economic Systems (Jena, Germany) for the generous hospitality it provided while conducting the research that led to this paper. Financial support from C.N.R. is duly acknowledged.

² To refer to ‘economic evolution’ meaning ‘long-range economic development’ was once common (cf. Haavelmo 1954, pp. 6-14). More precisely, the term ‘economic evolution’ is used in this paper to refer to changes in the economic process linked – in some cases through a circular causal relationship – to the transformations over time of the ‘structure’ of the system (unit of analysis) that generates the economic process.

³ North (1990) focuses on the economic consequences of the transformation of the ‘institutional settings’. His research programme may be considered the point of arrival of a new perspective that has slowly become apparent within the neo-classical paradigm. It is worth noting that in the ‘new institutional economics’ an increasing importance is being given to the transformation over time – i.e. *evolution* – of the social system.

evolution is apparent. This is a remarkable feature, since such an effort to understand the roots of economic change – an effort that finally led to the emergence of ‘development economics’ – was carried out often working under the urge to devise policy measures to match severe situations of social and economic dis-equilibrium.

As a matter of fact, the methodological questions raised by the study of ‘economic evolution’ – or ‘economic development’ – extensively discussed nowadays, were very much in evidence in economics already in the Fifties. For instance, K. Boulding⁴ explicitly proposed that the ‘*evolving structure*’ of the social system should become the starting point of analysis in economics. In addition he argued that ‘systems theory’ could be used to develop a methodology for the study of the interaction between changes in the social structure and changes in the economic process. Albert O. Hirschman’s work is probably one of the most interesting examples of the kind of economics based on the methodology advocated – but only sketchy outlined – by K. Boulding. Indeed, the focus of Hirschman’s research activity has been on the relationship between (a model of) the social system and the economic process, and systems theory has been a methodological framework to rely on in the study of this relationship⁵. He was certainly not alone while walking along this pathway. For example, G. Myrdal (1968, 1971) and K.W. Kapp (1963, 1976) moved in much the same direction, and armed with similar methodological tools. Yet, Hirschman more than others addressed, although with some elusiveness, the fundamental issue of micro-founding economic evolution.

A critical-historical reflection on Hirschman’s *oeuvre* is largely beyond the scope of this essay. The aim of the paper is more modest. It intends to call the attention to the methodology that Hirschman elaborated to address the issue of ‘economic evolution’ – and interpret it as a response to a class of why-questions that are deeply ingrained in the history of economics in this century.

2. The ‘Institutional Tradition’ and A.O. Hirschman

One of the consequences of understanding the ‘unit of analysis’ – individual agents, organised agents, set of agents – as ‘system’ is that a distinction has then to be drawn between the ‘structure of the system’ and the ‘processes’ performed by (and within) the system itself (Waddington 1977). The ‘economic process’ – whatever one refers to with this expression – is generally seen as being generated (or performed) by the ‘relevant unit’ – be it the individual, an organisation or any other set of individuals (a ‘local system’ or the whole society). From this perspective, the features of the economic process are, inescapably, dependent on the features of the ‘system’ that produces the economic process itself. In fact, ‘to describe’ the system, and then to propose a model of it, *has very often been* the starting point in economics. When this description is not explicitly

⁴ See the essays written by Kenneth E. Boulding in the Fifties on this question, later reprinted in Boulding (1968, Section II).

⁵ An early attempt to apply a mechanist version of systems theory was notably undertaken in the neo-classical paradigm (cf. Allen 1957; Lange 1977, 1981). Although this is not an issue that can be hurriedly addressed now, one should be anyway aware of the fact the Hirschman understood ‘systems theory’ as a methodology to study what can be called ‘concrete systems’ (Miller 1986) rather than ‘abstract systems’. Consequently, cognition and learning appear as two fundamental issues on which to focus the analysis.

conducted, it is because the received hypothesis with regards to the structure of the unit of analysis are taken for granted.

In one of his most well known articles Hirschman (1984) pointed out that *rarefaction of the social systems*, and the related hypothesis of an invariant sub-structure⁶, was to be considered a fundamental weakness of the neo-classical paradigm. By stressing this aspect he was in fact calling attention, by implication, to a rather prominent tradition of thought in economics that moved from a 'substantive model' (Polany 1944) or 'institutional model' (Commons 1957) of the social system to explain economic events.

Indeed, the disconnection of the 'change' of the social system from the features of the economic process is certainly a widely shared methodological perspective in economics. For instance, it gave rise to one central research programme, namely 'growth theory'. Yet one should not exaggerate its influence – and policy relevance. Firstly, neo-classical economists have increasingly given consideration to the effects that exogenous and endogenous changes in the institutional settings of the social system have on the performances of the economy – and that, by definition, means to work with models with a lower degree of rarefaction of the social systems. North's study of the relationships between formal and informal constraints (institutions) and economic performances (North 1980, 1990) is seen as a cornerstone in the neo-classical attempts to introduce the causal significance of 'institutional facts' in economics. Secondly – and most importantly as far as the aim of this essay is concerned – one should not overlook the fact that in economics the 'institutional tradition' in the study of economic evolution – a tradition to which Hirschman certainly belongs to – has had a large impact both on economic theorising and on collective decision-making. In this century, the relationship between the (changing) structure of the human system concerned and the features of the economic process generated by that system has been thoroughly investigated in economics. The relevance of the tradition of studies that denies the neutrality of institutional changes (of changes in the social system) with respect to the economic process is unquestionable. As a matter of fact, the 'theory of development' that emerged in the late Forties, – and that has been one of the most important chapters in the history of economics – is devoted to the study of *the evolution of the structure* of the social system and to the effects of structural changes on the performance of the economy⁷.

The methodological underpinnings of the 'theory of development' lie in the attempt to build a 'model' of the social system such that *it can produce a number of interconnected social processes*. In this way the model (of the social system) can accommodate for a variety of feedback effects linking the economic process with the structure of the system – turning the system in a self-transforming unit. For instance, the model can accommodate for 'learning' – in the elemental forms of

⁶ In the neo-classical paradigm the focus on optimality (or efficiency) of the resources allocation brought about by the allocation process suggested the search for a (virtual) system *that changes over time but maintains the property of generating an optimal allocation*. This puzzle was solved by disconnecting the economic process from everything else apart from a sub-structure of the social system *that was in turn considered invariant*: well-behaved utility and production functions. In doing so the hypothesis of 'neutrality of change' was *de facto* introduced: the social system changes over time in a way that is *neutral* with respect to its ability to generate optimal allocation of resources. Economists need not care about changes in the structure of the system as long as *preferences and technology maintain their 'well-behaved structure' over time – and the do by definition*.

⁷ See the essays contained in Hoselitz (1952) for an early attempt to formulate the question of economic development in these terms. See also Rodwin and Schön (1994) for a re-examination of some key-issues in the theory of economic development.

'learning to do (act)' and 'learning to process information' –, which is considered a cause of economic development.

From a critical-historical perspective one may note a fundamental weakness of 'development economics' – and of the 'institutional tradition' in general –, and namely the inability of most of the contributors *to put into focus the micro-foundations of the theoretical framework that was being used in their analysis*⁸. This reluctance to focusing on the 'model of man' that was being used was widespread, and probably rooted in what was called an 'over-socialisation' of individual behaviour (cf. Wrong 1961) is unquestionable and it deserves criticism particularly for two reasons. Firstly, it greatly reduced the scope for the corroboration processes of the explanations put forward – and this is not a minor question since it influenced the progress of this scientific research programme negatively⁹. Secondly, it greatly hampered the codification and transmission of knowledge among those social scientists working in that tradition.

In this respect, Hirschman's research work is a remarkable exception for the painstaking attention that he devoted to developing a *micro-founded theory* – or, better, a *meta-theory* – of economic evolution and to communicating it. In a series of works – among which one can at least indicate *A Strategy of Economic Development* (1958), *Development Project Observed* (1967), *Exit, Voice, and Loyalty* (1970) and *Shifting Involvements* (1982) – Hirschman made repeated attempt to refine and expand his theoretical framework. These works may certainly be seen from the perspective of the applied and empirical research programme he carried out in the field (see Hirschman, 1963, 1984). However, as it will be discussed in the next sections, they addressed a fundamental issue: *how can a micro-founded theoretical framework be constructed to study the relationships between 'institutional facts' and 'economic facts'?* Hirschman greatly contributed to building such a theoretical framework, and many of his most read books have to be seen as an interconnected exploration of this methodological landscape. What Hirschman tried to do was to construct explanations of economic (and social) events by considering the link between the system and its processes. By working with a 'less rarefied' model of the social system he was able to consider feedback loops that could not have been considered in the standard approach.

3. Studying Economic Evolution

The modern '*theory* of economic evolution' – the early works of T. Veblen (1989) and J. A. Schumpeter (1912) can be taken as a demarcation line – has been since the beginning marked by a tension which appears to be still unsolved (and that may be considered a source of theoretical developments). On the one side, there have been attempts to put forward a *general theory* of social change in terms of what may be called 'morphological states' of the social system – each stage

⁸ With the expression 'theoretical framework' one should do not necessarily refer to a set of causal relationships valid outside given space-time domains. This is a common misunderstanding (cf. Lawson 1998). In fact, in Hirschman, as in the institutionalist tradition, a 'theoretical analysis' is an abstract analysis of the 'mechanisms' that have generated the observed process (cf. Right 1971; Salmon 1984; Lewis 1986). Such mechanisms may still have only a 'contingent significance', but some parts of them can be even more contingent.

⁹ The necessity to focus on the 'model of man' was advocated by an institutionalist perspective by Kapp (1961), but his plea, notwithstanding the fact that was deeply rooted in the Veblenian tradition, did not produce much impact.

being associated to an economic process with specific features. Since the economic process is generated by the social system, such a general theory of change would encompass a theory of economic evolution. Probably, Schumpeter's *Capitalism, Socialism, and Democracy* (1947) is the 'general theory of social change' most known among economists. For this kind of studies – for which he had a great attraction – Schumpeter coined the terms 'historical sociology'. Veblen too proposed a sort of 'grand view' of the evolution of the social system and of the economic process. The historical sequence from 'predatory stage' to the 'barbarian stage' and to the 'industrial stage' represents a 'morphological perspective' on economic evolution, where the unit of analysis – as in Schumpeter's *Capitalism, Socialism and Democracy* – is the whole society and its economic process (Veblen 1954).

On the other side, the focus has been *on the explanation (and forecast) of event-driven sequences of economic change*. Much of the ambiguity of Schumpeter's work is indeed due to the fact that he devoted a huge amount of energy to study the phenomenon of economic evolution *also from the event-driven perspective* (Schumpeter 1939). The event-driven perspective in the study of economic evolution *is the focus of Hirschman's research work too*¹⁰. Yet, in approaching the issue of economic evolution, he proposed a framework markedly different from those developed in the institutionalist and Schumpeterian traditions.

Firstly, Hirschman, as noted earlier, did pursue the project to micro-found the analysis of economic evolution – and this is what distinguishes him from American institutionalists. In his framework individuals, business firms and public decision-makers are the prime movers of any evolutionary process taking place in the economy. Moreover, and this is a crucial step, in his framework these agents are 'institutionalised minds', endowed with a structure resembling that elaborated by H. Simon and later largely adopted in economics: *agents are conceptualised as units that host mental processes (i.e. they think)*¹¹. Agents learn and are made up of a structure that evolves over time.

Exit, Voice and Loyalties is certainly the work in which the systemic-relational perspective on agents that Hirschman shares is most visible. 'Exit' and 'voice' are to be interpreted as two classes of information flows that feed back into the 'mental process' of firms, that may (or may not) lead to changes in economic process of the agents concerned. What Hirschman does in *Exit, Voice and Loyalties* is to suggest a micro-economic foundation. Yet this new micro-economic perspective – with the centrality it gives to (social) learning – is at the basis of *A Strategy* too and of most of his subsequent works as, for instance, *Shifting Involvements*. Indeed, if there is an accusation that could be raised against 'development economics' is that it did not continued along the pathway traced by Hirschman and did not systematically address the 'issue of micro-foundations'. (But Hirschman too was not very active in stressing the relevance of the micro-foundations he was proposing and working with.)

Secondly – and this is a shift of great relevance, that has greatly influenced economics leading, for example, to the new research field of the 'industrial districts' – Hirschman systematically

¹⁰ *The Passion and the Interests* (1977) is the book in which Hirschman describes fundamental changes taking place in the individuals in the long term. But, in this case too his analysis is marked by the attempt to stress and explain the disconnection caused by events that change the expected course of history rather than by the attempt to show the inescapable continuity of historical development.**

¹¹ The cognitive perspective has been proposed as the cornerstone of the analysis of economic evolution in different research programmes. One finds that hypothesis in most of the 'types' of 'evolutionary economics' proposed during the last two decades (Witt 1990; North 1990; David 1994).

explored the meso-level in economics, that is *the dynamics of sub-sets of interacting agents*. To treat sub-sets of interacting agents as unit of analysis has gained much support during the last years. The concept of 'industrial district' – or 'local system' or 'learning region' –, so much in vogue nowadays, has been introduced to study classes of evolutionary processes that appeared to be stirred by governance mechanisms associated with specific subsets of agents. To treat an 'interacting sub-set of agents' as a 'system' requires that one is able to identify the feed-back (and feed-forward) effects that connect the dis-equilibria emerging in the system with the evaluation and reaction functions of the system. In *Exit, Voice, and Loyalties* (1970) Hirschman laid down a framework to conduct this type of analysis. Indeed, he began to explore the working of circular causation and of the mechanisms to govern the evolutionary patterns brought about by circular causation already in *A Strategy of Economic Development*.

Veblen confronted economics with the task of putting 'progressive agents' at the core of the theoretical framework to be used in the study of self-transforming economies. He coined the term '*evolutionary economics*' for such an enterprise (Veblen, 1989). On the one side Veblen's challenge, in the way in which W. Mitchell's work on national accounting made possible, was taken up in economics in the search for 'regularities' in the process of transformation. This perspective seemed at that time epistemologically sound (Hutchison 1961) and produced many remarkable contributions¹². Some decades later, taking advantages of the progress made in economics, and relying on more sophisticated epistemological foundations, Hirschman set off along the pathway traced by Veblen – by systematically exploiting the possibility opened up by treating the unit of analysis in economics as a 'progressive system'¹³. In this respect it is however important to consider that Hirschman could take advantage of the methodological progresses made possible by systems theory, which allowed him to explore the adjustment processes considering the constraint of historical time and establishing cumulative causal relationships among variables pertaining to different social spheres. He could also take advantage of the analytical progresses made in understanding the decision-making process of agents.

4. Innovations in Hirschman's Framework

The event-driven perspective in the study of economic change puts the concept (and the event) of 'innovation' at the centre of the stage. From this perspective, by definition the phenomenon of economic evolution is linked to that of 'innovation': *'innovation' is the event that sets in motion a chain of changes in the economy*. Hirschman's notion of innovation is however more encompassing and analytically more articulated than that of Schumpeter – and this explains why he had to elaborate and work with a more encompassing framework. Given the relevance that

¹² In this respect it may suffice here to refer to the work of S. Kuznets (1959, 1966).

¹³ Hirschman recounted, from his own perspective, the history of 'development economics' (Hirschman, 1980) – and other attempts were made (see, for example, Rodwin and Schön 1994). Although it is an issue that cannot be addressed in this work, the position of 'development economics' with respect to Veblen's economics agenda would deserve a detailed analysis. It is puzzling to note that the complementarity of these two traditions has not led to a synthesis between them. That may help to explain their inability to turn themselves into 'progressive paradigms', able to meet criticism from outside and to generate new theories from inside – something for which Hirschman does not offer a convincing explanation (cf. Hirschman, 1980, pp. 19-24).

the Schumpeterian tradition has nowadays in framing the study of economic evolution (driven by innovation), to propose Hirschman's perspective as an alternative – or complementary – research strategy forces us to briefly reconsider some elemental issues.

The term 'innovation' refers *to a change in the economic actions performed by an individual* (or a set of individuals the action of which are interconnected)¹⁴. Since actions are performed to generate states which by definition 'deteriorate' agents tend to repeat their actions to maintain or re-produce the desired state of the world: the stream of economic actions performed (the economic process) is what 'maintains' given states of the human system concerned. Then innovation, as Schumpeter has stressed, can be understood only against the background of the *old* flow of actions (Schumpeter 1912, Ch. 1; 1939, Ch. 1), from which the individual 'departs'¹⁵.

To understand Hirschman's perspective on economic evolution there are two things that one should bear in mind. Firstly, in contrast with the Schumpeterian tradition, he did not neglect the role of collective innovation, that is of innovations directly introduced by 'collective agents': 'development projects' being the category to which he devoted most attention. In fact, it is difficult to explain economic evolution without considering 'collective innovation', that is without considering a change in the re-allocation of resources brought about by public decisions¹⁶. After all, public investment is a relevant quota of total investment, and this fact alone amply justifies the importance given to 'collective innovation'. Hirschman has clearly showed that 'development projects' are a fundamental source of evolutionary change in the economy.

Having to address the question of under-development from the vantage point of the post-war perspective (cf. Hoselitz, 1952), and in general having to acknowledge the increasing role of government in fostering economic development, Hirschman could not neglect public intervention as a relevant elemental change. The role of public investment in underdeveloped countries – basically a re-orientation of economic resources in many senses similar to that realised by entrepreneurs through innovation – is difficult to belittle. And it is also difficult not to see the relevance of evolutionary changes started by public agents in advanced countries. An obvious example is given by 'research & development' fostered by regional and national government – probably one of the most discussed policy interventions nowadays. A second example can be public investment in infrastructures in 'losing areas' – one of the pillars of the EU's economic policy. However impervious to evidence one might be, it is difficult to defend a theory of change that does not consider collective innovation.

There is a second striking difference with respect to contemporary theoretical and empirical research on economic evolution: *Hirschman did not equate the study of the effects of innovations to the study*

¹⁴ Since human actions generate 'states of the world', with the term 'innovation' one can also refer to a change in the desired (and attained) states one expects to get to by acting.

¹⁵ In the Schumpeterian tradition the concept of innovation is often used in too narrow a way, referring exclusively to certain sub-classes of changes. Indeed, in *The Theory of Economic Development* Schumpeter focused on novelties emerging from the sphere of a small sub-set of the agents, namely 'entrepreneurs'. In addition, he had too limited a notion of 'entrepreneurial behaviour' (cf. Schultz 1990).

¹⁶ In the Schumpeterian tradition not enough consideration – if any – is given to collective innovation, which is indeed an issue of indisputable practical relevance. This may be in line with Schumpeter's understanding of the driving force of capitalism but it is certainly a shortcoming against the background of present-day market economies. In the Schumpeterian tradition, public intervention is given a fair attention only in the sphere of technological policy (Dosi *et alii* 1990).

*of innovation diffusion*¹⁷. Indeed, the priority given to the ‘diffusion of innovation’ in the study of the effects of innovation is somewhat surprising. The emphasis may be explained by the fact that the effects of innovation understood as a diffusion process can be easily formalised *as a function of time (making it possible to use in economics a larger variety of models originally formulated in other sciences)*. Obviously, the notion of diffusion is not of much use to study the impact of development projects, since by their very nature their effects propagate in the system ‘vertically’ rather than ‘horizontally’. Since this kind of analysis was not carried out to the necessary point neither by Veblen (or his followers) nor by Schumpeter, Hirschman had to introduce a set of new concepts to study the impact of innovations.

After having classified innovations, one can turn to discuss how Hirschman addresses the issue of the origins of innovations. From a systemic perspective an innovation is a change in the (economic) process. By definition a change in the process has its origins *in a modification of the system*. In turn, a modification of the system may be *endogenous*, that is related to the internal logic of the system, or *exogenous*, that is related to a modification of the environment of the system¹⁸. The concept of innovation is firstly linked to that of self-transformation of the elemental units – individuals and organisations – of the social system. The inclination to evolve over time regardless of any external pressure is a crucial feature of human systems. Veblen used the concept of ‘instinct of workmanship’ to hint to this fundamental trait of human nature as it manifests itself in the sphere of production¹⁹.

Yet ‘an intelligent agent’ will also react to a modification – or to an expected modification – of the environment by modifying its structure in order to generate the suitable process. This type of innovation, as it will be discussed later on, is of great importance in highly integrated social systems in which the ‘environments’ are in a state of almost ‘perpetual change’. These two sources of innovation has to be distinguished, yet, for the reason that while the latter is compatible with a notion of equilibrium, the first is not.

It is essential to bear in mind that in Hirschman the endogenous and exogenous *transformations of individuals and organisations over time are the root of economic evolution*, and then the main focus of analysis²⁰. Moreover, the notion of self-transforming systems opens the way to a micro-

¹⁷ An innovation is not a change in the scale of the processes. Systems can experience a modification in the scale of their processes without that affecting their structure and their ability to return to the ‘normal’ scale (Miller 1986; Bateson 1979).

¹⁸ A modification of the environment perceived by the agent as ‘salient’ gives raise to a reaction. In turn, the environment of individuals and organisations may change as a consequence (a) of the transformation of other systems – given the physical interdependence of agents – and (b) of the modification of the ‘normative settings’.

¹⁹ An ‘intelligent system’, that a system that is aware of the effects of the change on the viability of the system, will have to consider endogenous changes with respects to the environment. More the system is ‘open’, more it is the consideration that the agent should give to the system-environment relationship.

²⁰ Of course, economic evolution can be observed at the meso- and macro-level. At these levels, if the unit of analysis remains the individual, evolution can be described as a *change in the relative frequency of given classes of actions* or of given types of systems (individuals or business firms, for instance). Evolution is then modelled in terms of the frequency-dependence principle (Witt 1993; Metcalfe 1999). This certainly is a too narrow even though justifiable way of understanding the concept of evolution in economics.

foundation of 'economic change' or 'economic development' – something that is all too easy overlooked in assessing Hirschman's contribution²¹.

5. *Endogenous Change in Human Systems*

Systems may be *directly* changed by their processes. "Learning by doing" is an example – among many that have attracted the interest of economists – of this general phenomenon, which is the elemental root of 'endogenous development'. Since, in turn, a modification in the structure of the system will bring about a change in the processes of the system the result is a cumulative (circular) causation that continuously transforms the system (and its processes). The *circular* relationship between the structure of the system and its processes turns the system into a 'progressive system', that is a system that does not have an end-state or whose end-state is so far away in time that it can be neglected in the analysis (see Waddington, 1977, pp. 103-114).

This kind of cumulative (circular) change is of striking importance in economics. It played an important role in classical political economy too. The circular relation between the size of the market, division of labour and productivity in Adam Smith is a notable and well-known example of evolution coming from within the system, in the sense that it is produced by the working of the system. A second well-known example is the relationship between the scale of the economic process and the marginal productivity of land in D. Ricardo's model of capital accumulation.

This perspective re-emerged as a crucial mechanism of change within many research programmes during the last decades²². Yet it has been Hirschman who has more extensively and coherently used this methodological perspective focusing on the 'structural transformation' taking place at the micro-level (individuals and organisations), and investigating the role of information in the process of evolution.

The basic analytical idea is that the processes that take place within the system not only produce 'states', they also produce 'information' – i.e., 'news of a difference'. Such information *changes* the structure of the system: information *changes the system* – be it an individual, an organisation or the society. The so-called 'learning by doing' (or 'calibration') is a familiar case (to economists) of this fundamental phenomenon. But information is also produced by other processes as 'thinking', or 'observing' (see Devlin, 1991) – processes that unfold in the system simultaneously with the economic process. We may label as 'endogenous transformations' the class of transformations of the system over time that takes place as a direct consequence of the information induced by the production of information.

²¹ Consider the use in Hirschman's *The Strategy of Economic Development* (pp. 47-48) of Simon's 'learning model'.

²² Myrdal (1968) and Kapp (1976) tried to put 'circular cumulative causation' at the basis of the Institutionalist paradigm. 'Circular cumulative causation' has however a much larger use in economics. 'Increasing returns' (Young 1928; Kaldor 1957; Arrow 1962), which is very much in vogue nowadays, is an instance of this type of dynamic interrelationships.

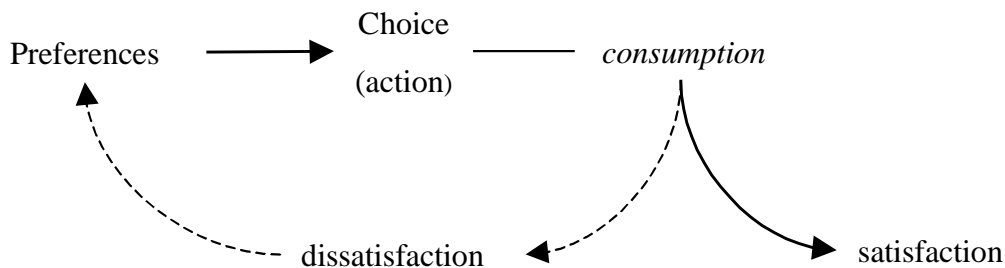


Fig. 1 - The evolution of preferences

The following three instances of circular relationships between the system and its processes taken from Hirschman's work may be taken as an illustration of his methodology. Let us firstly consider the effect of disappointment on preferences discussed in *Shifting Involvements* (1982, Ch. 1). The individual performs a decision process and an action through which the desired state is generated. The desired state has first the form of a project to which certain expectations are attached, and then it takes the form of a realisation, i.e. an actual state²³. Let us introduce the hypothesis that the state attained by acting not only generate satisfaction but, in the case of human beings, generates also dissatisfaction. This result induces a change in the desired states, that is, in the preferences of the individual, who will consequently change the process performed in the subsequent period. Preferences being an element of the structure of the system, their modification is a form of endogenous evolution.

The principle of 'hiding hand' is the second example of endogenous evolution, playing a decisive role in Hirschman's theoretical framework. The principle states that human beings underestimate both *their creativity* – that is, their ability to acquire the necessary knowledge to overcome an unbalance – and *the difficulties* of the tasks they set for themselves (cf. Hirschman, 1967, pp. 9-34). This principle, once introduced, can be generalised and also applied to agents that are aggregates of individuals, like organisations or collective agents.

The principle of 'hiding hand', in fact, implies that the 'implementation process' generates information on unexpected difficulties to implement the project – i.e., the innovation – as initially envisaged. This information activates a learning process that may generate – and very often generates – the kind of knowledge required *to overcome* the unexpected difficulties (cf. Hirschman, 1967). This principle is again linked with the notion of the agent as a progressive system, whose evolutionary path is determined by the creative response to unanticipated unbalances that he is forced to solve²⁴.

²³ "The independent existence of the project with its expectations implies that it may differ considerably from reality as it is experienced when the project is executed ..." (Hirschman 1982, p. 12).

²⁴ The irreversibility of the implementation process – as of any other process – is to be considered here, of course in the form of the costs of giving it up.

A third example of the circular relationship between the system and its processes refers to the overall social system, and concerns the relationship between the ability to invest and the level of investment in a backward country. Let us consider the ability to invest, defined as “...the perception of investment opportunities and their transformation into actual investments.” (Hirschman, 1958, p. 35). Consider the simple model in Figure 6.2, where the ability to invest is related to the size of the modern sector in the economy, which in turn depends on the level of investment²⁵. This is clearly a cumulative process determined by the fact that the process generated by the system – for example, a firm – has a feed-back effect on the structure of the system itself. In terms of the concept of ‘human systems as minds’ a change in the ability to invest is a (evolutionary) transformation of the system. A better perception of investment opportunities is the consequence of the increase in knowledge.

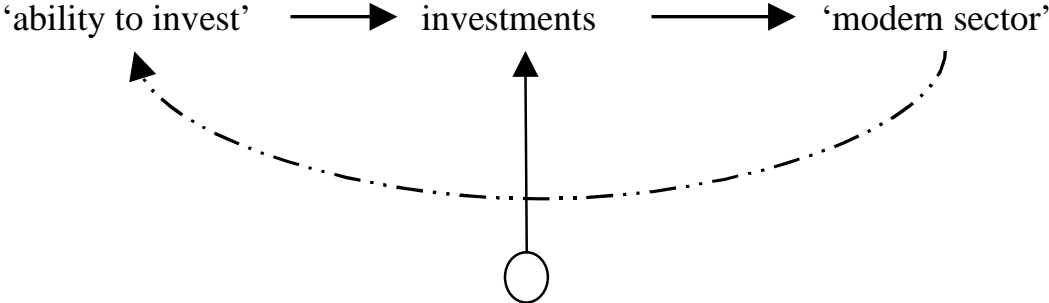


Fig. 2 - Positive feed-back loop influencing the rate of investment

This three examples show how innovation is generated – or made possible – by the fact that the processes of the system produce information that feeds back into the structure of the system.

6. The Diffusion and Propagation of Innovations

Given an ‘innovation’ – in its spatial and temporal specificity – one of the questions to be scientifically addressed is to trace – and to model – the chain of effects it has produced (or will produce) in the economy²⁶. In Schumpeter’s works one can hardly find the attempt to perform an analytical treatment of the phenomenon of the diffusion and propagation of innovation. He was mostly interested in the macroeconomic pattern (cycles) emerging from the diffusion of

²⁵ Hirschman argues that in the under-developed countries “...total mobilizable savings exceed total investing capacity.” (Hirschman 1958, p. 37).

²⁶ One may be confronted with the problem of finding the *given* kind of elemental change that could generate the *desired* chain of effects. That is, one can assume a policy perspective and starts looking for the elemental change to be induced in order to stir the system toward the desired state.

innovations²⁷ and the institutional conditions – particularly the working of the financial markets – that make the introduction of the innovation possible. Veblen too did not devote much effort to following the lines of evolutionary changes as they unfold in the economy and society as a consequence of an initial elemental change, i.e. innovation. Probably, his *Imperial Germany* (1915) is the work where he came closest to performing this task – but without putting forward analytical explanations. By contrast, the thorough analysis of the propagation of innovation in the social system seems to be the principal preoccupation in most of Hirschman's contributions. The *Strategy of Economic Development* is a detailed analysis of various classes of 'chains of effects' that may take place in the social system as a consequence of a private or collective innovation.

By definition elemental changes produce 'chains of *horizontal* and *vertical* effects'. The horizontal effects refer to 'imitation' or 'replication' of the given innovation. The vertical effects refer to the impact of the innovation in terms of changes in the environments of the agents that are somehow interconnected with the agent that introduced the original innovation.

The diffusion of innovation has been largely investigated, and constitutes one of the main focuses of the Neo-schumpeterian and Kayekian research programmes and of modern evolutionary economics. Population thinking and frequency-dependence are two key concepts in these research programmes (Witt 1993; Metcalfe 1999). Yet although strongly emphasised in the Schumpeterian and Hayekian traditions, imitation (or replication) encompasses only an aspect of the question of the effects of innovation²⁸. It is certainly an important aspect, which deserves to be stylised and explained. Indeed, Veblen (1988) addressed this issue in the sphere of consumption patterns or meta-preferences in general. And Hirschman himself did not neglect the importance of this phenomenon, which in *Shifting Involvements* (1982) is central to this argument (see also Hirschman 1993).

Yet one has to consider that an innovation propagates by way of being an external shock – a change in the environment – for agents other than the one that introduced the initial innovation. Open systems are linked by a web of relationships. Thus innovations are very likely to induce a reaction by those systems the environment of which has changed as a result of the initial innovation. Indeed, against the background of technical interdependence (and informational relationship) *innovation objectively changes the environment of the agents which have a relationship with the innovator*. Consequently, one has to consider the reaction of those agents the environments of which have been modified by the innovation introduced by another agent – or, to the extent that

²⁷ By moving from Schumpeter, however, the study of innovation has become a central theme in evolutionary economics, with the focus on 'sector dynamics'.

²⁸ One of the side effects of concentrating on the diffusion process is to eschew the asymmetry in the time dimensions implied in the propagation process. This asymmetry is instead often crucial to explain the possible evolution of the system. Instead of analysing the causal chain among the variables involved in the process, diffusion has come to be studied as a function of time. A differential equation may obviously be interpreted as a description of a time series. If instead it is taken as a 'law of diffusion' to be used to explain a specific pattern of diffusion, the relevance of time in the explanation is eliminated. The rapidity of adjustment depends on a set of factors that can be assessed only in a 'situation' in which the substantive features are empirically specified. Firstly, one has to consider how the physical dimension of social processes constrains the implementation of change. Nature and human agents need time to 'organise' matter, energy and information. Not to side-step the role of time in the 'organisation' of matter and energy (cf. Geogescu-Roegen, 1971; Kapp 1976; Morin 1990) is in fact a fundamental feature of the evolutionary perspective.

the given innovation has been imitated, by the innovations introduced by the pioneer and his followers.

It seems appropriate to consider these induced changes as ‘innovations’. They certainly are changes in the course of actions: they led to *new* flow of actions. In this case they can be seen as ‘attempts in system maintenance’ (Hirschman 1971, p. 35) – that is, attempts to establish again an ‘equilibrium’ in the relationship between the system and its environment after that the equilibrium was disturbed by changes in the environment caused by the innovation initially introduced by the innovator. One may define innovations that are attempts at ‘system maintenance’ as ‘induced innovations’ – in order to distinguish them from those innovations that directly stem from within the system.

To perform the analysis of the vertical effects of innovation Hirschman (1958, chap. 6) introduced the concepts of ‘backward linkage effects’ and ‘forward linkage effects’, which are the core of his proposed strategy for economic development. It is worth stressing that the notion of ‘linkage’ does not refer to the physical relationship that is established once a firm is ‘vertically integrated’, rather it refers to the possible causal effects of information. This is nicely expressed in the following quotation: “... every decision should be analysed to discover its possible linkages with other decisions that might follow it.” (Lindbloom/Hirschman, 1962, p. 208).

The propagation of innovation through a chain of vertical effects is obviously very important to understand and model the impact of a ‘development project’. In this case, in fact, almost by definition, horizontal diffusion through imitation and replication generally plays no significant role and, very often, no role at all. Only by introducing the concept of ‘vertical effects of innovation’ the analysis of development projects come to occupy a relevant position in economics. The analytical insights into this issue due to Hirschman’s framework have not been properly appreciated. Indeed, it gave rise to a recognisable and salient research programme. ‘Projects evaluation’ is a well established field of research nowadays²⁹. Yet partly due to the barrier of standard cost-benefit analysis and partly due to the fact that it requires a propensity for interdisciplinarity ‘development projects evaluation’ has been confined to a sort of no-man-land in social sciences. In fact, it is exactly the possibility to interpret the constellation of effects of a development projects without the assumption of a stationary environment – as it is the case with cost-benefit analysis – and without excluding social variables that makes Hirschman’s framework extremely interesting.

7. Novelties, Unintended Consequences and Evolution

Although it is not possible to say how long it will take to reach the lock-in position (and how much the innovation will spread in society by then), in principle the diffusion process has an end. This is why we may think of the lock-in position as a sort of (temporary) equilibrium. By contrast, Hirschman’s analysis leads to an interpretation of evolution *as an ongoing process*: evolution is driven by a never ending flow of innovations. Firstly, as discussed earlier, the flow of innovation is continually generated by the link between the processes of the system and the structure of the system. In this case, the innovation is introduced to reduce the differences between the desired and actual states of the system: differences brought about by the information produced during the unfolding of the processes of the system.

²⁹ An assessment of this field of study, specifically related to Hirschman’s work, is conducted in Tendler and Freedheim 1994). See also in the same collection of study the contribution by Picciotto (1994).

Secondly, the continuity of the flow of innovation is sustained by the fact that vertical propagation gives rise to 'unsynchronised' changes. An innovation that is an 'attempt at system maintenance' made by the agent A is likely to be introduced against an environment that will change as a result of attempts at system maintenance performed by other agents in the overall system. Thus, in Hirschman's frameworks the system is in a state of permanent dis-equilibrium³⁰. Indeed, by adding the phenomenon of propagation to that of diffusion the concept of equilibrium does not retain any relevance in the study of the economic change.

There is a further important feature of Hirschman's work that it is necessary to mention with respect to his conception of 'economic evolution', and namely 'complexity'. An evolving system is 'complex' if its behaviour – that is, the path that it will follow – cannot be fully predicted. From an evolutionary perspective the system changes because of the unfolding in time of a given chain of causal effects initiated at time $t=0$ by an innovation. This chain of effects may be intersected, and modified, by a second chain of causal effects originated in any 'point' of the system at time $t+k$. If we assume that at time $t=0$, when the conjecture of the evolution of the observed system was formulated, the emergence of the second chain of effects could not be predicted at all we may refer to the system as a 'complex system'.

Hirschman suggests two reasons as sources of complexity: 'genuine novelties' and 'unintended consequences' of human action. Although to stress the centrality of novelties and unintended consequences has become customary nowadays (Witt 1993), it is still interesting to reflect briefly on what are their origins and which role they play in Hirschman's framework – and also how they affect the policy-making process.

Analytically, the notion of 'novelty' is rooted in the assumption that 'thinking may be activated by thinking', and in the fact that the outcome of thinking is discontinuous: we are not fully aware our cognitive processes: we may observe the outcome of thought without being able to trace the process that led to that outcome. This is very much like to what Popper observed with respect to the appearance of a scientific theories, and to the impossibility and irrelevance of trying to trace the process behind that (Popper 1959). A 'novelty' is in fact a type of information generated by the thinking process, and is fully unpredictable. Consequently, an innovation that stems from a 'novelty' is unpredictable too.

Complexity is also generated by the phenomenon of 'unintended consequence', which is rooted in the conjectural nature of the framework on which we build our decisions. Since we cannot expect that the framework we rely on to take a decision covers all the direct implications of our decision (and action), it follows that 'unintended consequences' are very likely to come about. Again, one has to consider the symmetry between scientific reasoning and decision-making. Novelties and unintended consequences as elemental sources of innovation challenge, according to Hirschman, what he regards as one of the central tenets of orthodoxy in economics:

“ [...] that change, particularly major social change, is something to be wrought by the undeviatingly purposeful actions of some agents is certainly far more widespread than the view that change can also occur because of originally unintended side effects of human actions which might even have been expressly directed toward system maintenance.” (Hirschman 1971, pp. 34-35).

³⁰ 'A 'system' or economy is never finished. Today's system or economy-imbalance is likely to turn into tomorrow's subsystem or economy-out-of-the balance, because of unforeseeable repercussions, newly emerging difficulties, unanticipated counterstrategies, changing tastes or techniques, or whatever other forces with which the system or economy has to deal'. (Lindbloom and Hirschman 1962, 201).

To acknowledge the existence of novelties and unintended consequences of human action, then, is the way “... to underline the multiplicity and creative disorder of human adventure, to bring about the uniqueness of certain occurrence, and to perceive an entirely new way of turning historical corner.” (Ibid. p. 27).

If the state of the world s_t is generated by a purposeful action, it is by definition embedded in the system – an individual, an organisation – that has generated the action itself. Yet “one of the principal lessons of the past itself [is that] the possibility of encountering genuine novelty can never be ruled out” (Hirschman 1971, p. 28). The alertness of the social scientist about the unintended consequences of human actions is for Hirschman a key to understand the observed pattern of evolution: “there is a special justification for the direct search for novelty, creativity, and uniqueness: without these attributes change, at least large-scale social change, may not be possible at all.” (p. 28).

The acknowledgement of ‘genuine novelty’ and ‘unintended consequences’ leads to a new foundation of policy-making, and certainly explains what has been critically called the ‘latitude’ of Hirschman’s policy recommendations (Rodwin and Schön 1994, p. vii). Indeed, starting from these premises ‘ex-ante policy analysis’ turns into a sort of ‘explanatory forecasting’ (Waddington 1977, pp. 198-199) concentrating on the *possibility* of the future states envisaged rather than on their probability³¹ – a position that could hardly be criticised by contemporary epistemological canons. Since the future can only be explored, policy-makers, and the society, have to be aware of the fact that in the course of the explorations new policies and collective action may turn out to be relevant and pertinent. The policy-adviser has then to step back, and set for him the task of discovering what seems to be possible to achieve, without pretending to exactly know what will happen.

This is a position, in addition, that assigns to societies a high degree of liberty in trying to shape their future:

“the fundamental bent of my writings has been to widen the limits of what is or is perceived to be possible, be it at the cost of lowering our ability, real or imaginary, to discern the probable.” (Ibid., p. 28).

8. Conclusions

The study of economic evolution has a long tradition in economics. It is surprising to note, though, that the most relevant episodes of its history are still disconnected. In the last two decades there has been a strong revival of the Schumpeterian and Haykian perspective on economic evolution, which may have contributed to obscuring other research programmes. Yet it is difficult to neglect that what may be loosely called the ‘institutionalist tradition’ has greatly contributed to the understanding of economic evolution, addressing most of the questions that are nowadays on the agenda of ‘evolutionary economics’. By calling attention to some aspects of Hirschman’s work it was intended to show the *strong theoretical guidance* of this tradition – something that is all too often grossly overlooked.

³¹ This is a way to look at the unintended consequences of human actions radically different from that common in economics from Adam Smith, namely of stressing that ‘equilibrium’ or ‘order’ is *the* unintended consequence (cf. Hirschman 1971, p. 34).

The thesis that economics has 'to deal' with individuals and agents as 'progressive systems' was first articulated by T. Veblen. But it has been thoroughly elaborated by Hirschman, since his *The Strategy of Economic Development* was published in 1958. However flawed his theories of the evolution of human systems might appear when retrospectively judged, it is time to acknowledge that his methodological perspective has made possible a deeper understanding of the phenomena of economic change. Differently from other critics of neo-classical economics, he proposed, and worked with, alternative models of the behaviour of individuals and organisations (and meta-systems). On these he based his explanations and policy proposals. Hirschman was successful where Veblen, not keeping up to his promise, failed (and in a task Schumpeter never tried to accomplish): *doing economics with 'progressive units' as building blocks of the theory*.

A reappraisal of Hirschman's research project would not only be a step towards a more balanced history of the study of economic evolution – a task that deserves some attention anyway. It would be also important to complement the contemporary research agenda in this field of study. The methodological perspective from which Hirschman has addressed the explanation of economic and social phenomena could be worked out only by assuming an epistemological stance radically different from Friedman's canons, very prominent in economics in the Fifties. Now that the *theoretical nature* of 'causal histories', never in doubt at the epistemological level, is winning some support in economics, Hirschman's methodology may finally appear as a signpost for economists interested in explaining the phenomenon of economic evolution.

Bibliographic references

- Arrow, K. J. 1962. The Economic Implication of Learning-by-Doing, *Review of Economic Studies*, 29, 155-73
- Bateson, G. 1979. *Mind and Nature. A Necessary Unity*, London, Wildwood House
- Boulding, K. E. 1968. *Beyond Economics*, Ann Arbor, The University of Michigan
- Burns, T. R., Baumgartner T., Deville P. 1985. *Man, Decisions, Society*, Gordon and Breach, London
- Calafati, A. G. 1998. Labour Supply and Unemployment, in: Michie, J. and Reati, A. 1998 (eds.), *Employment, Technology, and Economic Needs - Theory, Evidence, and Public Policy*, Cheltenham: Edward Elgar
- Commons, J. R 1957. *Legal Foundations of Capitalism*, Madison, University of Wisconsin
- David, P. 1994. Why are institutions the 'carriers of history'? Path-dependence and the evolution of conventions, organizations and institutions, *Structural Change and Economic Dynamics*, vol. 5, 205-220
- David, w. L. 1997. *The Conversation of Economic Development*, Armonk, M.E. Sharpe
- Devlin, K. 1991. *Logic and Information*, Cambridge, Cambridge University Press
- Dopfer, K. 1991. "Toward a Theory of Economic Institutions: Synergy and Path Dependency", *Journal of Economic Issues*, vol. 25, n. 2
- Dosi, G., Pavit K. And Soete L. 1990. *Economics of Technical Change and International Trade*, New York, New York University Press.
- Friedman, M. 1953. *Essays in Positive Economics*, Chicago, University of Chicago Press
- Galbraith, J. K. 1972². *The New Industrial State*, London, Penguin Book
- Georgescu-Roegen, N. 1971. *The Entropy Law and the Economic Process*, Cambridge (Mass.), Harvard University Press
- Haavelmo, T. 1954. *A Study in the Theory of Economic Evolution*, Amsterdam, North-Holland
- Hirschman, A. O. 1970. *Exit, Voice, and Loyalties. Response to Decline in Firms, Organisations and States*, Cambridge (Mass.), Harvard University Press
- Hirschman, A. O. 1958. *Strategy of Economic Development*, New Haven, Yale University Press
- Hirschman, A. O. 1991. *The Rethoric of Reaction. Perversity, Futility, Jeopardy*, Cambridge (Mass.), Harvard University Press
- Hirschman, A. O. 1977. *The Passions and the Interest. Political Arguments for Capitalism before its Triumph*, Princeton, Princeton University Press
- Hirschman, A. O. 1982. *Shifting Involvements. Private interest and Public Action*, Princeton, Princeton University Press
- Hirschman, A. O. 1984A. *Getting Ahead Collectively: Grassroots Experiences in Latin America*, New York, Pergamon Press
- Hirschman, A. O. 1984B. Against Parsimony: Three Easy Ways of Complicating some Categories of Economic Discourse, in *Economics and Philosophy*, 1(1)
- Hirschman, A. O. 1983. "The Principles of Conservation and Mutation of Social Energy", *Grassroots Developments (Journal of InterAmerican Foundation)*, 7(2)
- Hirschman, A. O. 1993. Exit, Voice, and the Fate of the German Democratic Republic, *World Politics*, 45, 173-202
- Hodgson, G.1988. *Economics and Institutions*. Cambridge, Polity Press

- Hoselitz, B. F. (ed.) 1952. *The Progress of Underdeveloped Areas*, Chicago: University of Chicago Press
- Hutchison, T. W. 1960. *The Significance and Basic Postulates of Economic Theory*, New York, Kelley
- Kaldor, N. 1957. A Model of Economic Growth, *Economic Journal*, 67, 581-624
- Kapp, K. W. 1961. *Towards a Science of Man in Society - A Positive Approach to the Integration of Social Science*, The Haugue, Martinus Nijhoff
- Kapp, K. W. (1963). *Hindu Culture, Economic Development and Economic Planning in India*, Bombay, Asia Publishing House,
- Kapp K. W. 1976. The Open-System Character of the Economy and its Implications, in Dopfer, K. 1976 (ed.). *Economics in the Future: Towards a New Paradigm*, London, Macmillan
- Kuper, A. 1999. *Culture. The Anthropologist Account*, Harvard, Harvard University Press, Harvard
- Kuznets, S. 1959. *Six Lectures on Economic Growth*, Glencoe, Free Press
- Kuznets, S. 1966. *Economic Growth and Structure. Selected Essays*, London, Heinemann
- Lawson, T. 1998. *Economics and Reality*, London, Routledge
- Lewis, D. 1986. Causal Explanation, reprinted in David-Hillel Ruben (ed.) 1993. *Explanation*, Oxford, Oxford University Press
- Metcalfe J. S. 1988. *Evolutionary Economics and Creative Destruction*, London, Routledge
- Miller, J. G. 1986³. La teoria generale dei sistemi viventi, Milano, Franco Angeli
- Morin, E. 1990. *Introduzione al pensiero complesso*, Milano Sperling & Kupfer
- Myrdal, G. 1968. *Asian Drama. An Inquiry Into the Poverty of Nations*, New York
- Myrdal G. 1971. *Economic Theory and the Underdeveloped Regions*, New York, Harper
- Nelson, R. R. and Winter S. G. 1980. Firm and Industry Response to Changed Market Conditions: An Evolutionary Approach, reprinted in Witt, U. (1993)
- Nelson, R. 1995. Recent Evolutionary Theorizing about Economic Change”, in Journal of Economic Literature, vol. XXXIII, pp. 48-90
- North, D.C. 1990. *Institutions, Institutional Change and Economic Performances*, Cambridge, Cambridge University Press
- North, D.C. 1981. *Structure and Change in Economic History*, W.W. Norton & Company, New York
- Parsons, T. and Shils E. A. (ed.) 1959. *Toward a General Theory of Action*. Harvard University Press, Cambridge (Mass.)
- Picciotto, R. 1994. Visibility and Disappointment: The New Role of Development Evaluation, in Rodwin L. and Schön D. A. (eds)
- Polany, K. 1944. *The Great Transformation*, Holt, Rinehart & Winston, New York
- Popper, K. 1959. *The Logic of Scientific Discovery*, London, Hutchison
- Radzicki, M. J. 1988. Institutional Dynamics: An Extension of the Institutional Approach to Socioeconomic Analysis”, *Journal of Economic Issues*, vol. 22, n. 3
- Rodwin L. and Schön, D.A. (eds.) 1994. *Rethinking the development experience*, The Brookings Institutions, Washington D.C.
- Von Right, G.H. 1971. *Explanation and Understanding* New York (Ithaca), Cornell University
- Sabel, C. 1994. Learning by monitoring: the institutions of economic development, 232-274 in Rodwin L. and Schön, D.A. (eds.) 1994
- Salmon, W. C. 1984. *Scientific Explanation and the Causal Structure of the World*, Princeton, Princeton University Press
- Schön D. 1994. Hirschman's elusive theory of social learning, 67-95 in Rodwin L. and Schön, D.A. (eds.) 1994

- Schultz, T. W. 1975. The Value of the Ability to Deal with Dis-equilibria, reprinted in Schultz, T. W. (1993)
- Schultz, T. W. 1993. *The Origins of Increasing Returns*, Oxford, Blackwell
- Schumpeter, J. A. 1934. *The Theory of Economic Development*, Cambridge (Mass.), Harvard University Press
- Schumpeter, J. A. 1939. *Business Cycles. A Theoretical, Historical and Statistical Analysis of the Capitalist Process*, New York, McGraw-Hill
- Schumpeter, J. A. 1947. *Capitalism, Socialism, and Democracy*, London, Harper & Brothers Publishers
- Schumpeter, J. A. 1954. *History of Economic Analysis*. Oxford, Oxford University Press
- Simon, H. 1976. From Substantive to Procedural Rationality, in Latsis, S. (ed.), *Method and Appraisal in Economics*, Cambridge, Cambridge University Press
- Simon, H. 1983. *Reason in Human Affairs*, Stanford University Press, Stanford
- Swedberg R. 1991. *Schumpeter. A Biography*, Princeton University Press, Princeton
- Tandler, J. and Freedheim S. 1994. Bring Hirschman Back In: S Case of Bad Government Turned Good, in Rodwin L. and Schön D. A. (eds)
- Tilman, R. 1996. *The Intellectual Legacy of Thorstein Veblen*, London, Greenwood Press
- Veblen, T. (1904/1975). *The Theory of Business Enterprise*, Clifton, Augustus M. Kelley
- Veblen, T. 1898. "Why Is Economics Not an Evolutionary Science", *Quarterly Journal of Economics*, vol. 12
- Veblen, T. 1954. *Imperial Germany and the Industrial Revolution*, New York, Viking Press
- Waddington, C. H. 1977. *Tools for Thought*, New York, Basic Book
- Weber, M. 1973. *Gesammelte Aufsätze zur Wissenschaftslehre*, 4th edition, Tübingen, J.C.B. Mohr (Paul Siebeck)
- Witt, U. 1993. Evolutionary Economics: Some Principals, in Witt, U. (ed.), *Evolution in Markets and Institutions*, Heidelberg, Physica-Verlag
- Wrong, D. 1961. The Oversocialized Conception of Man in Modern Sociology, *American Sociological Review*, 26(2).
- Young, A. A. 1928. Increasing Returns and Economic Progress, *The Economic Journal*, Vol. 36, 527-542