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Editorial

Is more intense competition a positive for entrepreneurial innovations and, in the end, for economic growth? Over the years, economists and policy-makers have actively debated the issue. Numerous theoretical studies appear to lend support to the idea that the relationship between firms' incentive to innovate and the degree of product market competition is humped or inverse-u shaped, implying that monopoly and perfectly competitive markets provide the weakest incentives for entrepreneurial innovations. And the empirical evidence has tended to corroborate the theory. The Schumpeterian wing of endogenous growth theory has generally addressed the issue of firms' incentives to innovate by focusing on monopoly rents that accrue to successful innovators. According to this view, intense product market competition weakens entrepreneurial incentive to innovate and thereby retards economic growth, because it reduces the flow of rents to innovators. Similarly, weaker patent protection and easier imitation should also reduce entrepreneurial incentive to invest in research and development, since these tend to shorten the expected duration of rents from innovation as perceived by firms. R&D incentives, however, depend not only on income prospects of the successful innovator but also – maybe even more so – on the innovator's incremental rents, that is the difference between rents obtained by a successful innovator versus an unsuccessful one. This distinction is not made in most Schumpeterian growth models, since innovations there are made by outsiders who know that only commercially successful innovations can generate monopoly rents.

Actually, in many industries most of the firms do invest in innovation activity and many are earning rents generated by innovations. Thus the rents obtained by a successful innovator may be a poor indicator of the incentive to innovate and invest in R&D activity. It is worth pointing out that increased competitive pressure in the product market can reduce a firm's pre-innovation rents by more than it reduces the post-innovation rents. Indeed, this is what one would expect as a result of the 'selection effect' of market competition: in most competitive industries the profits earned by the technological leaders are larger than those earned by other firms. Consequently, an increase in product market competition can stimulate R&D by increasing incremental profits from innovations that help firms *escape* from competition with their closest rivals. Moreover, firms that are imitated face stronger incentives to innovate than before, even though their prospective rents from innovations are lower than before, because they are now in neck-and-neck competition with technologically-equal rivals and will remain so until they innovate again. As a consequence, anti-trust policy directly affecting product market competition and patent legislation affecting the ease of imitation will have growth repercussions not only by directly impacting firms' innovation incentives in the different industries but also via their influence on cross-industry distributions of technological gaps and the corresponding distributions of incremental rents.

Jouko Vilmunen

Do research and development subsidies stimulate innovation at all levels of product market competition?

According to modern growth theory, product market competition is the prime factor in the comparative growth performances of different countries as well as for individual countries over time. Product market competition also seems to play a prominent role in international economic and political discourse, not least because the benefits of globalization – perhaps the most significant manifestation of more intense competition – are currently a hot topic for debate in various circles around the world. The issue of the effects of public sector R&D subsidies on entrepreneurial innovation incentives and opportunities is an integral part of the debate and a frequent topic of research and analysis on private-sector R&D activity. Do public sector interventions stimulate R&D markets by boosting private innovation and hence contributing to the country's technological progress? Although economists appear to be in broad agreement that product market competition – at least within limits – is conducive to economic growth, opinions vary more on the potentially beneficial effects of public sector intervention on entrepreneurial incentive to innovate. Once we put this issue into the context of Schumpeterian endogenous growth theory, the key aspect of the effects of public R&D policy on private innovation incentives appears to be whether such policy can influence innovators' incremental rents, ie the difference between post- and pre-innovation rents, or the difference in rents obtained by a successful versus an unsuccessful innovator. Moreover, the theoretical possibility that the effects of R&D policy may depend on the degree of product market competition makes this issue particularly interesting. Empirical evidence seems to support the increasingly popular theoretical notion that entrepreneurial incentives for innovation are weakest under monopoly and perfectly competitive markets;

hence the relationship between degree of product market competition and innovation intensity is humped or inverse-u shaped. Any potential effects of public R&D policy on the relationship between innovation intensity and degree of product market competition can be best scrutinized through further high quality research on the issue.

In their forthcoming BoF discussion paper, 'When do R&D subsidies boost innovation? Revisiting the inverted U shape', Juha Kilponen and Torsten Santavirta study the effects of a proportional R&D subsidy on entrepreneurial incentives to innovate at different degrees of product market competition. Their model combines aspects of the literature on the relationship between competition and economic growth with research on the impact of public intervention on firms' R&D activity, which enables them to explore theoretically how subsidies affect the relationship between private innovation intensity and product market competition. More precisely, the theoretical inquiry into the effects of product market competition on private incentive to innovate is cast in terms of a modern Schumpeterian model of endogenous growth. The Schumpeterian approach is based on the idea that the prospect of earning incremental rents drives firms to innovate. The Kilponen-Santavirta model incorporates a channel through which direct R&D subsidies from the public sector influence these incremental rents and hence the entrepreneurial incentive to innovate. The authors derive interesting theoretical results from the model. To begin with, they show that (except under conditions of extremely intense competition) a proportional R&D subsidy stimulates firms' innovation activity, whatever the degree of product market competition. Consequently, this result lends support to the Schumpeterian mechanism in which product market competition impacts entrepreneurial incentives to innovate: firms are willing to innovate in order to escape competition with neck-and-neck rivals or, alternatively, firms that are imitated face

stronger incentives to innovate because they are now in neck-and-neck competition with technologically-equal rivals and will remain so until they innovate again. On the other hand, the specific R&D subsidy analysed by Kilponen and Santavirta does not seem to change the relative positions of different market structures or degrees of product market competition in terms of the intensity of innovation: the market structure that sustains the highest innovation intensity is apparently not affected by the R&D subsidy.

Kilponen and Santavirta proceed to test the key implication of their model, ie that the R&D subsidy strengthens entrepreneurial incentives to innovate in the context of all but extremely high degrees of product market competition. They use data for 1990–2001 on firm and plant-specific patents, indicators of product market competition, and R&D subsidies to Finnish firms. R&D subsidies are measured by the direct product subsidies dispersed by the National Technology Agency of Finland (Tekes). Direct product subsidies are the cornerstone of Tekes' subsidies, accounting for some 40% of its total budget. To control for possible endogeneity bias, Kilponen and Santavuori complement their data with case-by-case analyses of decisions taken by the Finnish Competition Authority on possible distortions or biases in product market competition as well as some privatization decisions. On first glance, the empirical results seem to support the theoretical observation that innovation intensity peaks at market structures falling between monopoly and perfect competition. On the other hand, these results also indicate that R&D subsidies increase firms' innovation intensity at all but extremely high degrees of product market competition. The empirical evidence is strongest for market structures that give firms the strongest incentives to innovate to escape competition. These results are interesting not only for validating the key implications of the theoretical model but also more generally. Clearly, they provide additional motivation to expend resources for

digging deeper into the growth effects of competition and different market structures. In addition to opening up the possibility of constructing new and innovative theoretical models, this theme invites researchers to introduce new data sets and methodologies to test the implications of their theoretical models. Consequently, all the important ingredients for producing significant research are put on the table.

Is integrated supervision the key to efficient supervision of the financial services sector?

Over the last thirty-or-so years, financial deregulation and innovations in information technology have lent wings to the process of change in European financial markets. Deregulation and progress in IT have ushered in new growth opportunities for financial institutions and so have improved their possibilities for participation in international mergers and acquisitions. The emergence and increasing popularity of financial conglomerates and financial multinationals is a good indicator of the ongoing consolidation process in the financial industry.

Technological progress and financial deregulation have also spurred financial innovation and facilitated the emergence of financial products that are increasingly complex and difficult to classify among the traditional categories of banking, securities and insurance. Because of the financial market developments that have already taken place, authorities in different branches of the financial services industry and in different countries have been forced to cooperate more closely than before in matters of financial market supervision. The issue of creating a supranational supervisory agency has emerged in the related European public debate, and in many countries people have started to question the wisdom underlying the currently dominant structure of separate, sector-specific supervisors and to require a thorough re-evaluation of its soundness, including its

sustainability given the currently visible trends in financial markets. In Finland the government recently decided to combine financial and insurance supervision under a new agency that will function in association with the Bank of Finland.

Financial conglomeration and the emergence of multinationals in the financial services industry pose challenges to existing supervisory structures. Financial conglomerates, in particular, have raised the pressure to integrate sector-specific supervisors in the financial services industry into larger entities. The introduction of new financial products that are closely tied to the emergence of financial conglomerates and which tend to blur the boundaries between 'pure' banking, securities and insurance products – the traditional bases for classifying financial products – has brought similar pressures to reorganize financial supervision. Moreover, financial conglomeration does not respect national borders, and the emergence of financial multinationals is placing further strains on present supervisory structures. It is partly for this reason that the related economic and financial literature sees financial conglomeration and multinationals as closely related phenomena, which is also understandable because the economic motives underlying their creation are much the same. The desire to exploit economies of scale and scope, as well as better opportunities for diversification in risk management (insofar as the returns on various business lines are not highly correlated), have facilitated the emergence of financial conglomerates. Similarly, it has been argued that the formation of multinationals is driven by the desire of financial institutions to capture scale economies and to benefit from better risk diversification. The efficiency improvement in risk management here originates from both the increased number of securities available for diversification and the reduction in geographical concentration of financial activities. It is noteworthy that the corporate

structures chosen by financial conglomerates and multinationals are considered important factors in the relevant economic and financial research, as well as in the related political debate dealing with the problems of financial supervision.

In her forthcoming BoF discussion paper, 'Integration of supervision in the financial services industry', H. Holopainen analyses those factors that explain the growing pressure to reorganize existing supervisory structures in the financial services industry. The fact that the economic and financial reference literature, ie the research that directly serves her analysis, is still fairly scanty renders her analytical survey especially praiseworthy. Of course, we do have a good helping of economic research on regulation and supervision of individual sectors of the financial services industry. Before examining the pros and cons of integrating sectoral supervisors into a common supervisory entity, Holopainen discusses various issues closely related to financial supervision – such as the dimensions of official financial supervision, the efficiency implications of powers granted to official supervisors, and the relationship between official supervision and private supervision or market discipline. Moreover, Holopainen's analysis nicely spotlights the three layers that characterize the legal framework of prudential supervision in the EU: individual regulated entities are supervised on a stand-alone basis; regulated entities forming a group that is active in the same sector of the financial industry are subject to consolidated supervision; and heterogeneous financial groups active in several sectors of the financial industry are subject to supplementary supervision. In the case of financial conglomerates, all three layers of supervision may be actively involved, as noted by Holopainen. Against this general background of prudential supervision, Holopainen reviews the various corporate structures of financial conglomerates, through which the production of financial services is

organized. In this context, she makes elegant use of the study 'Regulating financial conglomerates' by Freixas, Loranth and Morrison (soon to be published in the Journal of Financial Intermediation) to show how the holding company structure can give rise to regulatory arbitrage and capital requirements can be used to exploit differences in market discipline via regulatory arbitrage. A host of arguments in favour of an integrated supervisory structure have been presented in the earlier literature, and these arguments are nicely detailed by Holopainen. But such a system of integrated supervision has its own problems, which pose further challenges. These challenges arise mainly from the fact that a single authority in an integrated supervisory structure has monopoly status in terms of supervision. Towards the end of her paper, Holopainen calls for careful consideration and planning to ensure the effective functioning of integrated supervision, because with a single supervisory authority the greatest risks and challenges derive from this single entity assuming or being assigned too many tasks. The policy-oriented analysis of alternative supervisory structures for the financial services industry presented in Holopainen's paper is a welcome contribution to the existing, but still scanty, literature in this area. The economic analysis of regulatory and supervisory structures is still seeking its proper focus – a fact that should encourage further research effort in the area.

How have economic reforms affected growth in transition economies?

Why are socially beneficial and welfare-increasing reforms not implemented? Sometimes the answer is that various pressure groups manage to stop reforms that are not to their own benefit even though they may be beneficial on net to the whole society. But another possible answer is the genuine uncertainty about the effects of the reforms,

in which case it may be optimal to move slowly and try to learn from both own mistakes and those of others. This possibility has so far received little attention in studies. If economic agents are unsure of whether a proposed reform will work, its realisation will be less likely. Despite the fact that economists may favour certain structural reforms, it is often difficult to establish a statistically significant positive relationship between reforms and economic growth.

Ian Babetskii and Nauro F. Campos (Does reform work? An econometric examination of the reform-growth puzzle, BOFIT Discussion Paper 13/2007) discuss this question in respect of reforms in transition economies. Because a significant number of structural reform programmes have been implemented in transition economies over the past 15 years, these countries provide a fertile ground for such research. Babetskii and Campos collected data from all the empirical studies conducted so far, which investigate the impact of reforms on economic performance in transition economies. The findings of these studies are assessed via meta-regression analysis, a statistical method for evaluating results of studies on a given topic. This paper aims at explaining whether certain characteristics of the data set or estimation methods affect the findings.

The work uses data collected from 43 econometric studies containing more than 300 individual estimates of the effects of reforms on growth in transition economies. Approximately a third of these coefficients are positive and statistically significant, another third are negative and significant, and the final third are not statistically significant. The study finds that the measurement of reform and controlling for institutions and initial conditions reduce the probability of reporting a significant and positive effect of reform on growth. It also appears that the effects of structural reforms are positive in the long run, but may slow the growth in the initiation stage. On the other hand, reforms differ also

in this respect. For instance, liberalisation of foreign trade does not generate costs in the short run.

Conferences and workshops

The Research Unit of the Bank of Finland will jointly host a conference with SUERF (Société Universitaire Européenne de Recherches Financières) on 21–22 September at the Bank of Finland. The topic will be ‘Financial Markets, Innovation and Growth’. The objective of this conference is to present new high-quality research on how improvements and integration in the financial markets contribute to innovations in all sectors of the economy and thereby to economic growth opportunities. The programme will be updated in early autumn on the conference site http://www.bof.fi/en/tutkimus/konferenssit/tulevat_konferenssit/suerf2007.htm.

On 1–2 November, the Research Unit and CEPR (Centre for Economic Policy Research) will jointly host an international conference for the eighth time. The topic will be ‘Expectations and Business Cycle Dynamics’. Papers are invited in particular on

- News, perceptions and shocks to expectations and business cycles
- Expectations formation and shock propagation
- Behavioural biases, alternative expectations formation mechanisms and optimal monetary policy
- Deviations from rational expectations and quantitative business cycle modelling.

The call for papers is open until 15 August and is available on the conference site http://www.bof.fi/en/tutkimus/konferenssit/tulevat_konferenssit/cepr2007.htm

In recent years the Russian and Chinese economies have grown rapidly. At the same time, their importance for the global economy has increased, and they have become more and more integrated with the global economy. On 11–12 December 2007 the Bank of Finland Institute for Economies in Transition

(BOFIT) will host a research seminar devoted to this integration process and its consequences. The call for papers is open until 19 October 2007 and is available on the conference site http://www.bof.fi/bofit_en/tutkimus/tyopajat/russia_china_2007/.

Recent Bank of Finland research publications

Bank of Finland Discussion Papers

David G Mayes – Maria J. Nieto – Larry Wall: Multiple safety net regulators and agency problems in the EU: is Prompt Corrective Action a partial solution?, BOF DP 7/2007.

Mikael Bask – Carina Selander: Robust Taylor rules in an open economy with heterogeneous expectations and least squares learning, BOF DP 6/2007.

Risto Herrala – Karlo Kauko: Household loan loss risk in Finland – estimation and simulation with micro data, BOF DP 5/2007.

BOFIT Discussion Papers

Iikka Korhonen – Aaron Mehrotra: Money demand in post-crisis Russia: De-dollarisation and remonetisation, BOFIT DP 14/2007.

Ian Babetskii – Nauro F. Campos: Does reform work? An econometric examination of the reform-growth puzzle, BOFIT DP 13/2007.

Pertti Haaparanta – Tuuli Juurikkala: Bribes and local fiscal autonomy in Russia, BOFIT DP 12/2007.

Aaron Mehrotra – Jouko Rautava: Do sentiment indicators help to assess and predict actual developments of the Chinese economy?, BOFIT DP 11/2007.

Mikael Mattlin: The Chinese government’s new approach to ownership and financial control of strategic state-owned enterprises, BOFIT DP 10/2007.

Forthcoming publications

Bank of Finland Discussion Papers

Mikael Bask: Instrument and targeting rules for monetary policy under heterogeneity in currency trade.

Juha Kilponen – Kai Leitemo: Discretion and the transmission lags of monetary policy.

Mika Kortelainen: Adjustment of the US current account deficit.

Juha Kilponen – Torsten Santavirta: When do R&D subsidies boost innovation? Revisiting the inverted-U shape.

Helena Holopainen: Integration of supervision in the financial services industry.

Allen N. Berger – Iftekhar Hasan – Mingming Zhou: Bank ownership and efficiency in China: what will happen in the world's largest nation?

BOFIT Discussion Papers

Svetlana Ledyeva: Spatial econometric analysis of determinants and strategies of FDI in Russian regions in pre- and post-1998 financial crisis periods.

David G. Mayes – Vesa Korhonen: The CIS – Does The Regional Hegemon Facilitate Monetary Integration?

Roberta Colavecchio – Michael Funke: Volatility Dependence Across Asia-Pacific On-Shore and Off-Shore U.S. Dollar Futures Markets.

William Pyle: Organized Business, Political Regimes and Property Rights across the Russian Federation.

Aaron Mehrotra – Tuomas Peltonen – Alvaro Santos Rivera: Modelling Inflation in China – a Regional Perspective.

