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INTRODUCTION

Great Expectations: An Innovation Solution to the Contemporary Economic Crisis

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ABSTRACT The causes and cures of the contemporary economic crisis have been a matter of intense debate since 2007–2008, but the persisting signs of decline in virtually all economic sectors question the effectiveness of the measures adopted so far. Stimulus packages have been the most common policy tool for government intervention aimed to revive economic growth, but their success is difficult to assess, and is further complicated by political considerations and an insufficient time frame to observe longer-term results. The cautious approach adopted by many governments, focusing mostly on less resource-intensive and austerity policy measures, has failed to bring about the expected recovery, and now there is a growing call for a bold government intervention to spur economic growth. The papers selected for this Special Issue emphasize a number of ideas that we believe are essential in promoting an innovation-based solution to the economic crisis: (i) targeted and integrated innovation policies are an essential complement to the structural and financial adjustments proposed so far as solutions to the crisis; (ii) large-scale government funding, combined with international donor resources, is needed to secure the investment necessary for the growth of new industries with high job creation potential, and to encourage private investors to follow suit; and (iii) valuable lessons can be drawn from the experience of the past and used to inspire policy actions in the present.

1. The Current Economic Crisis: Origins and Approaches

The origins and possible solutions to the financial crisis that emerged in 2007–2008 have been subject to a wide international debate. Triggered by the collapse of the real-estate
market that peaked in the US in 2006 as a result of reckless and unsustainable lending practices, facilitated by the failure of regulators and supervisors in spotting and correcting the emerging weaknesses, the crisis spread fast to the global financial system and evolved into a world economic downturn. The global integration of markets synchronized and amplified the losses, causing a much more severe and faster decline than in the Great Depression of the 1930s, and requiring a much longer time to recover (IMF, 2009).

The crisis symptoms gradually started to gain visibility in virtually all economic and social sectors, especially from the second half of 2008: significant decline in economic activity, failure of key businesses and markets, massive decline in exports, significant restructuring and job losses, reduction of consumer wealth, substantial financial commitments incurred by governments. Moreover, the economic crisis brought to light fundamental flaws in the market self-regulation myth and led to emergency government interventions in many national economies.

Keynesianism has been widely embraced as the best-known school of thought offering a justification for and an example of government interventionist actions as a remedy to the “market failure” entailed by the economic crisis. The Keynesian emphasis on a mixed economy, with a predominantly private sector, but with a large proactive role of government and the public sector in exploiting un-used industrial capacity to stabilize the business cycle, provided an appealing alternative to the long-standing views of free-market economics leaders arguing that the costs of “government failure” might be worse than those of the “market failure” that government action attempts to fix. Moreover, Keynesian economics’ focus on a reduction in interest rates combined with government investment in infrastructure offered a more substantive framework of action than the discrete government policy interventions in varying areas of system or market failure suggested by other models, e.g. evolutionary economics. It came, thus, as no surprise that, in a general context dominated by confusion and little experience from similar previous crises, “the switch from decades of supply-side politics all the way to a crass Keynesianism was breathtaking . . . A Great Rescue Plan . . . doesn’t exist. Dealing with an unprecedented crisis is a puzzle, a trial-and-error”, as the German Finance Minister Peer Steinbrück stated in December 2008 (Newsweek, 2008).

After rescue plans to avoid a collapse of the financial and banking systems and limit the economic effects of the credit crunch, economic stimulus packages aiming to revive economic growth became the most common policy tool for government intervention in many countries, including the US, the European Union, China, India, Japan, Australia, Argentina, etc. Stimulus packages of varying sizes were adopted in most countries (Table 1), reflecting the severity of the economic crisis, the country’s fiscal position before the onset of the crisis and the strength of automatic stabilisers (OECD, 2009). The stimulus packages addressed several problems, both short- and long-term: (i) bank failures and irregularities in financial systems; (ii) tax reductions to stimulate business, increase availability of credit and encourage staff retention and hiring; (iii) support for hard-hit industries, such as automobile and construction; (iv) social measures to protect vulnerable population categories, such as low-income earners; (v) encouragement of innovation and long-term growth, through support for infrastructure, science, R&D, green energy, entrepreneurship (OECD, 2009).

In addition to individual nations’ response to the crisis, the European Commission adopted in November 2008 the 2-year European Economic Recovery Plan, amounting to €200 billion or 1.5% of the EU GDP, to cope with the current economic crisis in the 27 member countries of the Union (Commission of the European Communities, 2008). The
Table 1. The absolute size of fiscal packages (revenue and spending measures), 2008–2010, in absolute USD millions

<table>
<thead>
<tr>
<th>Country</th>
<th>Size (USD millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>804,070</td>
</tr>
<tr>
<td>Germany</td>
<td>107,789</td>
</tr>
<tr>
<td>Japan</td>
<td>99,992</td>
</tr>
<tr>
<td>Canada</td>
<td>61,551</td>
</tr>
<tr>
<td>Spain</td>
<td>56,754</td>
</tr>
<tr>
<td>Australia</td>
<td>45,673</td>
</tr>
<tr>
<td>Korea</td>
<td>42,667</td>
</tr>
<tr>
<td>UK</td>
<td>38,003</td>
</tr>
<tr>
<td>France</td>
<td>18,568</td>
</tr>
<tr>
<td>Netherlands</td>
<td>13,367</td>
</tr>
<tr>
<td>Sweden</td>
<td>13,109</td>
</tr>
<tr>
<td>Denmark</td>
<td>8668</td>
</tr>
<tr>
<td>Finland</td>
<td>8575</td>
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<tr>
<td>Belgium</td>
<td>8016</td>
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<tr>
<td>Czech Republic</td>
<td>6500</td>
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<td>New Zealand</td>
<td>5404</td>
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<tr>
<td>Poland</td>
<td>5145</td>
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<tr>
<td>Austria</td>
<td>4600</td>
</tr>
<tr>
<td>Switzerland</td>
<td>2486</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>1968</td>
</tr>
<tr>
<td>Portugal</td>
<td>1963</td>
</tr>
<tr>
<td>Slovak Republic</td>
<td>35</td>
</tr>
</tbody>
</table>


plan, relying on national budgets (around €170 billion, 1.2% of GDP) and EU and European Investment Bank budgets (around €30 billion, 0.3% of GDP) combines short-term measures to stimulate demand and maintain jobs, and longer-term measures to invest in strategic sectors, including research and innovation (Europa, 2011).

Furthermore, a globally coordinated response, including proposals on international financial regulation, economic support and anti-protectionism measures, was considered at the November 2008 summit of the G20 group of major economies. Also, the OECD developed a strategic response to the crisis focusing on two priority areas: (i) finance, competition and governance; and (ii) restoring long-term growth (OECD, 2009). These large-scale government interventions to forestall depression and rescue the financial system showed a strong decline of the free-market fundamentalism and neo-liberal policies of the 1990s, and the end of the so-called “Washington consensus”, which was often blamed for the 1999–2002 economic crisis of Argentina and exacerbating Latin America’s economic inequalities.

2. The Response to the Crisis: Too Little, Too Narrow or Too Early to Assess?

The stimulus packages adopted in 2008–2009 mobilized important national and international resources, of an unprecedented scale in many countries, but how successful have they been so far? The evidence is mixed and suggests that assessment is complicated by political considerations and insufficient time frame for observing longer-time effects. For example, the US Congressional Budget Office (CBO) 2011 assessment of President
Obama’s $825 million stimulus package reported that it was a major economic success: since its adoption through the American Recovery and Reinvestment Act of 2009, it raised real (inflation-adjusted) GDP by between 0.3% and 1.9%, lowered the unemployment rate by between 0.2% and 1.3%, increased the number of people employed by between 0.4 million and 2.4 million, and increased the number of full-time-equivalent jobs by 0.5 million to 3.3 million (Bookman, 2011). Nevertheless, as CBO Director Douglas Elmendorf held in his assessment of the stimulus package, while it would be a big boost to the country’s GDP in the first 3–4 years, in the long-term, the effect of such spending would be a net negative on GDP growth, if no other actions were taken (Stiles, 2011).

On the other hand, the debate on the economic effects of the stimulus package in the US is also heavily influenced by ideological criteria: while supporters of the Obama Administration maintain it saved the US from a depression, Republicans claim it was a costly failure (Grabell, 2012) or a disguised expansion of government authority: “what’s being called stimulus is just a smoke screen for a permanent expansion of government. (…) The current stimulus and calls for a future one are primarily government growth policies, not strategies to shorten the current recession” (Lazear, 2009).

An early assessment of the European Economic Recovery Plan highlighted positive effects on Europe’s GDP, which increased by 0.75% in 2009 and was expected to increase further 0.3% in 2010, and overall “… has not only prevented economic meltdown, but helped stabilise the economy and allowed for a marked improvement in financial market conditions” (European Parliament, 2010, p. 5). However, as the economic crisis revealed a number of weaknesses in the governance of the EU’s economic and monetary union, the European Economic Recovery Plan was followed in 2010 and 2011 by a series of other instruments aimed to improve European governance and strengthen the economic and financial stability of the eurozone, such as the European Financial Stability Facility, a reinforced Stability and Growth Pact and deeper fiscal coordination, and the Euro Plus Pact.

In spite of the reported successes, the effects of the economic crisis are still present in the world economy, and are still worsening in some countries, especially in the European Union, which brings into question the effectiveness of measures put in place to halt or reverse the decline. Have the real causes of the crisis been addressed? Has the response been of an adequate nature and order of magnitude to address the depth of the crisis? But most importantly, have we really understood how the current economic crisis is qualitatively different from the Great Depression of the 1930s or indeed the 28 credit crunches, 28 house price busts, 58 equity price busts and 122 recessions in 21 advanced countries identified to have taken place over 1960–2007 (Claessens et al., 2008)?

In particular, the nature of the current economic crisis remains a key matter of debate. Some see it as a symptom of a “deep crisis of accumulation of capital in the real productive economy, and … a systemic crisis of capitalism itself” (Samir Amin, see Kothari & Kuruvila, 2009). Others argue that the crisis is connected to the “stagnation of the ‘real’ or productive economy of mature capitalism that has generated a giant casino economy and corrupt practices, all geared to finding and protecting profitable ways to invest the corporate capital surplus” (Magdoff & Foster, 2009).

Yet others consider that the crisis was inevitable due to the human nature: “It’s human nature, unless somebody can find a way to change human nature, we will have more crises and none of them will look like this because no two crises have anything in common” (Greenspan, 2009).
We argue that a key difference between the current economic crisis and previous ones, especially the Great Depression of the 1930s is the fact that the current crisis is a fault line in the transition from Industrial to the Knowledge Society and thus, is characterized by different dynamics than those specific to the crises in a single production mode (Etzkowitz & Ranga, 2010). The current economic crisis occurred during a shift from a declining industrial mode, based on manufacturing physical artefacts, and an emerging knowledge-based one, focused on creation of intangible assets. A dual-mode downturn is a deeper fault line that affects both the declining and the emerging modes, as the forces of “creative destruction” identified by Schumpeter (1942) work at an ever more furious pace. Even as the crisis accelerates the decline of the Industrial society, it may retard the development of a knowledge-based regime that has been a gestating chrysalis within the old system. It is now clear that it is a longer-term event than simply a financial crisis, a banking crisis or even a crisis of the Euro.

3. A Different Crisis, a Different Response. Policy Implications

Recognizing the different nature of the current economic crisis has significant policy implications. Beyond putting people to work as an end in itself, which was the key priority in the Great Depression of the 1930s, we now also face the need to create new forms of work to achieve this goal. To this end, targeted government interventions in the innovation system are required, possibly of the scale and scope of the Second World War effort, as the “Valley of Death” between invention and innovation that deepens in downturn is the “tip of an iceberg” of an underlying innovation gap. And innovation has been hit hard by the economic crisis, as R&D spending declined in many countries, US venture capital investments plunged 60% in the first quarter of 2009, with similar falls in Europe and in China, patent applications went down and incentives to develop a greener economy have been weakened by the crisis (OECD, 2009).

The stimulus packages in many countries, e.g. the US, some European countries, Australia, Japan, Korea, etc. recognized the necessity to support innovation by providing funds to assist the development of advanced technologies intended to transform existing industries by, for example, moving the automotive industry from the internal combustion industry to an electrical platform and reducing taxes for eco-friendly cars, expanding broadband capabilities, sustaining green technology and technologies to reduce greenhouse gas emissions, information technologies, financial measures to ease financing of (small) firms (including microfinance, venture capital and interest subsidies), etc.

It has now become clear for many governments, firms, knowledge-producing institutions and other innovation actors that austerity measures have been pushed too far. Attempts to restore growth by adopting fiscal and monetary policies, inflation strategies, cuts on health insurance and retirement pension benefits, downsizing or even using bankruptcy as a way to drastically cut wages and benefits, will not reach success in the absence of the ability to scale-up innovation initiatives. The practical, concrete ways to achieve this objective need to be defined in a collaborative, synergic manner that goes beyond traditional institutional boundaries.

Interestingly, the current economic crisis has triggered dual effects: on the one hand, it affected innovation systems both directly, as a result of the economic slump and financial shortages, and indirectly, by aggravating existing systemic weaknesses, in a process of “creative destruction” (Schumpeter, 1942). On the other hand, it provides an immense
opportunity for correcting such systemic weaknesses, salvaging old industries in parallel with creating new ones and boosting innovation systems, in a concomitant process of “creative reconstruction”.

Within the framework of the stimulus packages and many of the subsequent crisis measures adopted so far, many governments took a cautious approach, focusing mostly on less resource-intensive and non-financial policy measures (UN-ECE, 2009). However, a bold approach of large-scale funding in targeted areas that balance short- and long-term objectives may make a great difference in overcoming the crisis effects. Who should invest in these objectives? Underlying this question is the long-standing dilemma of a self-organizing market versus government intervention.

The seductive social science thesis of a self-organizing market holds that solutions to problems will spontaneously appear and that government intervention is a risk because the result is likely to be worse than doing nothing. From this perspective, cuts should be made in public expenditures to reduce debt levels and, thus, the cost of borrowing. It is believed that such policies will encourage business to grow by making capital more available. On the other hand, however, instead of becoming more available, investment and loan capital tend to become less available under such conditions. Seeing the economy declining, potential investors become less willing to commit new funds, fearing their loss in an environment of expected continued decline. Thus, even though funds should theoretically be available, they are kept in abeyance and not utilized. Individuals and banks are loath to resist this trend and so the tendency is for the decline to deepen. The current economic crisis has proved that the expected benefits of a self-organizing market have failed to occur, and there is now a clear need for a government-led recovery and intervention to invest in new sectors and activate the economy, with sufficient strength to encourage banks and private investors to follow suit.

The solution to the Great Depression of the 1930s was found in utilizing existing productive resources, at first for civilian and then for military objectives. As conflict came closer to hand, a new military strategy of utilizing advanced research to innovate new defensive and offensive weapons, from radar to the atomic bomb emerged. Sourced in university, industry and government labs, an innovation strategy helped win the Second World War. The solution to the current depression may be found by expanding upon the Second World War innovation model and its post-war extension into the civilian economy. The electronics and computer technologies that flowed from wartime R&D projects became an important impetus to post-war economic expansion. The venture capital firm, invented as a linkage mechanism to move nascent academic technologies to the marketplace, became a key element of a new technology-based financial industry (Etzkowitz, 2002). The nexus among university–industry–government that spurred significant high-tech conurbations in a limited set of regions e.g. Silicon Valley, Boston, Austin and North Carolina can be the basis of a broader strategy of economic renewal. The papers in this Special Issue discuss a variety of international success cases to point a hopeful direction.

4. The Special Issue

This Special Issue, focused on the theme “Innovating our way out of the economic crisis” presents to the scientific, business and policy-making communities a multi-faceted body of
recent research that has the potential to broaden the current understanding of the dynamics and implications of the contemporary economic crisis, inspire new research projects and disseminate good practice. The papers selected for the Special Issue emphasize a number of ideas that we believe are essential in promoting an innovation-based solution to the economic crisis: (i) targeted and integrated innovation policies are an essential complement to structural and financial adjustments proposed so far as solutions to the crisis; (ii) a large-scale government intervention, combined with international donors funding, is needed to secure the investment necessary for the growth of new industries and job recovery; and (iii) valuable lessons can be drawn from the experience of the past and used to inspire policy actions in the present. The policy implications of an innovation-based response to the crisis cut across and raise new issues for research and policy-making in several related areas, such as organizational change, human resources and sustainable development. By providing relevant evidence on these areas, this Special Issue contributes to the development of both research and teaching material and the dissemination of good practice in these areas.

We start the Special Issue with Henry Etzkowitz’s paper “An Innovation Strategy to End the Second Great Depression: From Creative Destruction to Creative Reconstruction”, which analyses the origins of a strategy to create new science-based industries as a means to address the Great Depression of the 1930s, and highlights lessons that can be learned to address the current economic crisis that will soon be recognized as a Second Great Depression. The paper discusses the science-based innovation strategy originated at the Massachusetts Institute of Technology in the early twentieth century and the failed attempt to have it accepted by the US government as a means to address the 1930s depression, because of the belief that science was a cause of, rather than a cure for depression. Nevertheless, this science-based development strategy found fertile soil in the university-rich environment of New England, where it became the basis of a much-imitated regional innovation system, and was followed by a full-scale implementation instituted in response to the onset of the Second World War. This example is used to inspire the severely resource-constrained contemporary knowledge-based policies and programmes to be synthesized into a full-bore effort, in order to overcome the contemporary economic crisis and accelerate the transition from an Industrial to a Knowledge Society.

Continuing our insights into the past in order to draw relevant lessons for the present, we present Mats Benner’s paper “Innovation policy in hard times: Lessons from the Nordic countries”, which discusses the Finnish and Swedish economies’ response to the economic crisis of the early 1990s. The wisdom shared by the paper is that economic crises may trigger broad-based public policy reforms, comprising macroeconomic stringency, renovations of social and employment policies, but they can only be successful if devised and deployed conjointly with innovation policies. The two Nordic countries’ policy response to the economic crisis integrated a wide array of policy fields: macroeconomics, welfare and employment policies and innovation policy, in a mutually reinforcing structure and as parts of a coherent programme for reviving economic growth. The initial focus on short-term policies, primarily a temporary nationalization of the financial sectors, and currency depreciation, was followed by a path-breaking institutional renovation, encompassing austerity packages and measures to support enterprises and job creation, while reaffirming both countries’ traditional commitment to publicly funded welfare. In effect, Sweden and Finland pursued a three-pronged strategy of innovation-led expansion, cost-savings and macroeconomic stabilization, integrating radical
expansion of innovation support with reforms in macroeconomic regulation and in social protection and employment regulation. As a result, the post-crisis institutional strength of the Swedish and Finnish economies is robust and has successfully confronted the current crisis.

Christiane Gebhardt’s paper “The Entrepreneurial State: The German Entrepreneurial Regions Programme as an attenuator of the financial crisis” provides another valuable lesson of past experience that can be instructive for the present. The study analyses the way the federal programme Innovative, Regional Growth Core (IRGC) developed by the German Ministry of Education and Research as a tool for restructuring the East German technological and economic infrastructure in the post-1989 reunification project, has been used to boost regional innovation in Germany in the context of the economic crisis. The strength of the programme consisted in its capacity to continuously generate, since 2001, a moderate number of new firms, university spin-offs, jobs and private investments in the politically induced clusters of East Germany, which have shown a relatively stable development even in the economic downturn of the recent financial crisis. The focus on the IRGC programme illustrates a paradigmatic shift of the German government role in innovation policy, from a strategic investor to an active entrepreneur in industrial recovery, inducing, encouraging and organizing knowledge-based economic development. This strategic intervention was materialized especially through support to active integration and flexible repositioning of SMEs within global value chains: the small R&D suppliers in East Germany, which delivered to the global manufacturing elite, turned out to be at the centre of the storm, rather than being swept away by it. Improvements to enhance the programme’s capacity to support regional entrepreneurial-driven innovation are also suggested, such as enlargement of micro-lending, support by business angels, strengthening of venture capital or tax reduction policies.

In “The Triple Helix Model as an instrument of local response to the economic crisis”, Rodrigues and Melo highlight another innovation-based response to counteract the effects of the economic crisis in a small Portuguese municipality. They show how a simplified version of the Triple Helix academic concept was successfully utilized to motivate regional actors to collaborate across institutional and organizational boundaries, legitimize policy efforts and improve coherence between different policy strands influencing innovation. The Triple Helix concept provided a banner to draw together heretofore isolated actors around a common project for regional development, and provided justification for including the university in a leading role in the partnership group. The concept had to be reduced to its essential notion of university–industry–government collaboration for innovation projects, leaving out academic analytical subtleties to work as a regional organizing framework. The application of the Triple Helix model to the regional development strategy had multiple benefits, ranging from a broader recognition of the need for integration of knowledge, public policy and production, to creation of links between local and national innovation funding sources and networks, prioritization of public investment, especially for physical infrastructures, improving the local framework conditions for innovation and revival of the local innovation and competitiveness network, development of an online innovation platform, etc.

Continuing the exploration of innovation effects in the crisis context, Marina Ranga’s paper “Stimulating R&D and innovation to address Romania’s economic crisis: A bridge too far?” discusses the effects of the crisis in Romania and the set of anti-crisis measures adopted the government in the attempt to contain the impact on the economy.
Notably absent from the anti-crisis package were measures in support of R&D and innovation, a sector that was heavily affected by the crisis and that could have had a significant potential to contribute to the economic recovery, if it had been supported by adequate policies and funding schemes. The author argues that, learning from the missed opportunities of the recent years, bold and integrated measures in support of R&D and innovation need to be adopted in the country in the short- to medium-term, in order to speed up the economic recovery and realize a significant national and regional innovation potential that has been largely underexploited so far. The “creative destruction” (Schumpeter, 1942) in the R&D and innovation system triggered by the crisis could, thus, catalyse a process of creative reconstruction and provide an opportunity for renewal and improvement that is too good to miss.

We conclude the Special Issue with Cincera, Cozza, Tübke and Voigt’s paper “Doing R&D or not (in a crisis), that is the question...”, which investigates an essential aspect of the economic crisis impact on the corporate sector: has the crisis determined lower or higher company R&D investments? Have there been other crisis-induced changes in company characteristics, such as size, R&D/technology intensity and headquarters location? The analysis also covers the crisis impact on R&D investment levels in different world regions and highlights geographic shifts, arising from differences in local innovation systems and policies. The authors hypothesize that firms will increase their R&D activities in the face of economic crisis—the anti-cyclical hypothesis—as a strategy to come out of the crisis with an expanded repertoire of new products in the following upturn. However, the R&D expenditure data of the largest R&D corporations in the EU disconfirms this hypothesis. The findings show that some companies have recently reduced their innovation activities significantly, but the drop in R&D investments is quite modest and appears to be confined to a certain time period. Others maintained their R&D and innovation activities, and a third group even significantly increased them, becoming the top performers in profitability in 2008. Overall, the study observed a deceleration of R&D and innovation activities induced by the crisis, although the trend figures remain positive. Therefore, to stimulate innovation, the paper recommends government putting in place stronger incentives to increase and better coordinate counter-cyclical stimulus for R&D, for example, increased R&D tax credits, R&D subsidies, public venture capital and smart public procurement to encourage firms to pursue innovation activities in the face of economic crisis. Otherwise, financial constraints force firms to restrict R&D along with other firm activities. Current incentives are too weak to encourage firms to engage in anti-cyclical R&D expansion, and a stronger push is required.

Notes

1. Five OECD countries (Australia, Canada, Korea, New Zealand and the US) have introduced fiscal packages amounting to 4% of 2008 GDP or more, with the US package at about 5.5% of 2008 GDP being the largest. Non-OECD countries have also introduced significant economic stimulus packages, e.g. China (USD 585 billion, 19% of GDP), Brazil (USD 152 billion, 15% of GDP), Russia (USD 101 billion, 8% of GDP), Chile (USD 4 billion, 2.8% of GDP) (OECD, 2009).


References


