

Policies for Knowledge Societies at Global Forefront

By Petri ROUVINEN

21st Century in Beta

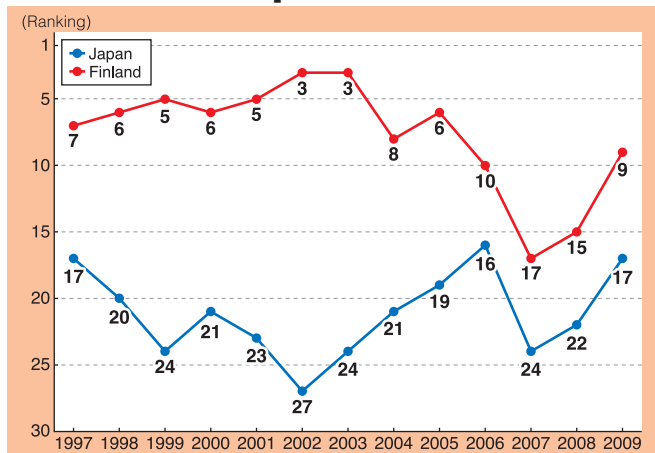
In their book *“The Information Society and the Welfare State”* (Oxford University Press, 2002), Manuel Castells and Pekka Himanen positioned Finland as perhaps the most viable global alternative for a future information society, effortlessly combining its egalitarian values and extensive social safety nets with international competitiveness (Chart 1). In the preceding decade, Finland had managed a transition from a resource- and investment-driven economy to a knowledge-driven one. For a moment Finland attracted a flood of (particularly Asian) visitors, who wanted to see “the 21st century in beta” (*Wired* magazine, September 1999).

Finland, indeed, has an admirable postwar economic track record. It may be considered a textbook example of a country’s systematic long-term development, which other economies in the catching-up phase of their development are well advised to imitate.

While Finland was enjoying its new-found fame in the early 2000s, the tide had already turned: Its crisis of the early 1990s – the deepest of any OECD country in the postwar era – did not remedy all pending structural issues. In the early 2000s, brisk growth and the country’s booming strongholds – forest- and ICT-related businesses as well as industrial machinery and equipment – hid mounting global challenges. The current economic crisis added insult to injury.

Finland discovered that – thanks to its past success – it must move on: The policies that supported its catching-up with the global frontier are not the same ones that it needs to maintain its current position and to push the frontier forward. This was forcefully point-

CHART 1
IMD World Competitiveness rankings of Finland & Japan



Source: IMD World Competitiveness Online (www.worldcompetitiveness.com/online)

ed out in a recent evaluation of the Finnish national innovation system by a group of international experts (see www.evaluation.fi).

This article – building in part on the afore-mentioned evaluation – discusses the following questions: How is Finland dealing with the ongoing economic crisis? How is it adjusting its policies in preparation for future challenges?

Creative Renewal as Policy Objective

Up until the mid-1980s, Finland was a relatively closed and quite heavily regulated economy. One of the primary ways of adapting to changing external circumstances was to adjust the pegged exchange rate of its then currency, the markka. Since the mid-1980s, the economy was nevertheless rapidly opened up. The process was completed in 1993 with the removal of the remaining restrictions on direct foreign ownership. Indeed, in terms of economic and financial aspects, Finland globalized rapidly; by the late 1990s, about half of the market capitalization of shares listed on the Helsinki Stock Exchange was held by foreign investors.

With its membership in the European Union in 1995 and with the adoption of the euro in 2002 as its currency, Finland had largely tied its hands as far as monetary (and macroeconomic) policy is concerned. Thus, since the early 1990s, promoting microeconomic renewal may be considered the primary vehicle of Finnish economic policy.

In the past two decades the three elements of creative destruction – the differences in the growth rates of business establishments as well as entries of new and exits of old establishments – have accounted for a considerable share of the economy-wide productivity growth. Chart 2 shows that without the role of creative destruction – that is, accounting for productivity growth only within the establishments – the development in Finnish manufacturing would have been similar to that in Japan in the course of its “lost decade.”

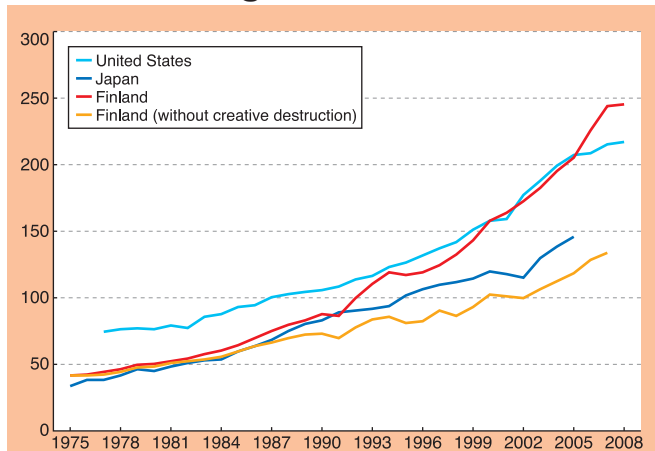
In the past, Finland suffered from its own version of the “Japanese disease,” i.e., from a domestically orientated sector that is less productive than the internationally orientated one. This has, however, changed since the mid-1990s and also a broader measure suggests that Finland is currently quite close to the US productivity level (Chart 3), which is commonly thought to define the global productivity frontier.

Finland remains – at least volume-wise – a leading knowledge economy: Its research and development expenditure in relation to GDP is the third highest in the world, next only to Israel and neighboring Sweden. Its higher education enrollment is well above the OECD average. Its knowledge intensity in terms of researchers per capita is the highest worldwide.

What kind of economic future can Finland expect for itself? Is it heading for its own “lost decade” or is it able to renew itself as it did in the past? With an economic contraction (negative growth) of some 7% in 2009, from the outset the current crisis seems even worse than

CHART 2

Level of labor productivity in manufacturing



Note: United States in 1987 = 100 (measured in 1997 US dollars)

Sources: Calculations by Maliranta, ETLA. Data from US Bureau of Labor Statistics, EU-KLEMS, Groningen Growth & Development Centre, ICOP Industrial Database, and Statistics Finland

in the early 1990s in Finland. Yet, currently there is neither the same sense of urgency nor a shared vision of a future growth strategy.

Demand- & User-orientated Innovation Policy

Finland adopted a new national innovation strategy in 2008. The strategy made two significant departures from the earlier thinking: First, it considerably broadened the scope of innovation policy. Second, it emphasized the previously somewhat suppressed demand and user orientation, which is elaborated on below.

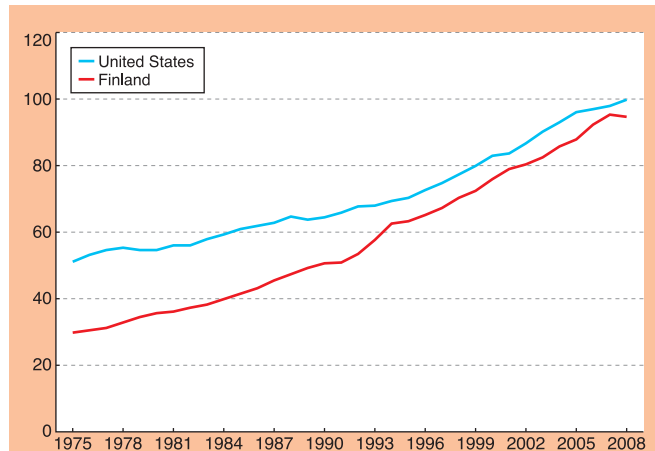
Most Finnish businesses have long embraced “open innovation” in the sense of sharing ideas within their domestic collaborative networks. On the other hand, there is a relatively strong culture of appreciating the fruits of in-house innovative activity over external ideas, particularly when they originate from abroad. Particularly inward open innovation, that is, the penetration of external ideas within organizations, is nevertheless on the increase. There are also experiments with outward open innovation, where companies openly share the fruits of their innovative effort via various arrangements. For instance, Nokia made Symbian, a mobile phone-operating system it controls, an open platform in 2008. As for the non-corporate aspects of open innovation, Finland has a good legacy: For example, Linux, an open-source operating system, and MySQL, an open-source database software, have Finnish roots.

In the context of innovation policy, considerable debate has been carried out on whether it is scientific curiosity-driven research (technology push) or user/market needs and desires (demand pull) that give the initial impetus to innovative activity. This distinction is, however, misguided: The two are highly complementary, and thus a balanced view on the supply- and demand-side aspects of innovation is to be commended.

With technological advances such as the Internet, the role of users in innovation is changing in noteworthy ways. First, many companies involve users as co-creators in innovative activity. Thus, users are no longer just targets whose needs are solicited; their expertise is becoming instrumental for innovation. Second, via anthropologi-

CHART 3

Level of labor productivity in nonfinancial business sector



Note: Measured in 2004 euros

Sources: Calculations by Maliranta, ETLA. Data from US Bureau of Labor Statistics, EU-KLEMS, Groningen Growth & Development Centre, ICOP Industrial Database, and Statistics Finland

cal and ethnographical methods, businesses seek new ways of uncovering unaroused and unarticulated user needs. Third, there are new possibilities to engage users in diffusing and complementing innovation once introduced in the marketplace; for instance Apple has successfully crowd-sourced some of the application development and content provision for its iPhone. Last, but not least, thanks to constantly falling computing and communications costs, users now have a vastly improved ability to innovate directly by and for themselves as individuals or as communities.

In emerging industries, users often have a central role: Keen hobbyists perceive a need and may be able to come up with rudimentary solutions. As demand starts to grow, some users may turn into providers, and incumbent companies in other industries may make an entry into the new market.

While users effortlessly innovating for themselves remain an exception rather than the rule, there are important and expanding domains of community-based provision. National systems of innovation that have organized themselves around a few traditional companies and industries – such as the systems of Finland and Japan – have a hard time orientating themselves towards widely dispersed and seemingly disorganized user activity. Indeed, as far as diffusing its outcomes is concerned, these systems may unintentionally be hostile to such activity. It is high time to change this, even if it is far from obvious how to promote demand and user orientation via public effort. There is no particular national model that could be imitated; Denmark and Finland are among the first countries to consider what these changes might mean for science, technology, and innovation policy.

A careful analysis conducted in the context of the evaluation suggests that perhaps the single most important way of promoting demand and user orientation in national systems of innovation is intense competition among (private) market participants. The primary goal is to nurture input and output markets that celebrate innovation. The public sector's tools to achieve this are mostly indirect; laws, regulations and standards are important. The role is direct when there is demand (generation) by the public sector (including public procurement) and/or supply by it (public goods and services).

Upon providing public support for private innovative activity – for instance in the form of direct R&D subsidies – one should not particularly favor either the demand- or supply-side aspects of innovative activity, but rather should select the projects that otherwise best fulfill overall policy objectives.

Seeking New Role in Global Networks

Booming global markets in the early 2000s led some Finnish decision-makers to believe that “Globalization 2.0” – characterized by global geographic dispersion of value-adding networks rather than by just international trade and foreign direct investment – did not have major societal implications and that the growth trajectory of the previous decades could be sustained in the foreseeable future.

While many supply chains do remain quite local, the fact that, in principle, even quite narrowly defined business activities will seek their globally optimal locations has major implications, especially in contexts where the competitive advantage of the past has had its foundations on national clusters or *keiretsu*, that is, in local rather than global networks. In the new world order, global competition increasingly takes place at the level of individuals and tasks they perform.

A considerable part of the Finnish success in the past decades is attributable to increasing openness as well as to its long-term commitment to education and research. Indeed, real educational expenditure in Finland has grown sixfold in the last 50 years. While there is qualitatively a lot of mileage left in this policy mix, continuing mere quantitative or volume-wise expansion in these domains cannot be the cornerstone of a viable future growth strategy.

Frontier Policies

Policies that aided the accumulation of wealth in the catching-up phase may even be detrimental for a frontier economy in the current global environment. Daron Acemoglu, Philippe Aghion and Fabrizio Zilibotti, three globally leading economists on the issue, note that “countries at early stages of development pursue an investment-based strategy – maximize [tangible and intangible] investment but sacrifice selection” (*Journal of European Economic Association*, 2006). Indeed, this is what Finland has successfully done in the post-war era up until the new millennium. They note, however, that “closer to the world technology frontier, an economy should switch to an innovation-based strategy with short-term relationships, younger firms, less investment, and better selection of firms and managers.” This is something Finland is only now learning how to do.

When Finland was far from the global frontier, it could advance by simply adopting the ideas that were already tried and tested elsewhere. The primary strategy was imitation and incremental improvement. As Finland managed to narrow the gap to the global frontier, there was less and less to gain from this strategy.

As the productivity data imply, to an extent Finland has been able to make the transition, Acemoglu and others imply: Since the mid-1980s in manufacturing and since the mid-1990s in services, creative destruction and renewal as well as new micro-dynamism or “entrepreneurial Finland” have accounted for an increasing share of productivity growth and thus of welfare improvements. This is, however, not enough to sustain the desired standard of living in decades to come.

Beyond Crisis

Finland’s structural challenges were present before the ongoing financial crisis, which only heightens the sense of urgency in addressing them. In the context of the current crisis, much of the Finnish stimulus is “passive” and funneled via its extensive social and unemployment benefits. As in its great economic slump of the early 1990s, Finland is also making considerable active stimulus: As compared to 2008, government R&D expenditure will increase 7%-10% in 2009. As for 2010, a further 5%-10% increase is being considered, along with possible tax incentives for venture capital and “business angel” investment as well as for private R&D in general. Also tangible public investments are being boosted.

With the major exception of an ongoing university reform, widespread structural changes have not yet been done as a response to the crisis or otherwise, but, for instance, a major revision of the tax code and a reform of the social welfare legislation (including pensions) are being considered. The latter is particularly important as Finland is – along with Japan – among the countries facing the most severe aging challenge, which on the flip side also provides a unique opportunity for renewal, particularly when it comes to reforming public institutions.

But what could be the future sources of welfare for the (current) high-income countries? A “cheap,” and easily misleading, answer is to cite a few concepts, companies, industries or technologies that happen to be hyped at any given time. At least in the case of Finland, it seems, however, that the future of the country rests less on a few leading industries and companies and more on widespread entrepreneurial activity. This poses a challenge to traditional Finnish policies, which have a (successful) history of national missions and targeted programs, even if the system was not and is not a top-down planning system.

Renewal – Painful But Necessary

It is clear that the future well-being of Finland and its citizens can only be based on generation and utilization of novel ideas throughout society. It is less clear how to promote this via societal policies in such a way that a sufficient volume of multinational enterprises’ high value-added activities will reside in Finland.

Finland has adapted a broad-based innovation policy emphasizing nontechnical and even noncommercial (social and cultural) innovations. The policy focus is shifting towards enabling and incentivizing individuals as opposed to organizations. The country, and creative individuals within its borders, should increasingly concentrate on new-to-the-world and radical/disruptive ideas as opposed to imitation and incrementalism. Finns must capture the spirit of open innovation – fully capturing and utilizing global knowledge spillovers and transfers are imperative. While these do not necessarily fit well with Finland’s old growth paradigm or its past strengths, the country is currently in this transition and one should be optimistic about its future! **JS**

Dr. Petri Rouvinen is a research director at ETLA (Research Institute of the Finnish Economy). This article is a part of the collaborative research program of ETLA and BRIE at the University of California, Berkeley. Rouvinen was a panel member in the Evaluation of the Finnish Innovation System (www.evaluation.fi).