

Editorial

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Twenty-two years after its founding in Augsburg (1986), the International Joseph A. Schumpeter Society held its 12th biennial conference, for the first time on the Latin American Continent. Subtitled the *Southern Conference*, the event took place in Rio de Janeiro, Brazil, from July 2 to July 5, 2008 at the Universidade Federal do Rio de Janeiro. Among the 175 participants, around one third being Ph.D. students, presented their work at the conference, indicating the attractiveness of the Schumpeterian Research Program for young scholars. The large fraction of participants from South America furthermore indicates the relevance of Schumpeterian ideas for catching-up and development strategies in economies of the Southern hemisphere. With this set-up, the conference strongly supported the dialogue among researchers sharing a common interest in the work of Joseph A. Schumpeter and demonstrated convincingly the global importance of innovation, structural change and entrepreneurship. The following subjects provide examples of topics addressed during the conference: the influence of technological and institutional change in development and growth, the impact of innovation on labor markets, the spatial distribution of innovation dynamics, and the meaning of knowledge generation and knowledge diffusion processes for development policies.

The paper collection in this special issue is representative of the above mentioned topics. The first paper by John Foster stresses the importance of providing a macro-economic theory within the evolutionary economics framework, which thus far remains predominantly on the micro and sectoral

Special Issue: Catching up, Spillovers and Innovation Networks in a Schumpeterian Perspective.

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level of an economy. In contrast to the claims of mainstream macroeconomics of micro-foundations, Foster underlines the necessity of a meso-foundation as an analytical framework for macroeconomics. Economic growth and development can be observed on a macroeconomic level; however, without knowledge of the processes driving economic dynamics and structural change, which are to be exemplified on the meso-level of an economy, an understanding of economic growth is not possible. Foster's contribution, "Evolutionary macroeconomics: a research agenda," develops such a framework for evolutionary macroeconomic modelling. This is a paper that reflects on the very nature of economic growth theory. Specifically, it discusses the possibilities for finding a viable alternative to neoclassical economic growth theory, in the form of some combination of Keynesian macroeconomics and evolutionary growth modeling. In this framework, economies are considered as complex adaptive systems which can generate dissipative structures, depending on the underlying knowledge dynamics and the energy throughput. This macroeconomic framework, which integrates short-run Keynesian elements with long-run Schumpeterian thinking, has to be considered as extremely powerful, both intellectually, as it allows for a much more comprehensive understanding of growth processes, as well as politically, as it offers a meaningful alternative to mainstream approaches which failed to predict the current economic and financial crisis and cannot offer meaningful answers how to get out of the crisis.

Many contributions of the conference used the opportunity of having a conference in Brazil to focus on the particularities of economic development in catching-up and less developed economies. The contribution of Pier-Paolo Saviotti and Andreas Pyka, "Generalized Barriers to Entry and Economic Development," can be considered as an example of evolutionary macroeconomic modelling which stresses the particularities of catching-up processes. The analysis of economic growth focuses on the exploitation dynamics of existing sectors and the exploration dynamics of new emerging sectors. In their contribution, the authors expand their model of economic growth by allowing for the emergence of new industries, introducing sectoral and international barriers to entry. This way, the focus of the paper perfectly fits to the overall conference topic of development. Saviotti and Pyka show how development traps might emerge by a vicious circle of underperforming institutions and underinvestment in search activities. If not accompanied by adequate institutional developments, less developed countries are confronted with an increasing gap towards the leading economies where development is pushed by sectoral change. When, finally, the structural change unfolds, its impact in less developed economies, delayed by barriers to entry which stem from technological and institutional bottlenecks, is mitigated, as the economic opportunities are almost exploited. From this follows the severe difficulty to gain the resources necessary to design the knowledge and institutional infrastructure for catching up. The whole process is increasingly doomed to fail.

One of the sources supporting catching-up processes are knowledge spillovers which might improve the technological competences of lagging countries and overcome the international barriers to entry stressed by Saviotti

and Pyka. Thus, the question arises, what are the conditions for this knowledge transmission to work best? Fabio Montobbio and Valerio Sterzi, in their contribution “Inventing Together: Exploring the Nature of International Knowledge Spillovers in Latin America,” analyze the channels for knowledge transfer via spillovers from the G-5 countries to Argentina, Brazil, Chile, Colombia and Mexico on a sectoral level. In their empirical analysis, which draws on patents from the US Patent and Trademark Office, they analyze the effectiveness of foreign R&D, patent citation-related spillovers and face-to-face contact spillovers. Their results are used to develop policy conclusions which focus on an improvement of international technology transfer. The major reason of the weak technological capabilities found in many sectors of the Latin American economies under investigation is caused by the weak international integration of the invention processes going on there. From this follows the need to improve the internationalization of inventing activities by improving the international mobility of researchers, e.g. by strengthening collaborative R&D with economies of the Western hemisphere, thereby creating international networks providing the channels for knowledge exchange.

The idea of innovation networks is investigated in the next paper as well. In particular, informal and formal innovation networks are stressed. Compared to formal R&D collaboration activities, informal networks are less well investigated, although many authors state that, with formal networks, we only grasp the tip of the iceberg. Informal networks are to be considered as the most important channels for new knowledge to travel among agents. A better understanding, therefore, does not only improve our knowledge on the way spillover effects exert their influence. However, a better understanding of informal network obviously will help us to design more effective innovation policies, which are applicable for catching up strategies as well. Isabel M. Bodas Freitas, Tommy Clausen, Roberto Fontana and Bart Verspagen, in their contribution “Formal and informal external linkages and firm’s innovative strategies: A cross country comparison,” take a closer look at what appear to be technological spillovers from an aggregate level. Stressing the micro-economic level and drawing on data from the third Community Innovation Survey, they elaborate on quite important and current issues of formal and informal interactions of companies in their innovation process. The paper offers a broad scope, not only because of integrating innovation search and collaboration, but also because it offers rich empirical material on four European countries in a comparable way. One of their conclusions clearly stresses the important role of innovation policy in facilitating and supporting knowledge exchange among the different actors involved in innovation processes.

Knowledge spillovers are also central to the next contribution, “Advanced Purchasing, Spillovers and innovative Discovery,” written by Gunnar Eliasson. The author picks the knowledge receiving side as a central theme and describes the spillover cloud accompanying the introduction of new technologies as a potential for entrepreneurial activities in an economy. Due to the combinatorial and complex nature of knowledge generation and knowledge diffusion processes, technological spillovers are likely to exert multifaceted

impacts on various sectors of an economy which might be—considering their knowledge distance to the original innovating sector—in rather remote areas. Understanding all actors and their interactions in an economy as a competence bloc, Eliasson works out the powerful effects for economic development, which are possible by the interplay of spillovers and highly developed receiver competences. To illustrate his arguments, an interesting case study of the Saab Company and a military aircraft project is examined, working out the ways to leading positions in manufacturing industries.

Paulo N. Figueiredo and Klauber Brito, in their contribution, “The Innovation Performance of MNE subsidiaries and Local Embeddedness: Evidence from an Emerging Economy,” also analyze the role of accessing external knowledge for economic development and catching-up processes. In particular, they stress the role of multi-national enterprises, which are in a comfortable strategic position to access external knowledge sources because their subsidiaries are potentially embedded in networks of local agents such as universities, public research institutes, suppliers and competitors, which by definition are distributed around the world. To illustrate their arguments empirically, Figueiredo and Brito analyze the Brazilian electronics industry in the 1990s. Their findings stress the role of local embeddedness of MNEs’ subsidiaries for improving their technological learning in time.

Without doubt, besides access to external knowledge, a financial system supporting innovative entrepreneurial activities is essential for economic development. Alessandro Rosiello, Morris Teubal and Gil Avnimelech, in their contribution, “Towards a systemic and evolutionary framework for venture capital policy,” return to the idea of economies as complex adaptive systems emphasized in Foster’s contribution to this special issue. Rosiello, Teubal and Avnimelech stress the co-evolutionary nature of venture capital industries and high-tech entrepreneurship. To distinguish this evolutionary approach from traditional market-failure approaches, country studies of Israel and UK/Scotland are performed.

To summarize, all contributions to this special issue demonstrate the powerful possibilities that emerge from the toolkit of evolutionary and Schumpeterian economics. Many years ago, evolutionary economics left the nursery of new academic approaches and today is able to be applied on the multi-faceted phenomena of economic development and catching-up. Today, there is widespread consensus that policies focusing on the improvement of the relative position of less developed and emerging economies need a strong knowledge and innovation orientation. Evolutionary economics and Schumpeterian thinking have contributed much to this shift in policy design and can provide answers to the complex phenomena to be observed in the development of Latin American economies and other areas of the world with sparked innovation-driven economic development.

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