The Internationalization of Hungarian Small and Medium-Sized Enterprises

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Abstract
This paper offers some empirical evidence concerning Hungarian knowledge-intensive industries by analysing the extent of internationalization among innovative and non-innovative small and medium-sized enterprises (SMEs). The main methods were an on-line survey specifically developed for the project and some interviews. The survey was responded to by 246 SMEs from four knowledge-intensive, technology-oriented sectors. An important feature of the paper’s contribution is that it looks not only at “classical” forms of internationalisation such as involvement in exporting and FDI; it also shows the results of “contemporary internationalization”-for instance, from participation in international research and innovation networks. “Classical” internationalization provides a rather limited impetus for innovation, whilst the contemporary version is constrained by the relatively low proportion of innovative SMEs. Both phenomena hamper companies’ success on the international stage. The study draws some important, evidence-based conclusions demonstrating how innovation and economic policy can improve the Hungarian economic environment. The study of relationships between types of internationalization and innovative / non-innovative SMEs is something of a novelty in Hungary and may provide important insights in policy terms into the ways in which policymakers can assist companies to join such important networks.

Keywords: internationalization, innovation, small and medium-sized enterprises, Hungary, on-line survey

JEL classification: O39; F23

Introduction

Internationalization is an important driving force of innovative activities and, conversely, innovation is an important catalyst for internationalization. Internationalization has the effect of increasing the international transfer of knowledge, and international competition forces enterprises to be innovative, whilst the availability of new markets encourages them to implement their innovations in an effort to increase their profits.
Business, including its open innovation activity, has become more global, and all of these phenomena push SMEs towards the international arena. Notwithstanding anecdotal evidence on the impact of the internationalization of the innovation process on the competitiveness of SMEs, few research projects have been undertaken to study the internationalization of SMEs in a systematic way. However, discussion of the serious universal importance of smaller businesses coincided in the early 1970s with the emergence of globalization (Schumacher 1973). The internationalization of SMEs then accelerated dramatically in the 1980s (UNCTAD 1993, Buckley 1989, Hollenstein 2001). It is particularly important to analyse these changes since the innovative activities of enterprises and the attributes of their internationalization vary depending on their size as well as on the magnitude and distance of the markets targeted by their economic activities.

Although SMEs do not form a homogenous group, there are certain size-related features, and these include the small number of employees, limited resources, weak negotiating power, fragility in the face of economic difficulties, their very limited risk-taking capability and difficulties in accessing cross-border networks. The replacement of ageing founding managers and/or the delegation of managerial responsibilities in growing micro- and small businesses are also problematic and may lead to decline in companies and to their losing their innovative and networking capabilities, whilst flourishing SMEs are characterised by a very positive attitude towards innovation and by flexibility.

In relation to the group of SMEs, the study focuses on the connection between innovative activity and internationalization. (The ceilings for SMEs, according to EU rules, are: below 250 employees, maximum €50m turnover or a €43m balance sheet.) In fact, the proportion of innovative SMEs in Hungary lags far behind that in other EU or EEA countries of similar size to Hungary. The Hungarian proportion is 26%, whilst in Norway it is 40% and in Austria, Belgium, Denmark, Finland and the Netherlands above 50% (http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=inn_cis7_type &lang=en). Such large differences highlight the fact that, in Hungary, innovative small companies are rather rare - even if there are some internationally bright stars among them.

The main issue of this paper is the relationship between different levels of internationalization and innovation activity among SMEs in
Hungarian knowledge-intensive industries. The reasons for selecting knowledge-intensive sectors are their close links to innovation and, presumably, their greater interest in internationalization. However, the presence of non-innovative as well as non-internationalised SMEs in these knowledge-intensive sectors helps us to understand better the importance of both phenomena. (In the latter stage of research we can focus on traditional sectors that innovation and investigate internationalisation.)

It was assumed that, not only contemporary but also classical internationalization may act as a spur to innovation, especially when the targets are the markets of economies which are at a higher level of development than the Hungarian economy. This assumption leads to the following research questions: To what extent do Hungarian SMEs participate in the internationalization process? Are internationalised SMEs more innovative and more competitive than their peers who do not yet participate in - or apparently avoid - the internationalization process? What relationship can be seen between internationalization and the motivation of innovative versus non-innovative enterprises? What, precisely, is the relationship between innovativeness in companies and the form of their internationalization?

Following a short review of the literature, we describe, also briefly, the key research categories and research methods. The empirical findings are based on an e-survey designed specifically for this research.

The innovation activities of firms are touched upon before any investigating of the relationship between innovative or non-innovative companies and internationalization. This section is followed by a discussion of the characteristics of the internationalization process - including the factors and motivations of internationalization among innovative versus non-innovative enterprises. We finally draw our conclusions.

Literature review

The academic literature is very rich in issues relating to the topics of this paper. An important strand of the literature is focusing on the globalization (including the internationalization of R&D and innovation) with reference to multinational and transnational enterprises (Archibugi and Lundvall, 2001, Cantwell, 1989, 1999, Cantwell and Molero, 2003, Dunning 1993, Lundvall and Borrás 1997, Molero, 2002, Patel and
Pavitt, 2000). This literature can provide some knowledge of investigations into the internationalization of SMEs, but the majority of studies seem to regard the SMEs responsible for the internationalization of R&D and innovation activities as suppliers to - or subsidiaries of - MNCs.

Other valuable studies have approached the globalization of R&D and innovation from the perspective of corporate headquarters or of foreign subsidiaries of MNCs. Dunning (1980) with his eclectic paradigm of international production or OLI (ownership-, location-, and internationalization advantages) model merged several isolated theories of international economics in one approach. The motivation for internationalization might be: investment in resource-seeking, in market-seeking, in efficiency-seeking, in strategic-seeking and in support. Dunning’s revised OLI paradigm (1997, 2008 with Lundan) included strategic alliances and broad network relationships.

Learning in the internationalization process of companies was described in the Uppsala model originally in 1977 (Johanson & Vahlne 1977). This dynamic model emphasises that firms gain their first experiences from the domestic market before they move to foreign markets; launching their foreign operations from culturally and/or geographically close countries and moving gradually to areas which are more remote culturally and geographically. The firms start their foreign operations by using traditional exports. Then firms gradually move to using more intensive and demanding operating modes at both company and target country levels.

Andersen (1993) distinguished the innovation-related internationalization model from the Uppsala model, and in innovation-related models internationalization is considered an innovation of the firm. The two approaches, however, are closely related, and, as the innovation process has opened up, more attention has been devoted to the internationalization of innovation. A number of empirical studies have shown that domestic technological capability is a necessary condition for successful export performance. (For example: Archibugi and Iammarino, 2002).

On the basis of accumulated evidence, several studies have questioned the stage model since an increasing number of companies are active in international markets shortly after they are established (born global). New business practices and theoretical work have shed light on modes of internationalization and encouraged the authors to revisit the
original Uppsala model after several decades. (Johanson and Vahlne 2009, p. 1420) Companies sometimes leapfrog over stages in the establishment chain. They start to internationalise soon after their foundation. The revised model extends the stages of internationalization from exports through global production networks to global innovation networks, but it also emphasises that developing knowledge is fundamental to a firm’s internationalization.

The internationalization behaviour of firms can be quite different from the Uppsala model, and various companies have different routes to internationalization. Established firms may exist on different levels of internationalization - either going or not going through several different stages. There is no single model which fits all.

The last few decades have fundamentally changed the way in which companies undertake innovation, and a short detour through the literature on innovation highlights the fact that the closed innovation paradigm was replaced by the open in the 1960s (Chesborough 2003), to a “network model of innovation” (Callon 1992), or “distributed innovation processes” (Coombs et al., 2003). The common, central idea behind these various terms is that, in a world of widely distributed knowledge, companies cannot afford to rely entirely on their own research, but should, instead, buy or license processes or inventions from others. (Inzelt 2010)

Literature on the internationalization of SMEs and their relations with innovation performance is still scattered, but these businesses have also become actors in internationalization and are involved in the internationalization of R&D and innovation. (A few examples are in: Ács et. al. 1997, Buckley 1989, Ebersberger and Herstad 2012, Narula 2004, Yu-Ching et. al. 2006).

Internationally expanding SMEs face specific constraints. According to Swiss experience, the main ones are high financial risk and insufficient management capacity - and, to a lesser extent, deficiencies in terms of financial resources and knowledge of foreign locations. The locational disadvantages of the home country (high-wages in Switzerland) encouraged much stronger international activity by SMEs than by larger firms. (Hollenstein 2001)

Large firms have more to offer in a partnership and can easily find alternative sources compared to SMEs. SMEs are more careful about choosing their partners, since they have limited tolerance for failure and
wish to avoid any loss of technological competence. (Narula 2004 pp 159-160)

These studies may reveal some specifics of SMEs, but further empirical analysis focusing on SMEs is still needed to identify patterns of internationalization and innovation.

Key research categories and surveying process

For our research we introduced two categories of internationalization to investigate the SMEs. These are classical and contemporary internationalization.

One advantage of this approach is that it allows us to investigate the level of internationalization and its relation with innovation in a given period without knowing of any changes over-time, and another comes from observing the development of Hungarian SMEs over time. Similar to Moen and Servais (2002 p. 68), analysis shows that most SMEs do not develop into larger firms, which implies that the stage models have limited validity for these firms.

Classical internationalization is achieved when an enterprise has some contact with external markets, such as importing or exporting, since these involve contact with an external economy - either occasionally or regularly and at a lower or higher intensity. This is an old phenomenon and those involved may work with geographically or psychologically close or more remote markets over many years.

All internationalization phenomena which occurred much later than traditional export-import activities and simple FDI are referred to as contemporary internationalization in that behaviour changed greatly during the last decades of the 20th century. These activities include the internationalization of commercial R&D and innovation, the sale or purchase of patents or know-how to or from abroad, the joint possession of a patent produced in collaboration with a foreign partner and membership of an international network. Most of these are relatively new phenomena in the world of SMEs.

The term “internationalization” (without attribute) covers all the cross-border activities of domestic firms.

The research sample was taken from SMEs in knowledge-intensive, technology-oriented industries as these research oriented industries tend to be ahead of other, less competitive sectors in terms of internationalization. In these industries, as shown by international trends,
R&D activities play a fundamental role and competition is predominantly international.

The sectors selected are Biotechnology, Medical precision instruments, Information and communication technology (ICT) services, and Engineering services. The first two of these are technology-oriented industries in the manufacturing sector, whilst the latter two are knowledge-intensive services with strong technological ties.

As there is no ready-made register of firms for the sectors under analysis in Hungary, a register was created for the purposes of this research. The completed register includes the contact details of 1,110 enterprises. Valid responses were given by 246 companies (22%). The response rate is not bad for an academic on-line survey, even if it is not totally representative in statistical terms. The data were collected through an on-line survey specifically developed for the academic project. As the targeted audience was available via internet, the on-line survey was a very useful tool since it is less time consuming for respondents than traditional survey.

Taking into account the definition of the Oslo Manual - “an innovative firm is one that has implemented an innovation during the period under review” (OECD 2005, para 152) - of 246 SMEs, 190 were innovative and 56 were non-innovative in the period under review, 2006-2008.

Of the 246-strong sample, 176 were in some way internationalized and 70 non-internationalized (no cross-border activities). There are no similar groupings in official statistics. The presence of innovative and non-innovative as well as internationalized and non-internationalized companies further helps us to analyse the relationship between innovation and internationalization.

Analysing the data by region, some 60% of respondents are based in the capital, Budapest, and among these there are some young businesses, although they do not dominate the sample in that rather fewer than 10% were established in 2006 or later.

With respect to legal status, the great majority of the enterprises (82%) are limited companies, and a striking feature of the ownership structure is that Hungarian private individuals make up the highest proportion of sole or part-owners of the 223 companies at the time of incorporation. There are few differences between ownership at that point and the current situation: no local authority- or Hungarian-owned research institutes feature and the number of universities who are owners has declined.
Around a fifth of the firms are so-called partner enterprises - that is, they are members of a corporate group linked by common ownership.

The following sections show our empirical findings.

**Innovation and economic performance**

The *sales dynamics* of firms are affected by several factors in addition to innovation. During the period before the economic crisis, two thirds of the businesses showed only modest changes - that is, sales changed by less than 10%.

The literature devotes special attention to fast growing SMEs, often known as gazelles. (For an overview of definitions and debate on gazelles see Henrekson and Johansson 2010). However, for the period under analysis, a growth in sales turnover of more than 10% was not common in Hungary, an increase of more than this being achieved by 36% of non-innovative firms and by a mere 23% of innovative enterprises. A possible explanation for this modest proportion may be that these innovations by SMEs in technology-intensive industries were not particularly novel in the eyes of the market or that they failed to introduce further innovations which might have helped their use to greater advantage. Another explanation may be that the companies did not have the resources necessary for more substantial growth.

The relatively good performance of the non-innovative sector corresponds to the findings reported by the EC (2008) indicating that innovation is not a necessary condition for corporate growth as this may be rooted in other factors.

Looking at the motivating power of *sales*, high-growth enterprises appear more frequently among firms whose main sales activities are more than 100 km from the home base. The *external market* of the highest significance is the EU, but this is not the one most likely to encourage growth.

In respect of innovation activity, the majority of innovative firms (154 of 190) introduced product innovation and 137 process innovation. Fewer than 40 implemented non-technological (marketing and organisational) innovations accompanying technological innovations. A little over half created the innovations by themselves, 43% did so in collaboration with others and 6% simply adopted. Patent producing (and protecting) capabilities were not very strong, in that only 36% of the innovative firms and 7% of the non-innovative had patents. (More
detailed data are available in KKVENT_8 project databank. Detailed analysis was published in Hungarian Külgazdaság, 2011/9-10 devoted to the project findings.)

This section briefly describes the empirical findings of growth performance and innovation activity supporting our analysis of how the internationalisation of SMEs relates to innovation.

**Internationalization**

Internationalization - active involvement in foreign markets and efforts to acquire knowledge accessible abroad - plays a crucial role in competitiveness.

The total number of internationalized firms was 176, of which 152 were innovative and 24 non-innovative. Taking into account the 190 innovative firms, 79 display contemporary and 73 internationalization behaviour, whilst 38 are not internationalized. Looking at the 56 non-innovative firms, only one shows contemporary internationalization, 23 show classical internationalization behaviour and the majority (32) are not internationalized. (See Table 1)

<table>
<thead>
<tr>
<th>Type of internationalisation</th>
<th>Number of firms</th>
<th>% of firms</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Innovative</td>
<td>Non-Innovative</td>
</tr>
<tr>
<td>Internationalised by contemporary</td>
<td>79</td>
<td>1</td>
</tr>
<tr>
<td>Internationalised classically</td>
<td>73</td>
<td>23</td>
</tr>
<tr>
<td>Non-internationalized</td>
<td>38</td>
<td>32</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>190</td>
<td>56</td>
</tr>
</tbody>
</table>

*Source: KKVENT_8, project databank.*

Categorising the 96 classical internationalized companies as innovative and non-innovative, 60% of the former and only 23% of the latter are involved in exporting (the others only import). Classical internationalization is also worth investigating, as it is a reasonable hypothesis that, compared to non-innovative firms, innovative enterprises will be more likely to attempt to establish contacts with and
make inroads into external markets. The latter presumably have a better chance of success, since, if a firm has established a presence in a foreign market either as an importer or as an exporter, this may generate some market pressure and encourage innovative activity. For 31 of the innovative firms, export sales revenues constitute between 71 and 100% of all sales revenues (a further 30 have less than 10%). There is a substantial difference between the exports of finished products as opposed to intermediates: companies exporting components, high-tech. parts or semi-finished products tend to achieve export revenues of less than 1% of their total sales, with only a small number attaining a higher level. For firms exporting finished products, exports typically represent over 30% and there are numerous examples of figures over 70%. Exporters of high-tech finished products tend to cluster in the two categories at the ends of the scale (under 1% or over 70%) whilst those exporting services tend to fall in the under-30% category although some do appear in the over-70% group.

The high proportion of export sales for knowledge-intensive products indicates that classical internationalization is not independent of innovation activities, although there is no clear cause-and-effect relationship between exporting and innovation. The increased export activity of innovative relative to non-innovative firms suggests that positive innovation performance may encourage external market presence and expansion. The relationship may, however, work in the opposite direction: an external market presence may encourage and boost innovative activities. The relationship is stochastic, in that 76% of classically internationalized companies in the sample are innovative. Whatever the direction of the relationship association may be, it cannot be ignored.

We can shed further light on the relationship between innovation and internationalization by measuring the spatial distance between firms and their markets. Looking at the spatial distribution of sales, there is a marked difference between innovative and non-innovative companies in terms of the frequency of those active in external markets. While 55% of innovative enterprises sell in the EU market, only 21% of non-innovative firms do so. The difference is even more striking with respect to other geographical regions. Non-innovative firms are most likely (84%) to sell in markets within a 100 km radius from the company. (The corresponding figure for innovative firms is only 53%.)
Looking at contemporary internationalization behaviour, foreign investment connections based on mutual trust between companies are highly dependent on the target country as a market environment. Not quite 10% of the SMEs in the sample invested abroad.

Firms introducing product or process innovation new to the world or to Europe occur with higher frequency among those internationalized in the contemporary sense than in the classical. The advantage of the former group further increases if we look at innovations new to Hungary or to the company: the figures suggest that firms showing contemporary internationalization achieve a somewhat better innovation performance.

Looking at participation in innovative as a part of contemporary internationalization, one important factor is R&D collaboration in connection with innovation development, the success of which can be measured in terms of the number of patents produced jointly with the foreign partner. The great majority of patent-producing firms registered their patents independently but 10 of them produced patents jointly with their foreign partners. (SMEs specializing in R&D constitute a special group of firms internationalized in a contemporary sense and are often acquired by another firm.)

Membership in a corporate group is a special case of networking and may play an important role in the process of internationalization. In our sample, 7 of the 79 contemporary internationalized innovative firms have foreign owners, 5 have both foreign and Hungarian owners and 24 are members of an international network of some kind.

Functional networks involving collaboration between the members represent a higher level of networking. These include sales, supply, R&D and innovation networks. Innovative firms are more likely to participate in R&D than in innovation networks and the 50% gap between the frequencies of R&D versus innovation network membership shows once again that firms tend to excel as knowledge generators rather than as knowledge users, and, although this is not a unique characteristic of Hungarian SMEs, it is a fact worth noting. The difference may signal the success of SMEs specializing in knowledge generation but it could also mean that knowledge generation is a forced choice and that the SME sector is excluded from innovation.

Somewhat more than 10% of the companies are characterised by network model-type internationalization, whilst the remainder either follow a sequential model or a model specific to small enterprises specializing in R&D.
Factors affecting internationalization

Foreign market involvement and international collaboration are influenced by several factors, one being sales expectations. Among the objectives related to sales, the growth of profit on sales and the increase of sales volumes were rated very important on a Likert scale by both innovative and non-innovative firms. Export growth was also very important for a relatively high percentage of innovative firms, whilst only a small proportion of non-innovative firms regarded it as an important goal. The latter were more likely to rate the growth of their share of the Hungarian market as very important.

Another important factor is the companies’ evaluation of their competitiveness in an international context. It is worth comparing their ratings related to their national versus their international competitiveness. The first major difference between the two contexts is the presence versus absence of competitors. About 10% of respondents did not have any competitors in the Hungarian market whilst only 4% had none in an international context. Companies considered their products and technologies to be very competitive in comparison with Hungarian competitors and fairly competitive with foreign competitors, but their organizational solutions and especially their marketing methods were considered to be poor even in a Hungarian context. Companies’ international competitiveness is greatly dependent on their existing competencies. The significance of the various factors shows only a partial overlap between innovative and non-innovative enterprises.

Special skills and the quality of products/processes are quite important for both groups. For innovative firms, these two factors share their high degree of importance with regular product development, the technological advantage of products and the firm’s development capacity. The market introduction of innovations is also fairly important for them. For non-innovative enterprises, the latter competencies are not very important but they attribute a great deal of significance to the ability to adjust to change and to the reputation of the firm.

The factors bearing little significance in relation to competitiveness are cheap labour, production organisational advantages, the firm’s own patents and network membership. The set of factors which innovative companies consider to be of moderate importance barely changes if the average values are calculated with “irrelevant” responses excluded. For non-innovative firms, however, if “irrelevant” responses are excluded, low price becomes an important factor with respect to competitiveness.
The firms’ external market presence is motivated by several factors. These motivational factors need to be known by policy makers to be able to encourage enterprises to participate in foreign markets and their internationalization. Four main categories of motivational factors of internationalization are distinguished here: (1) competitiveness factors, (2) marketing factors, (3) environmental, geographical and others related to business processes, and (4) factors of knowledge and information enrichment. The individual factors in these four categories were rated by the companies in terms of their power to motivate their activities. Figure 1 displays the motivational power of the factors in the four categories for innovative and non-innovative firms using radar chart. These charts consist of a sequence of equi-angular spokes, each of them representing one of the variables. The data length of a spoke is proportional to the magnitude of the variable for the data point relative to the maximum magnitude of the variable across all data points. A line is drawn connecting the data values for each spoke. This makes the plot a spider web. Radar charts are a useful way to display multivariate observations.

Figure 1 clearly visualizes the similarities and differences between the motivational factors of the internationalization of innovative versus non-innovative firms. The two groups show the highest similarity with respect to marketing factors and the highest deviation in relation to environmental, geographical and others related to business processes. The only factor with equal motivational power for the two groups is the exploitation of the advantages of EU membership, which is, however, held to be of little importance. Every other factor in this category exerts a much stronger influence on non-innovative than on innovative firms. At the time of investigation, Hungarian economic policy and a decrease in transaction costs were held to be the strongest motivational factors. Looking at competition factors, those with a pulling force tend to motivate innovative firms whilst those putting pressure on businesses tend to motivate non-innovative.
Looking at the motivational factors of internationalization related to knowledge and information enrichment, the acquisition of new knowledge is held to be outstandingly important by both groups, as are the ability to keep up with the latest market and development trends and the hiring of high-skilled employees. The next group of factors have rather less significance: the acquisition of new technology, access to modern infrastructure in order to accelerate RDI processes, and

Note: Influencing role of the factor: 3 = very strong, 2 = medium, 1 = hardly any 0 = not relevant

Fig. 1. Similarities and differences between innovative and non-innovative firms the factors motivating internationalization
expansion of R&D staff capacity. Each of these factors is more important for innovative than for non-innovative firms. The results thus reveal that, although the factors related to knowledge and information enrichment are more important for innovative than for non-innovative firms, their significance does not surpass the motivational power of other factors affecting internationalization.

Market size and market attractiveness are attributed special importance by both innovative and non-innovative firms, although the ratings differ between the two groups.

Looking at the factors influencing the choice of countries for foreign market presence, a notable difference between the two groups is that, whilst the internationalization of innovative firms is strongly motivated by government support programmes, allowances and opportunities for contacts with science institutions, these factors have no significance for non-innovative enterprises. The attributes they find important include the proximity of customers, previous expansion and the revival of previous business connections.

It is worth noting that some of the factors commonly held to be important are not included in the set of major motivational forces such as the availability of cheap labour by the firms under analysis.

With respect to the motivational forces underlying international RDI collaboration and network participation, the development of active business connections and the acquisition of special knowledge and technologies receive the highest rating but are nevertheless of only moderate importance. Interestingly, non-innovative firms, which have not yet joined any networks - consider network participation to be more important than the acquisition of knowledge and technologies as a driving force of development.

*Table 2* summarizes the main characteristics of internationalization by innovation status.
Table 2.
The main differences between innovative and non-innovative firms by their proportion of internationalization and motivations

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Innovative</th>
<th>Non Innovative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internationalization</td>
<td>80 %</td>
<td>43 %</td>
</tr>
<tr>
<td>• Classical</td>
<td>38 %</td>
<td>41 %</td>
</tr>
<tr>
<td>• Contemporary</td>
<td>42 %</td>
<td>-</td>
</tr>
<tr>
<td>Proportion of export firms</td>
<td>60 %</td>
<td>23 %</td>
</tr>
<tr>
<td>Investing in foreign markets</td>
<td>Few</td>
<td>Rare bird</td>
</tr>
<tr>
<td>Motivation for internationalisation by factors</td>
<td>Very similar</td>
<td>Weak impact</td>
</tr>
<tr>
<td>- Marketing</td>
<td></td>
<td>Medium-strong impact</td>
</tr>
<tr>
<td>- Environmental, geographic and other factors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Competitiveness</td>
<td></td>
<td>Strong-medium importance</td>
</tr>
<tr>
<td>- Broadening knowledge and information</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Membership in international networks</td>
<td>Existence of members</td>
<td>No members</td>
</tr>
<tr>
<td>The presence of novelties to world</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Non internationalized</td>
<td>16 %</td>
<td></td>
</tr>
<tr>
<td>• Classically internationalized</td>
<td>24 %</td>
<td></td>
</tr>
<tr>
<td>• Contemporary internationalized</td>
<td>29 %</td>
<td></td>
</tr>
</tbody>
</table>

*Source: KKVENT_8 project databank.*

Table 2 highlights the fact that innovative *versus* non-innovative firms have different patterns of internationalization.

An interesting feature is that companies introducing products or processes new to the world or to Europe occur almost as frequently among classically internationalised firms as among contemporary internationalized. One explanation for this minor difference may be that some R&D activities carried out for innovation were sold prior to the introduction to the market, without any self-innovation. It is also possible, however, that some of the firms in the contemporary internationalized group are involved in R&D activities which support market piloting or testing but do not lead to innovations with a high degree of novelty at the given company.
Conclusions

This paper has provided important information shedding some light on current processes characterising the innovation performance and internationalization behaviour of SMEs and the relationship between these activities. In Hungary, as well as in other European countries, there were significant changes in the business environment during the investigation period, and since 2008, economic crises have had a negative impact on the activities of SMEs as well. However, the selected knowledge-intensive Hungarian industries suffered less from the negative effects of the economic downturn. The economic situation did not impair our understanding of the influence of internationalization on the activities of SMEs, or the adjustment of these Hungarian organisations to the increasingly borderless open innovation system.

Our detailed analysis of internationalization highlights that SMEs display signs of not only classical, but also contemporary internationalization. Open innovation allows for a variety of collaboration patterns and there are a variety of reasons why partners are important. Network model-type internationalization is present in the sample but only a small fraction of companies are involved (10%). The reason for the network model-type’s rarity might be weak networking capabilities or caution on the part of SMEs in choosing partners, since they have limited leeway for failure and they wish to avoid a loss of technological competence - as Narula observed a decade ago (2004).

The simplified classification of internationalization revealed that high-growth firms are represented in a somewhat higher proportion among companies showing contemporary internationalization. There is a correlation between innovation performance and internationalization in that a high level of exports of knowledge-intensive products indicates that classical internationalization is not independent of innovation activities, although there is no clear cause-and-effect relationship between exports and innovation. The increased export activity of innovative relative to non-innovative firms suggests that positive innovation performance may encourage external market presence and expansion. The relationship may, however, apply in the opposite direction: an external market presence may encourage and boost innovative activities. The relationship is stochastic; 76% of classically internationalised firms in the sample are innovative. Whatever the direction of the association may be, it cannot be ignored. Those
companies which show contemporary internationalization achieve somewhat better innovation performance.

In respect of the localisation issue, there is another interesting contribution to the literature on SMEs. The pattern of collaboration in terms of the geographical location of partners shows a strong preference for Hungary either in business connections or R&D collaboration. In terms of the spatial distribution of sales there are differences between innovative and non-innovative firms. More than half of the innovative enterprises sell to the EU market, whilst only one fifth of non-innovative firms do so.

The companies by type of internationalization do not differ substantially in terms of growth. The absolute majority of innovative firms in the group show contemporary internationalization - corresponding to the definition of the group.

With regard to the motivation for internationalization described in the literature (Dunning and Lundan 2008, Archibugi and Lundvall 2001), two factors strongly characterise SMEs’ internationalization and innovation in the sample: market-seeking and learning from abroad. These motivations are important for both innovative and non-innovative firms, even if some of those who rate motivation give them different levels of importance. The importance of resource-seeking is low for innovative firms and of virtually no importance to non-innovative firms.

The survey results reveal that SMEs also display contemporary internationalization behaviour and there is a relationship between this and their innovative activities. Although some of the SMEs continue to follow the closed innovation model, a substantial proportion of them follow the open innovation path. Those subscribing to the closed model tend to internationalise the classical way, as is to be expected, but those following open innovation and collaborating with other firms and institutions have better opportunities for contemporary internationalization.

The information gained from the research is important from the perspective of innovation and economic policymaking. A better understanding of SMEs can help to build a system which effectively supports international expansion and competitiveness without further distorting the market.
References


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