Introduction

Uwe Cantner, Alfred Greiner, Thomas Kuhn and Andreas Pyka

This Festschrift attempts to cover the scientific work that Horst Hanusch has been accomplishing during the past 40 years or so. Looking at his publication record, one can easily identify several periods of research interest, starting with public finance in the 1970s, then branching out into neo-Schumpeterian and evolutionary economics from the second half of the 1980s on, and finally diversifying into financial markets starting in the mid-1990s. Only recently have these various research interests merged into the so-called comprehensive neo-Schumpeterian approach (CNSA) built on just three pillars: the industrial sector, the state, and the financial sphere. In the following we want to track briefly the research path taken by Horst Hanusch, leading finally to the CNSA.

THE RESEARCH PATH TAKEN

Public Finance and Public Economics

Horst Hanusch’s work in public finance started when he was a university assistant under Horst-Claus Recktenwald at the University of Nuremberg in the 1970s. His primary interests were in the theory of public goods (Hanusch, 1972) and studies on tax incidence (Hanusch, 1976). When he was a professor at the University of Augsburg his research focus shifted towards productivity and efficiency in the state sector (Hanusch, 1982, 1983, 1984). The work that followed included that with Karl-Heinz Weiss on tax policy in rationing frameworks (Hanusch and Weiss, 1988), with Gerhard Rauscher on communal policy issues (Hanusch and Rauscher, 1981), with Klaus-Norbert Münch on unemployment compensation and distribution (Hanusch and Münch, 1982), with Peter Biene on voting behaviour (Hanusch and Biene, 1985), with Manfred Schlumberger on cost–benefit analysis (Hanusch and Schlumberger, 1989), with Günther Jänsch (Hanusch and Jänsch, 1988) and Uwe Cantner on efficiency in
Recent advances in neo-Schumpeterian economics

the public sector (Hanusch and Cantner, 1991; Cantner et al., 1995), with Alfred Greiner on tax policy in a framework of endogenous growth (Greiner and Hanusch, 1998), and with Thomas Kuhn on tax revenue equalization at the regional level (Hanusch and Kuhn, 1985, 1991), on environmental issues, and on cost–benefit analysis (Hanusch, 1994). The research results achieved finally received international attention, leading to Horst Hanusch’s presidency of the International Institute of Public Finance (IIPF) from 1994 to 1997. He then was responsible for outstanding international IIPF conferences: ‘The Changing Role of the Public Sector: Transitions in the 1990s’ (Lisbon, 1995), ‘Globalization of Economic and Financial Activities’ (Tel Aviv, 1996) and ‘Public Investment and Public Finance’ (Kyoto, 1997).

Neo-Schumpeterian and Evolutionary Economics

The branching out into neo-Schumpeterian and evolutionary economics was fuelled by Hanusch’s friendship with Wolfgang Stolper, one of Schumpeter’s close disciples. During the early 1980s both discussed the possibility of an international society devoted to Schumpeterian economics. This was a time when a wide range of economists started to take note once more of Joseph Alois Schumpeter, who had been more or less forgotten for around three decades. The situation in the early 1980s was characterized by abundant scientific opportunities for Schumpeterian and later neo-Schumpeterian economics. Both approaches were considered extremely broad, in a period when traditional economic approaches were increasingly criticized for addressing issues seen as of minor relevance to the economic problems arising after the difficult decade of the 1970s, affected by two oil crises. The economic mainstream concentrated on analysing market-based allocations, as well as the prerequisites for the working of the price mechanism, and on short-run effects and market efficiency. In contrast, the modern Schumpeterian approach took the long-run perspective by focusing on the drivers of change. Leaving behind the tight corset of mechanical equilibrium-oriented analysis, homogeneous actors and technologies, as well as perfect rationality, this approach opened up possibilities for analysing innovation processes as collective learning processes, including volatile growth and uneven development paths accompanied by structural changes.

In this period, the combined initiatives of Wolfgang Stolper and Horst Hanusch finally led to the foundation of the International Joseph A. Schumpeter Society (ISS) in Augsburg, Germany in September 1986. The Society’s statutes were signed by Mark Perlman, Horst-Claus Recktenwald, Michio Morishima, Ernst Helmstädt, Wolfgang Stolper and Horst
Hanusch. The Society developed quite quickly, not least because Horst Hanusch was very successful at institutionalizing a world congress of the Society in alternate years. Scholars of high repute served as ISS president, starting with Wolfgang Stolper, followed by Arnold Heertje (Siena, 1988), F.M. Scherer (Airliehouse, VA, 1990), Yuichi Shionoya (Kyoto, 1992), Ernst Helmstädtäder (Münster, 1994), Gunnar Eliasson (Stockholm, 1996), Dennis Mueller (Vienna, 1998), Stan Metcalfe (Manchester, 2000), Robert Lanzilotti (Gainesville, FL, 2002), Franco Malerba (Milan, 2004), Jean-Luc Gaffard (Nice, 2006), and recently Maria Fonseca Derengowski (Rio de Janiero, 2008).

With the foundation of the ISS, Horst Hanusch and his collaborators set up research projects devoted to innovation and evolutionary dynamics: Markus Hierl with work on the relationship between innovation on the one hand and productivity and profitability on the other (Hanusch and Hierl, 1992), Alfred Greiner with models on the dynamics of the Schumpeterian firm (Hanusch and Greiner, 1993), Georg Westermann on an empirical approach towards localized technological change (Cantner et al., 1998b), Christian Boucke with work on innovation systems (Boucke et al., 1994), Jens Krüger with work on international growth and productivity development (Krüger et al., 2000), and Uwe Cantner with methodological considerations on heterogeneity and evolutionary change (Cantner and Hanusch, 2001), formal and empirical approaches to localized technological change, innovation and international trade (Cantner and Hanusch, 1990), international productivity dynamics (Cantner et al., 2003), innovation systems and technology flow analysis (Cantner and Hanusch, 1999), Schumpeterian growth policy (Hanusch and Cantner, 1997), innovation strategies (Cantner et al., 1998), and industry dynamics and industry evolution (Cantner and Hanusch, 1998a). These made up the research agenda until about 2000. After that another generation of collaborators took over: Markus Balzat on national innovation systems (Balzat and Hanusch, 2004), Thomas Grebel on entrepreneurship (Grebel et al., 2003), Michael Menhart on industry dynamics in service industries (Menhart et al., 2004), Bernd Ebersberger on energy issues (Pyka et al., 2004), and Andreas Pyka on innovation strategies (Cantner et al., 2000), entrepreneurship, energy and environmental issues, and industry dynamics and evolution. Currently a third generation of innovation-interested collaborators is working under Horst Hanusch. The research interests of Nicole Bieber, Torben Karl, Florian Wackermann and Gerhard Ilg continue the projects started earlier and are devoted to high technology and the financial sector, knowledge diffusion, efficiency and productivity, and co-evolutionary processes.

Of additional importance to research in Schumpeterian and evolutionary economics has been the founding of the *Journal of Evolutionary*
Recent advances in neo-Schumpeterian economics

Economics in 1991. Together with Mark Perlman, already the founder of the Journal of Economic Literature, Horst Hanusch set up an international forum for research in evolutionary economics which is ranked in the top two in the field of innovation and evolutionary economics, and among the top 80 in economics in general. The journal has, over time, been edited by Steven Klepper, Elias Dinopoulou, Luigi Orsenigo and Uwe Cantner.

Financial Markets

In the mid-1990s, probably triggered by tremendous problems in the national and international financial markets, Horst Hanusch felt that financial markets also needed a non-neoclassical theoretical foundation, probably an evolutionary and/or a Schumpeterian one. The resulting line of research has been accomplished with Friedrich Kugler on a quartic modal approach as an alternative to rational expectations (Hanusch and Kugler, 1995), with Jörg Sommer applying neural networks to analyse the formation of expectations (Kugler et al., 1996), and with Ester Merey and Thomas Grebel (Grebel et al., 2004) on Schumpeterian dynamics and financial market anomalies.

The Comprehensive Neo-Schumpeterian Approach

At around the millennium Horst Hanusch started thinking about combining various fields of research interest into one approach. Inspired by the principal idea of national innovation systems as being more comprehensive, but searching for a more individualistic and agent-based approach, he suggested not only looking at industry dynamics driven mainly by innovation but, in order to understand the long-run development of economies, also the public sector and the financial sphere. The new approach has been labelled the comprehensive neo-Schumpeterian approach and comprises the research fields that have been central to the work of Horst Hanusch. To accomplish this task, an analytical broad basis and the ability to combine the various aspects in a logical way are required. Work with Andreas Pyka paved the way. First there is the Elgar Companion to Neo-Schumpeterian Economics, edited by Horst Hanusch and Andreas Pyka (Hanusch and Pyka, 2007a). This volume shows that modern Schumpeterian economics has reached a certain maturity in the analysis of industrial innovation processes and their impact on economic growth and development. Other work, such as Technical Change and Economic Theory (Dosi et al., 1988), Evolutionary Economics and Creative Destruction (Metcalfe, 1998) or the Oxford Handbook of Innovation (Nelson et al., 2005), clearly evidence the tremendous advances made in neo-Schumpeterian, innovation and evolutionary economics.
Such progress has not been without influence on the policy side. Within the last 25 years policy actors have increasingly acknowledged the achievements of modern Schumpeterian approaches. Starting with recommendations of the OECD in the early 1990s to its member countries to foster innovation and promote the prerequisites for technical change, more and more countries started to apply Schumpeterian designs to their innovation and growth policies. This development has peaked most prominently in the passage of the Lisbon Agenda by the EU Heads of States and Governments in the year 2000 with the ambitious Schumpeterian aim ‘to make Europe the most competitive and dynamic knowledge-driven economy by 2010’.

However, despite these successes, one may wonder what an innovation- and future-oriented economic theory can say about the role of the state as well as of financial markets. These important domains have not been addressed in detail by neo-Schumpeterian, innovation and evolutionary economics during the last 25 years. Consequently one has to confess that modern Schumpeterian economics is still far from offering an overarching economic theory, as is done by the orthodox neoclassical approaches.

In order to close this gap, Horst Hanusch and Andreas Pyka (2007b, 2007c) introduced an outline for developing a broad theoretical approach under the heading of comprehensive neo-Schumpeterian economics (CNSE). The general idea is that innovation and strong uncertainty are the common denominators of a Schumpeterian economic theory covering the future orientation of industry, of the public domain and of financial markets – the three pillars in the CNSE approach. Deficiencies in the future orientation of a single pillar might hamper the development of an economic system or even lead to a breakdown of economic growth.

THE STRUCTURE OF THIS VOLUME

The contributions in this Festschrift for Professor Hanusch aim to indicate how one may be able to bring together approaches analysing the future orientation of the various economic realms, especially the three pillars of CNSE. The book is organized in three parts: Part I, Industry and Innovation; Part II, Finance in Modern Economics; and Part III, The Public Sector and the Future of the Welfare State.

Uwe Cantner, in his contribution ‘Competition and innovation’, tackles a question that is at the heart of modern Schumpeterian reasoning on innovation, namely the relationship between economic and innovative performance of firms. The explicit consideration of intra-industry heterogeneity in his replicator dynamics leads to meso-level dynamics in the area of
conflict between turbulence and change, as well as persistence and regularities. The contribution of Giovanni Dosi and Marco Grazzi lies between the industry and the public pillar. The authors address the issue of technological developments in the energy sector, driven by new knowledge as well as increasing environmental bottlenecks. In order to cope with the fundamental challenges for human life on earth, the authors revitalize the concept of mission-oriented policy design (Ergas, 1992; Cantner and Pyka, 2001) and transfer it to an international level: the solution to the climatic catastrophe can be found in major technological breakthroughs that integrate a broad set of different knowledge fields and overburden the financial possibilities of single economies. In his chapter, ‘Marshall and Schumpeter: evolution and the institutions of capitalism’, Stanley Metcalfe outlines the rich contribution of Schumpeter concerning capitalism as an engine of progress by connecting Schumpeter’s theory to the approach of Alfred Marshall. He shows the important complementarities and the synergies that can be gained for the understanding of innovation-driven economic development by the intellectual amalgamation of these two great thinkers.

The second part of the book, focusing on the financial pillar of CNSE starts with a contribution by Pier Paolo Saviotti and Andreas Pyka entitled ‘The co-evolution of technologies and financial institutions’. The authors stress the subtle relationship between innovation-driven qualitative economic development and the availability of finance necessary for the implementation of innovations. The interactions between the real and monetary realms turn out to be on a fine line between prosperous development and chaotic stagnation. The contribution by Burkhard Drees and Bernhard Eckwert, ‘The role of information and risk sharing for R&D investment, technological change and economic welfare’, tackles a related topic – the role of risk sharing in financial sectors in shaping technological development. What is the causality between the financial sector and technological development? Is the financial structure determined by technological developments or vice versa? Within their general-equilibrium framework approach the authors work out the co-evolutionary relationships between the two domains in an economy. Friedrich Kugler, in his contribution ‘Bubbles, crashes and the psycho-economic forces behind them’ has in mind the pathological case of speculative exaggeration and collapse. Due to strong non-linearities between individual decision making and complex market processes, speculative bubbles on markets for financial assets can drag down the whole economic development for a while. The last contribution to Part II, by Andreas Röthig, Willi Semmler and Peter Flaschel, entitled ‘Corporate currency hedging and currency crises’, extends the challenging economic analysis of the relationship between the real and monetary realms by including the currency markets. As a strategy to
improve protection against financial crisis stemming from turbulence on currency markets, the authors suggest improving hedging instruments and lowering hedging costs basically by increasing transparency and improving information flows on international financial markets.

Part III of the book, ‘The Public Sector and the Future of the Welfare State’, is devoted to the future orientation of the public pillar in CNSE. Alfred Greiner and Norbert Schütt focus on the impact of increasing public debt on the future state of economies. They show that a transitorily increasing public debt to GDP ratio can be compatible with sustainability of public finance. However, they also outline the severe limitations to this, as an upper bound for the primary surplus–GDP ratio exists beyond which the surplus cannot be increased further; instead the debt ratio in this situation must become constant or even decline sooner or later. The chapter by Thomas Kuhn and Michael Pickhardt, ‘Biofuels, innovations and endogenous growth’, deals with the prominent role of biofuels for sustainable growth and lies like the contribution of Dosi and Grazzi, to the edge of the CNSE approach between the public and private pillars. A conventional Romer-type endogenous growth model is extended by incorporating a non-renewable and a renewable resource sector which can both serve to produce transport fuels. In addition, transport fuel produced from the renewable resource is taken to cause less environmental damage than fuel produced from non-renewable fossil resources. Innovations that enhance the energy efficiency of transport are necessary to move along the optimal growth path of the economy. Moreover, it can be shown that the growing stock of knowledge must be accompanied by an ongoing process of factor substitution in the production of transport commodities where biofuels must replace fossil fuels over time. In the given framework, this is the only means to ensure sustainability of growth in terms of non-degrading environmental quality.

The last two chapters in Part III clearly have policy objectives in mind. Arnold Heertje discusses ‘Paretian welfare theory and European competition policy’ from a theoretical angle. Without doubt the need of a welfare-oriented theoretical approach within the CNSE approach cannot be neglected. Alain Alcouffe and Christiane Alcouffe, in their contribution on ‘French industrial policy’, have chosen a pragmatic perspective and give a detailed overview on the changing prerequisites and designs of French policy. This also sheds light on the important co-evolutionary relationships between the political, industrial and financial domains in France.

In summary, all contributions to this Festschrift show the high stage of development of dynamic Schumpeterian research methodologies for the three pillars of CNSE. Although one has to state that within each pillar modern Schumpeterian economic reasoning has left its infancy and now offers important insights, one also has to share Hanusch’s mission: there
is still a long way to go to connect the seemingly unrelated sub-disciplines and connect them to a comprehensive alternative approach in economic theory. This Festschrift is devoted to Horst Hanusch’s part in this endeavor, characterized by work already done in the 1970s and developing over the last 40 years, and it offers a first step in this direction.

REFERENCES


