

GLOBALISATION, COMPETITION AND INNOVATION– RECENT DEVELOPMENT

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Abstract

Globalization and support of competition keeps prices low and output high. But what is their impact on quality and support of innovation? There is a fundamental question about the relationship between competition and innovation which it has been subject of many theoretical debates. Timely implementation of innovations helps the country to reach the necessary competitive advantage and create and maintain competitive position in today's demanding international environment. This research work uses different research strategies to explore the current competitive position and innovation potential of companies in the Czech Republic. It examines the institutional setup and financial background of innovation generators. It explores the official administrative and financial support of innovations. Impact of globalization on innovative activities is highlighted. In the regional context an important role is represented by some specific interests and local assignments. Regions often stress a fast fructification of innovations and rapid implementation of investments into their local and municipal culture. The results of this study bring the characteristics of innovation environment and innovation potential of the Czech Republic, which can be used as a base for decision making on governmental, regional and professional levels.

Key words: innovation, globalization, competition, dynamic efficiency, open innovation

JEL Code: D40, L40, O30

Introduction

Competition and support of competition keeps prices low and output high. However we need to explore the relation to innovation. There is a fundamental question about the relationship between competition and innovation because the relationship between competition and innovation is controversial and has been subject of theoretical debates whether competition is supportive to innovation. Different positions have been taken by representatives of two camps: Joseph Schumpeter (1883 - 1950) and Kenneth Arrow (* 1921), who are authors of important theoretical schools of thoughts. (Baker, 2007)

The claim that market concentration helps innovation does not appear to be supported by recent empirical findings. (Ahn, 2002) Motivated by the Schumpeter's assumption that large firms in concentrated markets have advantage in innovation, many empirical studies have investigated the relation between market concentration and innovation. On the whole, however, there is little empirical support for the view that large firm size or high concentration is strongly associated with a higher level of innovative activity. Increased efficiency and productivity can result from economies of scale and increased economy due to synergies and major cost cutting and outsourcing activities. Another explanation of increased productivity apart from competition on the product market can be brought by competitive pressures coming from corporate governance. Recently we have witnessed some attempts to increase efficiency by regulatory reforms in different sectors - increased openness to global competition, introduction of competition into non-profit sectors etc. It was observed that that competition brings productivity gains and long-run economic growth. Some studies suggest that it could sometimes take a long time for the producers and consumers to adjust themselves to the new environment with increased competition and to fully experience efficiency gains. (Ahn, 2002)

1. Theoretical and methodological background

Competition rings in efficiency and forces price to converge to marginal cost. These days we can often see an argument that the primary generation of innovative ideas and patents remains in the domain of small and medium sized firms (SMEs). SMEs need to keep pace with competition which is severe in their market segments and therefore they must be innovative to maintain their market share and keep pace with competing enterprises. However, historically there was a different argument, about who is the main generator of innovation.

The basic essence of this argument is as follows: Joseph Schumpeter argues that monopolies favour innovation. An opposite view, often associated with Kenneth Arrow, argues that competition favours innovation. Schumpeter (1934) speaks about different quality of innovation generated by big companies and monopolies. Competition also helps to solve agency problem. Under competition management performance is better monitored. There are also other views on competition. The probability of bankruptcy is likely to be higher in a more competitive environment. This will force managers to work harder to avoid bankruptcy. Cost-reducing improvements in productivity could generate larger revenues and profits. So called "static efficiency" implies better allocation of resources and more efficient generation of

resulting revenues and profits. In dynamic industries (e.g. telecommunication or ITC) the efficiency is gained through new modes of competition. This subsequently creates greater welfare gains. The potential trade-off between static and dynamic efficiency deserves special attention in considering the links between competition and innovation.

1.1 Premise of discussion

Before we approach this discussion on innovation and competition, we need to keep in mind that an important underlying presumption of this discourse is that more innovation is good for society because innovation is undoubtedly one of the key determinants of the welfare of humankind. (Baker, 2007, p.4) Furthermore the benefits of innovation to society as a whole greatly exceed the benefits to the firms that originally develop the innovation.

Each firm needs to react to competition. The result of competition is cheaper and better products and greater production. Competition is good because it leads firms to make more and/or higher quality goods and sell them for less. A firm can reduce its price after a close rival cuts price – so can be expected to lower price in response. Or the firm can attract buyers by making improvements in product attributes closely related to price and valued by consumers, like providing more rapid delivery, offering higher quality, offering more colours or styles or other additions to product variety, or by providing additional post-sale services. It can also alter its financial conditions.

There are distinctions between so called static and dynamic competition. Firm dynamics during their life cycle make an integral part of dynamic competition. Dynamic competition selects out less efficient firms from more efficient ones and reallocates productive resources. New features of dynamic competition (or, competition between different systems to become the standard in a new market based on new technology) raise new challenges to policymakers. Policymakers should aim at insuring dynamic efficiency, not just static efficiency in the present. In this context, well-functioning labour markets and capital markets are very important. (Ahn, 2002, p.8)

1.2 Classification of innovations

The exact notion of innovation is not unambiguous. „A plethora of definitions for innovation types has resulted in an ambiguity in the way the terms ‘innovation’ and ‘innovativeness’ are operationalized and utilized in the new product development literature. The terms radical, really-new, incremental and discontinuous are used ubiquitously to identify innovations. One

must question, what is the difference between these different classifications?“ (Garcia & Calantone, 2002, p.110) From another standpoint the innovations are understood as not only a new product offered to customer. The classification is broader. The degree of innovation also depends on particular discipline

Tab. 1: Constructs used to model product innovation/innovativeness

Construct
_ Product innovativeness
_ Radicalness (discontinuous)
_ Newness to firm
_ Technical content
_ Newness to market
_ Newness of technology
_ Newness to customer
_ Product uniqueness
_ Product (superiority)
_ Synergy (fit)
_ Product/market fit
_ Marketing task similarity
_ Product complexity
_ Development complexity

Source: (Garcia & Calantone, 2002, p. 111)

More elaborated classification of innovation was put together by OECD in so called “Oslo Manual” published by OECD recommending ways of measurement of scientific and technological activities. Oslo manual, however, does not limit its attention to technological, technical, product and process innovations only. It provides guidelines to non-technical innovations, mainly in the area of marketing innovations and organisational innovations and it provides some guidance to diffusion of innovation. (Oslo Manual, 2005, p. 88 and following). In the Czech Republic classification of innovations and research on innovation activity is exercised by Czech Statistical Office using questionnaires that are based on Oslo manual and harmonised by Eurostat.

2. Competition and innovation

Research and development are key factors of production and growth. Now, starting from Schumpeterian argumentation, big firms and monopolies are originators and promoters of innovations, because they are able to finance innovation from their own funds. Starting from this argument, maybe surprisingly, Schumpeter suggests that large firms and monopolists may be more innovative than firms in competitive markets. The reasons are that “large firms might

be better able to fund large research and development (R&D) projects than firms in competitive markets“, the small ones (Baker, 2007, p. 5). Moreover, it may be easier for big successful firms to explain to the suppliers of financial capital why research and development projects have potential, because the major part of needed financing lies within the organization. This helps to overcome agency problem and information asymmetry. It is easier for the big firm to obtain necessary resources because the big firm can easily put forward arguments to capital market participants and to venture funds specialists. Furthermore, as we can observe in today’s practice, there is also a considerable discrepancy in funding innovations in the US and in Europe. ¹

In contrast to this theory, Kenneth Arrow emphasized a competing logic by which competition rather than monopoly promotes innovation. Small and medium sized companies are principal originators of innovations. Big companies will innovate less because there will be a big need funding of substantial improvement of production and technology. Therefore it is reasonable to ban the innovation and prevent the competition to bring in a new enhancement or improvement that could be reached for example by cost reduction or quality increasing or by bringing in entirely new product.

Putting it simply, monopolist might innovate less than competitive firms because a monopolist has more to lose. “A monopolist could spend a great deal of money to make a dramatic improvement – whether by lowering cost, improving quality or creating a new product – and take over the market, only to find that it does not get much additional business because it already has most of the business there is to get.“ (Baker, 2007, p. 6). This limitation of the monopolist to innovate is often termed the “Arrow effect” or the “replacement effect”.

This argumentation has lead to important discussion relating competition and innovation. Several theoretical presumptions have been formulated and discussed in economic literature:

- 1. Competition in innovation itself – that is, competition among firms seeking to develop the same new product or process – encourages innovation, i.e. patent races.*
- 2. Competition among rivals producing an existing product encourages those firms to find ways to lower costs, improve quality, or develop better products. Firms engage in research and development because innovation may allow them to escape competition.*

¹This can be witnessed on the current websites of corresponding venture funds associations: American NVCA (National Venture Capital Association) and European EVCA (European Private Equity and Venture Capital Association).

3. Another presumption is that, firms that expect to face more product market competition after innovating have less incentive to invest in R&D. If innovation would not allow a firm to escape competition, the firm would anticipate profiting less from R&D.

4. and at last, a firm will have an extra incentive to innovate if in doing so it can discourage potential rivals from investing in R&D. If a monopolist can make investments that guarantee that it will quickly emulate any innovation introduced by a new entrant – those investments will discourage potential rivals from innovating in ways that compete with the monopolist without reducing the monopolist's own incentives to innovate.

Following a more recent view on innovation we can see understanding on innovation and different classification. The concept is not understood as one case of innovation or one isolated new product but as different innovation strategy. Very important progress in theory of innovation was made by Eric von Hippel (*1941) who is specializing in the nature and economics of distribution and in open innovations. The new term that he coined is “user innovation”. That is, it has been originally assumed that most important designs for innovations would originate from producers and be supplied to consumers via goods and services produced. This view seemed reasonable – producer-innovators generally profit from many users purchasing and using a single, producer-developed innovation design. Von Hippel introduced the concept of “open innovation”, which is a paradigm that assumes that firms can and should use external ideas for creating and developing better products or processes. “External ideas” are then used together with “internal ideas”, and internal and external routed to market, as the firm looks to improve its technology. The concept of open innovation diminishes the boundaries between firm and its client, between supplier and customers and competitors etc. In this way the inspiration and other sources of innovation can be easily interchanged between all subjects within given environment. Von Hippel's concept assumes a world of widely distributed knowledge where firms can not rely only on in-house research, but should instead buy or licence processes or inventions (patents) from other subjects within given environment. (Von Hippel, 2005)

Contrary to the concept of open innovation is closed innovation that is based on paradigm that successful innovation is prepared completely under control of one subject (one company) along the whole chain i.e. generation of ideas, production, marketing and distribution. The outputs of internal research that are not being used elsewhere should be according to concept of open innovation distributed and utilized outside the company (e.g. via licensing, joint-ventures and spin-offs). Particular types of industries are suitable for this type

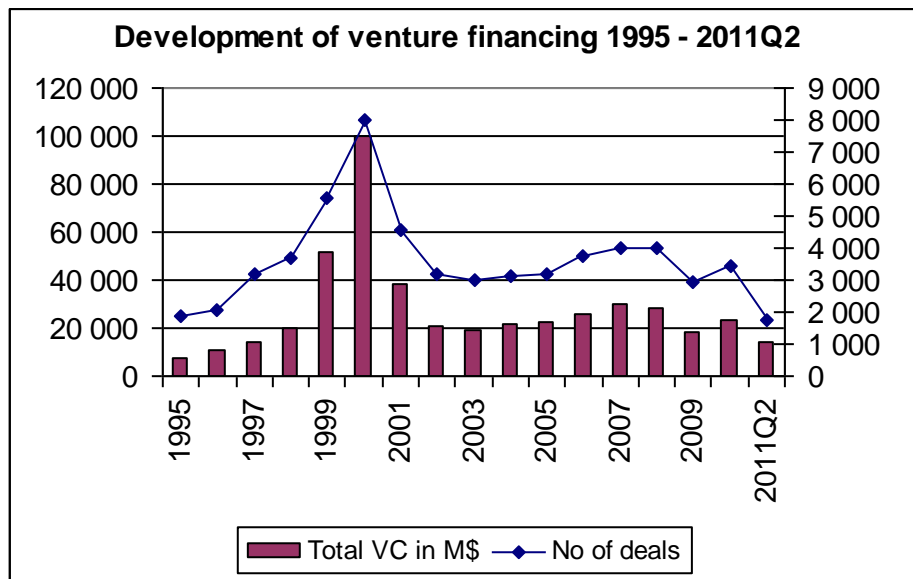
of innovation. Here we have in mind mainly IT and communication technology. It is important to stress that his type of innovation flourishes in supportive environment. Prior to this concept Von Hippel also developed the term user innovation (Von Hippel, 1986). The idea of user innovation is based on argument that end-users not producers are responsible for significant portion of new innovation. In this context Von Hippel introduced the term “lead user”.

With increasing globalization more contemporary thoughts on innovation are also pointing out the fact that there is significant shift in “value proposition” or how innovations (especially those from product area) are perceived by customers. In the past the innovation usually meant delivery of better product that somehow naturally costs more, but nowadays in most cases it means to deliver better and also cheaper product. Value proposition is one of the core ideas of modern marketing, it is describing how much value the customer can expect from the goods or service. This concept is relevant today in the era of globalization and cost cutting justified by economic crisis, even though the original ideas of “better and cheaper” product, better organization of work and improvement in production technology started with Japanese miracle during the period of record economic growth following World War II.

3. Financing innovations in the US and in Europe (EVCA a NVCA)

Recently it seems that funding of innovations slows down. In private sector innovations were funded by various venture funds, but the money invested in venture funds have decreased in total as can be observed on Figure 1.

Fig. 1. Corporate Venture Capital Group Investment Analysis 1995 – 2011Q2



Source: PricewaterhouseCoopers/National Venture Capital Association MoneyTree™ Report, Data: Thomson Reuters <http://www.nvca.org/> [consulted on 26.7.2011]

This is a result of the general economic crisis which began on the American mortgage markets in 2007. The behavioural pattern of venture capital funds has modified and the industry spectrum has also modified. Venture funds are prepared to provide more funding to new entrants and help with the exit phase, but the choice is more selective. The perceived risk has increased and there are big investments funded by mature companies in the sector.

“The venture capital industry is coming through a very turbulent period in U.S. economic history and recovery is going to take time, even with the improving exit market we have seen in the last year“, said Mark Heesen, president of NVCA.²

There is big difference between the venture capital industry in the US and in Europe. One must appreciate, that in the US there is a long tradition of venture capital funding starting with American Research and Development Corporation funded in 1957. The firm was originally founded to encourage private sector investments in businesses run by soldiers who were returning from World War II. ARDC's was the first institutional private equity investment firm.

² Venture Capital Returns Q1 2011 ([Press Release](#)) available at http://www.nvca.org/index.php?option=com_docman&task=doc_download&gid=784&Itemid=9

Compared to the US market, venture capital industry in Europe is rather slow-moving and immature and European stock exchanges are perceived as rather hostile towards young firms. This has been found as a major obstacle to innovation. On one hand entrepreneurial firms are viewed as major contributors to economic growth and to the creation of new jobs. This implies that venture capital as an important tool for technological innovation, job creation and regional development and growth of national export. However European Investment Bank identified that Europe's growth problems may be caused by weaknesses in capital markets and smaller access to risk capital, rather than by rigidities in labour markets. This raises important policy issues. It is crucial to understand whether any industrial policy and regulation can actually contribute to the growth of a dynamic venture capital industry in Europe. European official documents focus on the supply of funds and on the creation of favourable structural conditions for entrepreneurs, but it is not clear which policy would be most appropriate to support venture capital in Europe.

Up until the early 1990s, venture capital remained essentially an American phenomenon. Its success in supporting dynamic companies which create jobs and wealth brought many governments to look for ways to support a national venture capital industry. At the same time, the high returns enjoyed by US venture capital firms induced venture funds to become active also in other countries. Venture capital is by now a sizeable industry also in Europe and Asia. In Europe the innovative start-ups were usually financed by banks and government funds. Banks are less flexible and more conservative in their policies. Furthermore the regulation in Europe is more restrictive and more limiting, which is probably given by inherent bureaucracy in all EU systems.

4. Impact of globalization on competition and state of innovation in the Czech Republic

Nowadays, globalisation plays a key role in the Czech economy, which is very open. According to OECD statistics the share of international trade in national GDP has been more than 70% in recent 5 years. Structurally, it represents predominantly trade and cross-border movement of goods and also active participation in production chains especially in car industry and other machinery. The core attraction of the Czech Republic is favourable location and relatively low labour costs. The setting up of international production plants has accounted for a large share of the Czech Republic's substantial foreign-direct investment.

Globalisation is affecting the economy also on other fronts. Multinational companies play an important role in retailing and international mobility of labour is increasing. The Czech authorities need to concentrate on important issues to help the country to profit from globalization - healthy macroeconomic conditions and proactive structural policy in terms of improving the business environment. This concerns mainly simplification of business legislation and taxation and engaging in of innovation policy.

Because of the nature of the Czech economy as a very open economy with high dependence on international markets, there is need to support the small and medium sized companies in access to international markets where there is very often lack of finances. This area is a domain of active state agencies Czech Invest and Czech Trade. The country also needs to put in order good transport infrastructure as this is one of the few key factors in firms' location decisions where investment policy plays a direct role. In particular, increased attention needs to be paid to the efficiency of public supportive activities.

Innovation potential and entrepreneurship in the Czech Republic is also supported on governmental level. For example according to the Ministry of Industry and Trade there were subsidies and financial support in the volume of 13.5 bills. CZK spent in the period from 2007 to 2010 from the program "Operační program podnikání a inovace" (Operational programme enterprising and innovations). But there were also supports on the level of state budget with guarantees for almost 1500 SMEs enabling them to obtain loans for operational and investment purposes in the total amount of 9 bills CZK. There are also other supporting programs that are more narrowly focused on technical and non-technical innovations, for example programs "Trvalá prosperita" (Permanenet prosperity) or "TIP" that supported over 500 SME projects in the area of industrial research and development in the year 2010 with overall subsidy over 1.6 bill CZK.

The programme "Operační program podnikání a inovace" is reflecting the EU Lisbon strategy, which focuses on tools of direct and indirect support of entrepreneurship, especially in its form of small and medium enterprises. In general, the program is focused on removing the barriers to access to capital funds. The support is usually given to companies with higher innovation potential, and also to activities supporting establishment of new companies and on development of existing companies to improve their competitiveness within regions with structural problems and high unemployment. The program is funded by EU structural funds (85%) and remaining part is funded by Czech state budget. There are six main areas of focus: (1) establishment of new companies, (2) development of existing companies, (3) programme

entitled effective energy³, (4) support of innovations, (5) creation of environment for entrepreneurship and innovations, and (6) support of services for development of entrepreneurship.

Another important aspect for the innovation potential is the level of international cooperation, export and import. As the size of the Czech market is limited and it is necessary for companies to think seriously about using innovations to go on the international market. The research made by European Commission among European SMEs showed that only 25% of SMEs are exporting their production to foreign markets, 7% is in role of supplier or customer of foreign company and only 2% is realizing foreign direct investment. These average numbers for whole EU are in case of Czech companies higher that is reflecting the openness of the Czech economy. There is relation between size of the company and the degree of international cooperation or international activities. The bigger company the more active on foreign markets is. The same applies for the size of the domestic market. There is also relation between the age of the company and their international activities – older companies are more likely to be active on international markets.

According to The Czech Ministry of Trade and Industry (MPO) there are the following priorities for future: the establishment of seed fund or fund of venture capital. That fund will be established and operated by the MPO. Its goal is to support innovation-driven start-ups via direct investment or loan guarantees etc. It is expected, that this approach brings certain advantages. It aims to provide the needed capital for start up companies with high innovation potential and it should bring a multiplication effect of invested financials. There is a relatively good experience with such approach in some countries in area of support of innovative environment and knowledge based economy.

Conclusion

Ever since Schumpeter (1934) promulgated his theory of innovation, entrepreneurship, and economic development, economists, policymakers, and business managers have assumed that the dominant mode of innovation is a “producers’ model.” That is, it has been assumed that most important designs for innovations would originate from producers and be supplied to consumers via goods and services. This view seemed reasonable– producer-innovators generally profit from many users, each purchasing and using a single producer-developed

³ This programme is focused on stimulation of activities leading decrease the energy demand consumed by production and on decrease of consumption of non-renewable, fossil fuels.

design. Different concept represented Von Hippel in 1980s. Von Hippel introduced a notion of “open innovation”, which is a paradigm that assumes that firms can use external ideas for creating and developing better products or processes. External ideas are used together with internally generated ideas as the firm strives to improve its technology. The concept of open innovation diminishes the boundaries between a firm and its client, between supplier and customer and competitor etc.

Globalization changes the way industries operate by decreasing the costs of production through outsourcing. The Czech Republic has a good position in today’s world with its open economy, with international trade representing more than 70% of country GDP in last 5 years. The country aspires to become a knowledge based economy. For this reason the Czech Ministry of Trade and Industry prepares different programmes to support the creation of innovation, improve infrastructure and work out less bureaucratic procedures for new entrepreneurs and companies in innovative segments. This proactive policy including creation of seed fund easing access to venture capital should help the country to attain sustainable advantage and reach the state of sustainable development based on active use and creation of innovation in the foreseeable future.

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