Preface

The standard definition of innovation is “the process of translating an idea or invention into a good or service that creates value for which customers will pay”. If we interpret “service” to include processes, this definition embraces virtually everything human beings do in the daily business of life – what they produce and how they produce it.

How we innovate is itself an appropriate domain for innovation. Recent global developments have stimulated growing interest in innovation processes and policies. In their recent study, Reinhart and Rogoff (2010) found that rising public debt, as a proportion of gross domestic product (GDP), is associated with a decline in economic growth.¹ In the aftermath of the global economic and financial crisis, many governments (mainly in Europe and North America) found that the level of public debt rose alarmingly, as slowing economies shrank tax revenues and increased deficits, and as bailouts of banks by governments shifted private debt onto public balance sheets. This has led to a wave of austerity (budget-cutting) programs. The resulting scarcity of resources has put renewed focus on finding creative ways to make existing resources do more, in both the private and public sectors, and on finding ways to stimulate innovation through public policies. The cyclical crisis occurs against a backdrop of a possible alleged secular downward trend in economic growth and innovation, discussed in the Introduction that follows.

What then is the best approach for researching innovation and innovation policies? Most such research has taken a partial approach, focusing on a particular aspect of innovation policy, such as research and development (R&D) tax credits, subsidies, human capital formation, technology transfer, intellectual property, entrepreneurial finance and science and technology infrastructure. This research is valuable and has led to important insights. But in the process of our work with research teams from several European countries, in the framework of a Seventh Framework project known as “PICK-ME”,² we came to understand that as with many public policy issues, it is vital to adopt a systems-based approach that seeks to understand how the entire nationwide innovation process works. Without understanding the complex interactions among the components of innovation, there is a danger that some public policies, in
themselves beneficial, may in fact in the end be counterproductive. What if generous public funding of innovation and R&D, for instance, displaces and discourages private funding? The classic example of the dangers of “partial” policy is the creation of public housing in America’s city centers, in the 1960s, to house the poor, in itself laudable, but which crowded out industry and jobs and created vast ghettos of poverty that remain to this day (Forrester, 1969). In Chapter 1, we discuss at length the nature of, and importance of, national innovation ecosystems, in the context of the search for effective pro-innovation public policies and the ongoing tension between “push” and “pull”, between market-based innovation driven by demand forces and supply-side policies initiated primarily by various levels of government.

As a result of this insight into the vital need to understand innovation systems, Frenkel adapted a methodology he employed earlier, in the context of regional planning, to the empirical visualization of national innovation ecosystems. (See Chapter 2 for a detailed explanation of the methodology.)

With the assistance and cooperation of our PICK-ME colleagues, we helped organize a series of Experts Workshops that led to grounded field-based visualizations of national innovation ecosystems in Israel (Chapter 3), Poland (Chapter 4), Germany (Chapter 5), France (Chapter 6) and Spain (Chapter 7).

Based on the interesting results obtained in these studies, we chose to expand our research and examine innovation ecosystems at the regional level. Our friends Heather Fraser and Mark Leung, director and deputy-director, respectively, of DesignWorks, part of the University of Toronto’s Rotman School of Management, were instrumental in organizing an Experts Workshop to explore Toronto’s healthcare innovation ecosystem, described in Chapter 8. Our colleague Marta Garcia de Alcaraz was instrumental in organizing an Experts Workshop in Shanghai’s leading entrepreneurial incubator, in Zhangjiang Science Park; Chapter 9 presents the result visualizing the innovation system centered around Shanghai. Finally, Chapter 10 describes Singapore’s national innovation ecosystem, thanks to the kind assistance of JD Yap. Singapore, of course, is a nation; but it is also a regional financial and technological hub for Southeast Asia, hence we include it with the other two regional studies.

We summarize and conclude our book in Chapter 11, comparing and contrasting national and regional innovation systems and drawing the implications of these systems for innovation policy, with emphasis on demand-driven and supply-driven innovation.

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NOTES

1. Herndon, Ash and Pollin (2013) found an Excel error in the Reinhart-Rogoff paper, and other errors, that diminish the empirical impact of debt on growth; but the basic finding that debt and growth are negatively correlated remains.

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