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Market success of innovations in the retail sector

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Abstract: It is widely acknowledged that innovations hold the key to the better performance and the competitiveness of firms. Yet, evidence across countries reveals that only a small proportion of firms engage in innovation activities. To some extent, this can be attributed to the high rate of failure to commercialize innovation efforts. Bearing the above said in mind, this paper explores which factors and forces determine decision of firms to innovate and the market success of their innovations. A generalised tobit model is applied to the sample of firms from the retail sector of 26 transition economies collected between 2007 and 2009. The results of investigation identify foreign ownership as the most important determinant of innovation success in transition economies but also offer some interesting findings about multichannel retailing practice.

Key-Words: innovation, retail, market success, transition, generalised tobit, firm behaviour

1 Introduction

Recent developments in firm behaviour literature have stressed the importance of innovations for the performance and the competitiveness of firms. It is being increasingly recognised that innovations lie at the heart of firms' capability to differentiate themselves from their rivals and thus reap the above-average returns from their activities. In a parallel, development, the endogenous growth and agglomeration literatures have pointed to the wider benefits of innovations such as within and between-industry spillovers arising from diffusion of knowledge over market [22]. In this context, it can be said that in addition to private returns, innovations provide social returns through gains in the competitiveness of industries and the improvements in the ability of nations to provide their citizens with a better standard of living.

Due to the above described features, the promotion of innovations has been among most frequently advised policy recommendations for stimulation of the performance and competitiveness of firms, regions, industries and nations. The common line connecting these views is a belief that the increase of spending on R&D can pave the way for achievement of smart and sustainable growth. Yet, it is often neglected that investment in R&D is far from being sufficient precondition for achievement of gains from innovations. The evidence on firm behaviour suggests that only a small proportion of innovation efforts leads to market adoption [14] [8]. Hence, firms may spend substantial amounts of R&D for

considerable period of time without reaping benefits of such investment [2].

The path from generation of innovations to their market success depends on a combination of firm traits and features of their environment. Innovations emerge in firms that can recognise opportunities for new trends and whose culture encourages creative thinking of employees. This process is shaped by institutional routines and the intensity of interactions between firms and their environment [15]. While the role of institutions is to stimulate innovative activities, the networking externalities are seen as channel for transfer of knowledge, skills and technology between firms and their rivals, customers, upstream and downstream firms.

The views on the relative importance of factors conducive to the success and failure of innovation seem to diverge. The evidence from one line of research attributes this heterogeneity to the characteristics of individual industries [28]. There are also authors who consider quality of national innovation system and national innovation policies as important for the generation and success of innovations [17]. Finally, existing literature adopts a wide range of definitions of innovation success which may be relevant in assessment of factors and forces that contribute to the commercialisation of innovations [28].

This paper explores the decision of firms to innovate and their ability to reap the benefits from innovation efforts using a sample of firms from the retail sector, a service industry undergoing profound changes and characterised with a wide range of innovation based

approaches, from several advanced and laggard transition economies. The innovation success is defined as the ability of firms to generate turnover sales of new products. The analysis pays attention to the number of firm traits, elements of institutional framework, location and industry-specific factors. By bringing together several groups of factors, the paper broadens existing knowledge on the market success of innovations. The following section discusses the importance of innovations for firm performance and competitiveness as well as the determinants of innovation success while the innovations in the retail sector are discussed in section three. Model of investigation and the main features of dataset are presented in section four while the discussion about obtained results takes place in section five. Section six concludes.

2 The determinants of innovation success

Models of firms' innovation activity typically posit that the development of new products and processes arises from the efforts of entrepreneurs to differentiate themselves from rivals and achieve positive price-cost margins on their investment [23] [7]. Building on these foundations, a substantial body of knowledge has been produced over past decades on both the propensity towards innovations and their market success [10]. Two important findings emerge from this literature. The general message coming from this literature is that propensity towards innovation is low with market success of undertaken innovation efforts being even lower.

The reasons for the above described findings have been looked for in variety of factors. According to Cohen and Klepper [4], the size of firm increases propensity of firms to innovate but it is inversely related to the innovation success. Such predictions have, however, been only partially confirmed with empirical evidence on the impact of firm size on innovation behaviour of firms ranging from positive, negative to insignificant [14][8]. Also, exposure to international competition seems to be an important determinant of firms' innovation behaviour [10]. This is particularly true for firms from emerging and transition economies. The pressure of imports on domestic market and the intensity of competition on international market tie survival of these firms on their ability of differentiation which creates an incentive to innovate.

The innovation behaviour of firms is closely related to the features of their environment. Substantial body of literature points to financial constraints as a

significant impediment to both decision to innovate and market success of innovations [11][8]. It seems that the risk of failure induced by market imperfections leads to a negative selection of projects for which reason a state intervention through subsidies may be needed to motivate firms to innovate. Yet, while easing of budget constraints increases the propensity of firms to innovate, it seems that the effect on market success of innovations is opposite [8].

Traditionally, innovation was viewed as a closed process whose development takes place within firms. Yet, in recent years, it has been revealed that in development of their innovations firms rely on knowledge, skills and technology available in their external environment. Evidence from several studies points that cooperation with research institutes, rivals and customers may exert higher innovative efforts and increase chances of innovation success [10] [11]. The evidence from variety of studies on the determinants of innovation success has been synthesised by [28]. According to these authors, commercial success of innovations depends on four groups of factors which are broadly classified as firm-specific, project-related, product-related and market-related factors. On overall, chances of innovation success are higher in firms with organisational culture that promotes innovative behaviour of employees, firms that possess experience in innovation activities and proper combination of technological and marketing skills as well as innovation strategy capable of exploiting these skills in optimal way. Finally, it is suggested that the quality of products, their relative price and timing of market introduction are conducive to market success of innovations.

3 Innovations in the Retail Sector

Today's retail environment is characterised by new, store and non-store, retailing formats, a wide range of new products, use of new information and communication technologies and consequently, the changing customer requirements. Apart from the profound changes undergoing in the sector, a number of new developments in technology and customer behaviour in the past decades have led to a change in the relevance of different retail channels and to the evolution of new retail formats. This mainly refers to non-store retailing and the evolution of multi-channel retailing [31].

Notwithstanding the continuous changes occurring within the sector, it is argued that retailing is inherently less innovative than other sectors [21]. As regards the retail sector, the main emphasis has been

placed on service innovations. The term service product innovations is related to new development in the core offering of service companies that tend to create new revenue streams [18]. For this reason it is often emphasized that first mover advantage is of utmost importance in retailing. Given the fact that new ideas will be copied and perfected, constant innovation becomes imperative to maintain competitive advantage [6].

When examining innovations in retailing, Sorescu et al. [27] emphasize the importance of the following features of the retailing environment. First, retailers primarily sell products manufactured by others thus the emphasis should be not only on what a retailer sells, but more importantly on how the retailer sells. Second, retailers engage in direct interactions with end customers thus the focus should be on how the retailer will optimize its direct interactions with end customer to strengthen relationships with them.

In terms of major innovation related challenges and opportunities to retailers, Rein et al. [20] identify three broad categories of environmental factors – consumer based, industry based, and legal and regulatory based. According to [20], process innovations such as market research and supply chain management provide opportunities for retailers to achieve a competitive advantage. These innovations are mainly related to new forms of collaboration between manufacturers and retailers in supply chain management such as efficient consumer response and category management. Similarly, Dunne [5] argues that one of the most significant trends occurring in retailing is that of technological innovations which can be grouped under three main areas: supply-chain management, customer management, and customer satisfaction.

Nowadays, the most powerful innovative technologies include RFID systems, storefront displays, smart shopping trolleys, and recommendation systems for mobiles [19]. In that context, mobile marketing is growing in importance in the retailing environment [24]. According to Shankar et al. [25] emerging innovations in shopper marketing include those on digital marketing activities, multichannel marketing, store atmospherics and design, in-store merchandising, metrics, and organization. Other important dimensions of retail innovations include customer loyalty program and customer experience management.

Retail formats have been regarded as an important aspect of innovations in retailing. During the 1960s a series of retailing innovations emerged in response to traditional forms of retailing competition, such as catalogue showrooms, home improvement centres,

discount department stores and leisure supermarkets [13]. On the other hand, current trends toward self-service in society may also pave the way for technologic innovations in supermarkets [12], as well as the affirmation of a wide range of self-service technologies in the retail sector [3]. As regards non-store retailing, e-commerce has been seen as providing a major opportunity for retailing innovations over the last few years and it offers customer convenience and accessibility to both mass market and niche products [16]. Delivery is another crucial area associated with retail innovations. In that context, Berry et al. [1] distinguish five important avenues of opportunity for retail innovation in the delivery of interactive services; namely, the increasing power of consumers, channel synergies, pre- and post-transaction service, optimal use of resources, and consumer heterogeneity.

As far as consumers are concerned, more recent research on attitude toward a service-based innovation suggests that the relationship between consumer innovativeness and attitude toward innovation varies across the three dimensions of perceived novelty, perceived value, and perceived risk [29]. Moreover, it is suggested that innovations per se do not influence a positive evaluation by the consumer unless adequately supported by marketing efforts [26]. Furthermore, consumers are sometimes unexpectedly resistant towards radically innovative product concepts due to their difficulties in understanding the novel products, ignorance or their lack of enthusiasm [9]. The former behaviour can be overcome by increasing direct customer participation in the process thus increasing the potential for market success.

4 Model specification

The findings from the previous discussion reveal that there are many common factors behind the decision of firms to innovate and their ability to commercialise innovations. Moreover, it was revealed that only a small portion of firms engage in innovations with even lower number achieving market success. To address these issues, a generalised tobit model is applied to the data from EBRD/World Bank's Business Enterprise and Environment Survey (BEEPS) collected between 2007 and 2009. In total there are 2694 observations covering firms from 26 transition economies. In general form, the model of investigation can be written as follows:

Let g_i^* be an unobserved decision variable of whether or not to introduce new products and processes and k_i^* the unobserved level of the firm's turnover from

sales of new products, with g_i and k_i being their observable counterparts. From there the model can be first two stages of the systemic approach can be defined as follows:

$$g_i = \beta_0 x_i^0 + u_i^0 \quad (1)$$

$$g_i = 1 \text{ if } g_i^* > 0, \text{ otherwise } g_i = 0$$

and

$$k_i | g_i > 0 = \beta_1 x_i^1 + u_i^1 \quad (2)$$

$$k_i = k_i \text{ if } k_i^* > 0, \text{ otherwise } k_i = 0$$

In these expressions $x_i^0, x_i^1, \beta_0, \beta_1$ are vectors of independent variables and their corresponding unknown parameters which reflect the impact of certain determinants on the firm's decision to innovate and on the actual level of turnover from sales of new products. The u_i^0 and u_i^1 are random error terms with zero mean, constant variances and not correlated with the explanatory variables. The dependent variable of the first stage is defined on the basis of firm's response to question whether it introduced new products or processes in three years prior to survey while the second stage variable is defined as the share of turnover from sales of new products in total revenues of firm.

The explanatory variables in the first stage of model include size of firm, measured with number of its employees, categorical variable for firms that invested in R&D in three years prior to survey, dummy variable for firms that are located in urban areas with 50.000 or more citizens, control for majority foreign owned companies, years of managerial experience, market orientation of firms, control for firms that exercise multichannel retailing, controls for firms that consider pressure of customers and competitors as important determinant of decision to innovate, variable restructuring controlling for the firms that discounted, upgraded or introduced new product line in three years prior to survey, proportion of workers with university degree and two categorical variables controlling whether firm comes from Central and East European (CEEC) or South East European Countries (SEEC) with Commonwealth of Independent States (CIS).

The model for innovation success equation includes firm size, measured as previously, location of firm, control for majority foreign owned firms, years of managerial experience, control for firms that possess quality certificate and those that engage in multichannel retailing, market orientation, restructuring and proportion of workers with university degree as well as two institutional variables defined above (CEEC and SEEC). The model has been estimated with Stata 11 software and relevant diagnostics support the specification of the model.

5 Interpretation of findings

The results of investigation are presented in this section. For expositional convenience the discussion about results is divided in two parts.

5.1 Decision to innovate

The results from Table 1 reveal that the decision of firms to innovate is positively related to their decision to invest in R&D either directly or through cooperation with environment. Among firm characteristics, the propensity towards innovations seems to be higher among firms that are predominantly foreign owned possibly reflecting intra-firm transfer of knowledge, skills and technology and with higher share of highly skilled employees. Similarly, participation on international market and the introduction of new channels of retailing, have positive impact on innovation decision of firms suggesting that learning by exporting and exploration of new market niches motivate firms to introduce novel products and processes.

Table 1: Determinants of decision to innovate

<i>Variable</i>	<i>Coefficient</i>
Size of firm	0.0003
Investment in R&D	0.69***
Location in urban area	-0.03
Majority foreign ownership	0.29**
Managerial experience	-0.0003
Market orientation	0.22**
Multichannel retailing	0.29***
Pressure of customers to innovate	0.15**
Pressure of competitors to innovate	0.13**
Restructuring	1.07***
Employees with university degree	0.003***
SEEC	0.19**
CEEC	0.16**
Constant term	-1.27***
Number of observations	2694

***, **, * significant at 1%, 5% and 10% levels of significance respectively

Both customer and rival induced pressures are considered by analysed firms as important drivers of innovation. Finally, it seems that institutional environment has influence on the innovation behaviour of firms as propensity towards innovation

is higher in both SEEC and CEEC groups of countries than among firms located in one of CIS states.

5.2 Market success of innovations

The results for market success of innovations are presented in Table 2. Contrary to decision to innovate, market success of innovations is negatively related to firm size. Such finding is consistent with earlier literature [8] and with Schumpeterian Mark I hypothesis according to which innovations are more likely to occur in smaller firms capable of rapid and efficient responses to changing market conditions. Firms that are predominantly foreign owned are more successful in commercialisation of their innovations most likely due to ability to exploit marketing and organisational resources of their mother companies. However, somewhat surprising finding is the negative and significant coefficient on the variable controlling for use of multichannel retailing. Such finding might signal low confidence of customers into new channels of retailing, most likely due to privacy concerns and fear of fraud. Finally, among variables representing institutional framework only variable controlling for firms in CEEC is statistically significant with negative sign.

Table 2: Market success of innovations

<i>Variable</i>	<i>Coefficient</i>
Size of firm	-0.002***
Location in urban area	0.99
Majority foreign ownership	5.20*
Managerial experience	-0.10
Quality certificate	-0.23
Market orientation	-0.41
Multichannel retailing	-2.72**
Restructuring	-1.27
Employees with university degree	0.01
SEEC	-0.93
CEEC	-5.88***
Constant term	31.43***
Number of observations	1203

***, **, * significant at 1%, 5% and 10% levels of significance respectively

6 Conclusion

Over past decades sizeable effort has been invested in development of measures and recommendations that could facilitate innovation behaviour of firms. Yet, evidence from many countries reveals

substantial reservation of firms towards innovation activities and failure in attempts to commercialise innovation efforts. The objective of this paper was to explore drivers of firms' decision to innovate and market success of its innovation in retail sectors of a number of transition economies. As it can be seen, channels recognised in earlier literature such as intra-firm transfer of knowledge, multichannel retailing, horizontal and vertical market pressures and institutional environment shape both dimensions of firm's innovation behaviour. In context of retail sector particularly interesting finding is the one with respect to the relationship between multichannel retailing practices and innovations that reveals scepticism on the demand side towards efforts of firms to introduce new channels of communication with their customers.

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