

선진국 제조기업의 신제품 성공요인에 관한 비교 연구: 다수준 접근 방식¹

A comparison of new product success factors across advanced countries: A multi-level approach

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ABSTRACT

In this paper, we investigate the influence of factors on the firm, industry, and country levels on the new product development performance (NPD) of manufacturing firms in advanced economies. The resource-based view, industrial organization theory and institutional theory have established that firm-, industry- and country-level factors are all relevant for the NPD of firms. However, little is known about the relative importance of factors at the three different levels across countries, as prior studies on firms' NPD have focused on specific countries and levels of analysis. Our analysis of survey data from 1,437 manufacturing firms in nine advanced OECD countries shows that while firm-level factors are generally better predictors of firms' innovativeness than either industry- or country-level factors, the results strongly differ across countries, indicating that the relative importance of antecedents of innovativeness is country-specific rather than universal.

Keywords: New product development, Resource-based view, Industrial organization theory, Institutional theory, Advanced countries

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1. Introduction

A wide array of explanatory variables for a firm's new product development (NPD) and product innovation has been discussed in the literature (Hult et al. 1997; Love and Roper 1999; Souitaris 1999; Vega-Jurado et al. 2008). Product innovation is the creation of new products or services and process innovation the improvement is introduction of new production processes for products or services (Utterback 1971). Among those, product innovations have been widely recognized as the primary means of corporate renewal (Danneels 2002) and firms must continuously develop new products and technologies to remain competitive (Brown and Eisenhardt 1995).

There are two broad streams of research on the antecedents of NPD. One stream of literature emphasizes firm-internal factors such as organizational core competencies as drivers of NPD (Cohen and Levinthal 1990; Eisenhardt and Martin 2000). Other researchers highlight external factors that drive firms' innovativeness such as characteristics of the industry and country contexts in which they operate(김지희·이지환 2015; Lundvall 1992; Nelson 1993). However, there are few attempts in previous studies to broadly consider both internal and external factors which determine firms' NPD performance(Verga-Jurado et al. 2008). That is, most research has focused on a single set

of factors on the firm-level, industry-level or country-level when studying the antecedents of firms' NPD performance. Therefore, we also have limited knowledge regarding country-specific similarities or differences regarding the determining factors of firms' NPD decisions as well as the relative importance of firm-, industry- and country-level factors (Freel 2003; Rothaermel and Hess 2007; Gupta et al. 2007).

Through this study, we aim to contribute to the literature on the antecedents of firms' NPD by (1) combining firm-, industry- and country-level factors in our analysis and examining their relative importance and (2) studying similarities and differences regarding their importance across countries. In the following section the theoretical framework of our study will be presented and hypotheses concerning the influence of firm-, industry- and country-level factors on the NPD of firms are developed. Thereafter, these hypotheses are tested using a sample of 1,437 manufacturing firms in nine advanced countries from the World Bank's Business Environment and Enterprise Performance Surveys (BEEPS) database. Finally, we discuss the results and outline the limitations and implications of our study for researchers, managers and policymakers.

2. Theory and hypotheses

2.1. Firm-level factors: internal resources and external linkages

Overall, the research which focuses on these firm-level factors on NPD can be associated with the resourced-based view of the firm which highlights the heterogeneity of firms' unique set of resources that are valuable, rare, non-imitable and non-substitutable (Barney 1991; Wernerfelt 1984). A firm's resources can be any assets, capabilities, knowledge, and information controlled by a firm; therefore they include both its internal resources and its external linkages (Barney 1991). Both types of resources can be considered as relevant for a firm's innovativeness, as they determine to what extent knowledge can be assessed and absorbed by firms (Cohen and Levinthal 1990).

As regards internal resources, the amount of a firm's in-house research and development (R&D) is an important determining factor of a firm's innovative potential, as many innovations require internal R&D efforts. A firm's R&D is also known to have a positive effect on the firm's absorptive capability, which in turn increases the possibility to assimilate external knowledge into innovations (Caloghirou et al. 2004; Freel 2003). It helps recognizing and absorbing new technologies appearing on the market (Cohen and Levinthal 1990) and attracting collaboration partners (Hall and Bagchi-Sen 2002).

However, a firm's NPD is not only related to the quantity, but also to the quality of the resources that it devotes to creating innovations. Staffing companies with highly educated and qualified personnel is another important driver of their innovativeness as it increases internal capabilities to create new technologies and absorb external knowledge (Freel 2003; Hoffman et al. 1998). Taken together, building a strong knowledge base by investing into R&D and having a well educated and qualified workforce can be regarded as key determinants of a firm's successful innovation.

H1. A firm's R&D intensity is positively related to its innovativeness.

H2. The education level of a firms' workforce is positively related to its innovativeness.

Today firms cannot rely solely on internal technology sourcing and their external linkages are regarded as important for their capability to innovate (이종선 등 2016; Rothaermel and Hess 2007). Through membership in business associations, firms will build networking with other firms and organizations in their local region or country with greater ease (Ahuja 2000; Freel 2003). Interaction with other firms in the market helps firms to bridge gaps in their information, scientific knowledge, resources and competencies (황남웅 등 2014; Hippel 1988; Romijn and Albaladejo 2002).

Furthermore, international linkages are becoming important for the innovativeness of firms as well. In general, internationalized firms have access to a wider range of markets and business partners, thereby providing them with more and richer knowledge to create innovations (Hitt et al. 1997). The NPD performance of firms may be increased further through international joint venture with foreign partners that could give them access to their knowledge and technologies and thereby allow them to take advantage of scale economies in research, and leverage complementary assets (Teece 1992). Furthermore, internationalized firms in general have access to a wider range of markets and business partners, thereby providing them with more and richer knowledge to create innovations (Hitt et al. 1997).

H3. A firm's membership in business associations is positively related to its innovativeness.

H4 A firm's participation in international joint ventures is positively related to its innovativeness.

H5. A firm's export ratio is positively related to its innovativeness.

2.2. Industry-level factors: strength of competitive forces

The market-based view is based on the industrial organization literature and focuses on the structural characteristics of the industry in which it competes (Souitaris

2002). However, previous studies have found ambiguous results regarding the relationship between the intensity of competition and firms' innovativeness (Aghion et al. 2005). On the one hand, firms which face little competition may find it easier to raise funds for R&D activities and can furthermore use their market power to introduce new products into the market with relative ease (Schumpeter 1942), suggesting a negative relationship between competitive pressure and innovativeness (Blundell et al. 1999; Smolny 2003). On the other hand, competition may trigger innovation, as it induces companies to innovate to stay ahead of their competitors in the market (Lundvall and Nielsen 1999; Nielsen 2001; Smolny 2003). Some recent studies have suggested that the relationship between competition and innovation could be either positive or negative depending on industry-specific circumstances or the specific position of a firm in a market (Aghion et al. 2005; Freel 2003, Tang 2006).

We suggest that in advanced countries where property rights and antitrust laws are highly enforced, competition mainly trigger NPD because the potential positive effects mitigate the negative effects by allowing new players which meet with regulatory standards keep entering the market (Lundvall and Nielsen 1999). Following Porter (1980), we do not only consider the number of competitors, but also the bargaining power of a firm's buyers and suppliers as competitive forces

that may influence firms' efforts to innovate as it needs to meet customer and supplier preferences and requirements.

H6. The number of competitors in a firm's industry is positively related to its innovativeness.

H7. The strength of buyers' bargaining power in a firm's industry is positively related to its innovativeness.

H8. The strength of suppliers' bargaining power in a firm's industry is positively related to its innovativeness.

2.3. Country-level factors: governmental support and factor market restrictions

In the context of innovations, Lundvall (1992) and Nelson (1993) considered institutional factors on the national level such as technology policies, the quality of science and education systems and the strength of linkages between firms, universities and research institutions. These country-specific sets of circumstances which determine innovativeness have been labeled as national innovation systems. The extant literature related to national innovation systems mainly looks into institutions that can increase the level of innovation at the national level rather than at the organizational level and therefore provides only general conclusions about the influence of institutions on a firm's innovation process, but does not give direct insights about the influence of institutional factors on the innovativeness of firms.

One dimension of governmental policies that can have an effect on innovation is financial support to encourage firms to innovate more frequently. Such government subsidies provide firms with additional funds and thereby help them with strengthening their efforts to develop new products (Romijn and Albaladejo 2002). Moreover, government policies may also influence the innovativeness of firms more indirectly by setting the 'rules of the game' and protecting them from legal uncertainty. The more confident firms are that their property rights will be upheld in legal disputes, the less uncertainty perceive in their business environment, thereby increasing their willingness to invest into the future by developing new products and introducing them into the market (Teece 1986).

H9. The amount of government subsidies received by a firm is positively related to its innovativeness.

H10 The perceived strength of property rights protection is positively related to a firm's innovativeness.

H11. The perceived extent of financial access restrictions is negatively related to a firm's innovativeness.

Taken together, whereas the resource-based view, the market-based view and the innovation systems framework have all identified important antecedents of firms' innovativeness, the three related streams of research have largely remained separated

and ignorant of each another (Peng et al. 2008). However, these viewpoints may complement each other in order to improve our understanding of the antecedents of the innovativeness of firms. Therefore, this study aims to integrate the three perspectives by considering firm-, industry- and country-level factors together when examining the determinants of firms' innovativeness. Furthermore, due to the unique characteristics of each country's business system and innovation system, we therefore expect differences in the relevance of firm-, industry-, and country level factors for firms' innovativeness across countries (Lundvall et al. 2002).

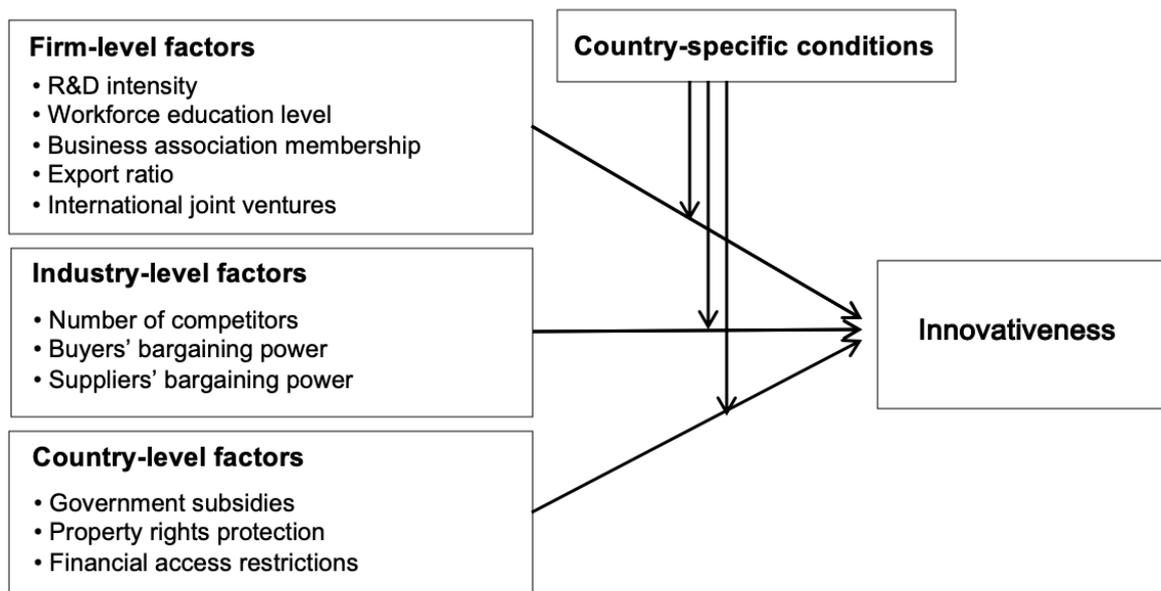
<Figure 1> summarizes our research model of firm-, industry- and country-level determinants of the innovativeness of firms.

3. The empirical study

3.1. Sample and data

The firm-level data used in this paper is drawn from the World Bank's BEEPS database which was created with the main objective to have a deeper understanding of the firms' perception of their business environment. The BEEPS database includes more than 25,000 firms covering 68 countries and is based on information gathered through standardized survey instruments which yields results that are comparable across countries. It also uses a stratified random sampling methodology, which improves the representativeness of the sample as it reduces sampling error (Enterprise Survey 2015).

In this study, we focus on high income economies that are strongly driven by



<Figure 1> Research model

<Table 1> Sample composition by countries

Country	Distribution of firms by employee class size (%)			Mean firm age (years)	Number of firms	Percentage
	2-10	11-49	≥50			
Czech Republic	40.8	26.8	32.4	14.3	71	5.0
Germany	21.6	36.1	42.3	28.8	208	14.6
Greece	49.3	22.4	28.4	24.2	67	4.7
Hungary	28.3	35.1	36.7	18.2	251	17.6
Ireland	45.2	25.0	29.9	26.2	124	8.7
Korea	22.4	36.5	41.0	18.6	156	10.9
Poland	55.7	27.0	17.3	31.6	97	6.8
Portugal	33.0	18.6	48.5	25.9	104	7.3
Spain	44.2	21.2	34.5	18.2	359	25.1
Total	37.8	27.6	34.6	21.7	1,437	100.0

innovations. In contrast to developing or emerging countries for which technology adoption and imitation play a larger role, firms compete primarily based on innovations in these advanced OECD countries. Our sample includes manufacturing firms from Czech Republic, Germany, Greece, Hungary, Ireland, Poland, Portugal, South Korea, and Spain.

Following these selection criteria, we retrieved data on a total sample of 2,105 firms. However, 581 responses were excluded due to missing data, resulting in a final sample of 1,437 firms for our study. Characteristics of

sample firms across the nine countries are shown in the <Table 1>.

3.2. Measurement of variables

This study is based on survey-based responses of firms' top level executives regarding various aspects of their business environment and their innovativeness.

Dependent variable. New Product Development (NPD) is measured as a binary variable responding to a question on whether the firm has successfully developed a major new product line within the last three years

or not.

Independent variables. R&D intensity is captured through the ratio of the company's R&D spending over their total sales. The workforce education level is measured as the percentage of the firm's workforce that has an education level equivalent to university degree or higher. Business association membership is assessed through a direct question on whether the firm is a member of a business association or not. The export ratio is measured through the reported percentage of the firm's total sales that is exported to other countries. International joint ventures are assessed through a question on whether the company has established a joint venture with a partner from a different country within the last three years.

The number of competitors is measured on a three point scale ranging from 'none' to '4 or more' on how many competitors the company has in its main product market. The strength of buyers' bargaining power is assessed on a four point scale through a hypothetical question on how the firm's customers would react to a 10% price raise for the company's main product or service, ranging from 'they would continue to buy the same quantities' to 'many of them would buy from our competitors instead'. The strength of suppliers' bargaining power is captured through an inversed four point response scale on a similar hypothetical question regarding the focal firm's reaction to a 10% price

increase by its main supplier.

Government subsidies are measured through a direct question on whether the firm has received any financial subsidies from a government agency within the last three years or not. Perceptions regarding property rights protection are measured on a 7-point Likert scale regarding the confidence that the legal system will uphold contract and property rights in business disputes, ranging from 'strongly disagree' to 'strongly agree'. Financial access restrictions are gauged on a four point scale regarding the extent to which this area is perceived as problematic for the firm's operations, ranging from 'no obstacle' to 'major obstacle'.

Control variables. As a firm's innovativeness may be influenced by its age and size, we control for these two contextual factors. Firm age is measured through a direct question on when the firm was founded, whereas firm size is assessed through a seven point Likert scale with '1' indicating that the company has 2-10 permanent full-time employees and '7' indicating that it has more than 1,000 permanent full-time employees. Furthermore, the innovativeness of a firm may also be influenced by its governance structure (Aghion and Tirole 1994). Specifically, there may be differences as regards how firms are managed depending on how concentrated or dispersed their ownership is. Therefore, we control for the largest shareholder's ownership ratio which is assessed through a direct

<Table 2> Cross-correlations and descriptive statistics for key variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 NPD															
2 Firm age	.050*														
3 Firm size	.230**	.390**													
4 Largest shareholder's ownership ratio	-.094**	-.133**	-.191**												
5 R&D intensity	.239**	.188**	.445**	-.139**											
6 Workforce education level	.166**	-.021	.138**	-.060**	.149**										
7 Business association membership	.133**	.226**	.337**	-.145**	.214**	.098***									
8 Export ratio	.166**	.102**	.436**	-.089**	.262**	.070**	.143**								
9 International joint venture	.172**	.053*	.182**	-.080**	.146**	.116**	.122**	.135**							
10 Number of competitors	.018	.039	-.025	-.030	.060*	-.002	.068*	-.194**	.061**						
11 Buyer's bargaining power	-.043	.014	-.009	-.029	-.048	-.072**	.023	.010	-.054*	.048*					
12 Supplier's bargaining power	.019	-.001	.006	.021	.012	.055*	-.012	.021	.089**	-.044	-.416**				
13 Government subsidies	.175**	.156**	.326**	-.134**	.190**	.037	.166**	.205**	.104**	-.015	.047*	.032			
14 Intellectual property protection	.034	.139**	.202**	-.026	.131**	.018	.222**	.067**	.053*	.077**	-.087**	-.000	.122**		
15 Financial access restrictions	-.005	-.139**	-.148**	-.009	-.131**	-.065**	-.154**	-.062**	-.058*	-.062**	.072**	-.083**	-.045	-.190*	
Mean	.40	21.68	2.35	74.00	.30	15.89	.55	18.14	.05	2.46	2.83	2.12	.18	3.72	2.36
Standard deviation	.49	20.78	1.58	28.89	.46	21.70	.50	29.16	.226	.78	1.05	1.16	.38	1.39	1.16

**p<0.01; *p<0.05, n=1,437

question. Finally, we control for country specific effects by including dummy variables for each country except from Korea which is used a base line.

Approximately 40% of our sample firms reported a major product innovation during the last three years. <Table 2> presents the means, standard deviations, and correlations among the main variables of our study. None of the variance inflation factors exceeded 1.25, indicating a low potential for multicollinearity (Hair et al. 2009).

3.3. Results

As we use a binary variable as dependent variable of our study, we test our hypotheses through logistic regression. The results for the

whole sample are summarized in <Table 3>.

First, the dependent variable is regressed on the control variables in Model 1. Next, the firm-level factors are introduced into the regression (Model 2). R&D intensity, workforce education level, business association membership, international joint ventures, and export ratios are all positively related to innovativeness. Therefore, Hypotheses 1 through 5 are all supported.

In Model 3, the industry-level factors are added. The number of competitors is positively related to innovativeness, whereas buyers' and suppliers' bargaining power are not. Therefore, Hypothesis 6 is supported, whereas Hypotheses 7 and 8 are not supported.

<Table 3> NPD of manufacturing firms: Logistic regression results

Variables	Model 1	Model 2	Model 3	Model 4
Control variables				
Firm age	-0.005** (0.003)	-0.004 (0.003)	-0.004 (0.003)	-0.004 (0.003)
Firm size	0.388*** (0.043)	0.187*** (0.051)	0.189*** (0.051)	0.165** (0.052)
Largest shareholder's ownership ratio	-0.002 (0.002)	-0.001 (0.002)	-0.001 (0.002)	0.000 (0.002)
<i>Country</i>				
Czech Republic	-1.116*** (0.270)	-1.450*** (0.295)	-1.562*** (0.301)	-1.553*** (0.309)
Germany	0.020 (0.206)	-0.741*** (0.237)	-0.848*** (0.244)	-0.633** (0.250)
Greece	-0.632** (0.192)	-1.170*** (0.219)	-1.245*** (0.223)	-1.191*** (0.237)
Hungary	-0.168 (0.237)	-0.646** (0.260)	-0.733** (0.263)	-0.646** (0.271)
Ireland	-0.525* (0.281)	-0.627* (0.301)	-0.707** (0.302)	-0.658* (0.303)
Poland	-0.662*** (0.179)	-0.816*** (0.190)	-0.770*** (0.192)	-0.813*** (0.195)
Portugal	-0.095 (0.280)	-0.516* (0.305)	-0.639* (0.310)	-0.498 (0.315)
Spain	0.149 (0.217)	-0.412* (0.237)	-0.472* (0.239)	-0.331 (0.250)
Independent variables				
<i>Firm-level</i>				
R&D intensity		0.638*** (0.141)	0.622*** (0.141)	0.607*** (0.143)
Workforce education level		0.011*** (0.003)	0.011*** (0.003)	0.011*** (0.003)
Business association membership		0.684*** (0.148)	0.700*** (0.148)	0.677*** (0.150)
Export ratio		0.005* (0.003)	0.006* (0.003)	0.005* (0.003)
International joint venture		1.268*** (0.293)	1.266*** (0.294)	1.221*** (0.296)
<i>Industry-level</i>				
Number of competitors			0.201* (0.089)	0.194* (0.090)
Buyers' bargaining power			-0.068 (0.062)	-0.093 (0.063)
Suppliers' bargaining power			-0.025 (0.056)	-0.041 (0.056)
<i>Country-level</i>				
Government subsidies				0.698*** (0.162)
Property rights protection				-0.041 (0.048)
Financial access restrictions				0.080 (0.055)
Hit ratio (%)	64.4	68.3	67.9	69.3
-2 Log likelihood	1813.36	1720.44	1714.33	1692.58
Δ Chi-square	130.34***	92.92***	6.11	21.75***
Nagelkerke R ²	0.117	0.194	0.199	0.216

***p<0.001; **p<0.01, *p<0.05; n=1,437

Finally, the country-level variables are entered into the regression in Model 4. Government subsidies are positively related to innovativeness, lending support to Hypothesis 9. However, property rights protection and financial access restrictions are not related to the dependent variable. Therefore, Hypotheses 10-11 are not supported.

As a robustness check, we added the independent variables in reverse order into the model, beginning with the country-level factors, followed by the industry-level and firm level-factors. All results remain the same when applying this order of analysis. Furthermore, we examine the country-

specific results by running regressions with all variables for each country sample separately. The results are summarized in <Table 4>.

Strong country-specific differences regarding the importance of factors can be observed. Although the country-specific results should be viewed with caution due to the relatively small sample sizes in some countries, a number of contrasting observations can be made. The number of competitors is positively related to innovativeness in the Czech Republic, Ireland, Korea and Poland, but negatively related in Germany and Portugal. In Germany, Hungary and Portugal suppliers' bargaining power is

<Table 4> Innovativeness of manufacturing firms across countries: logistic regression results (significant effects only)

Variables	Czech Republic	Germany	Greece	Hungary	Ireland	Korea	Poland	Portugal	Spain
Control variables									
Firm age	+ *						- *	- *	
Firm size				+ *			+ *		
Largest shareholder's ownership ratio								+ *	- *
Independent variables									
<i>Firm-level</i>									
R&D intensity		+ *	+ *		+ **	+***		+ *	
Workforce education level	+ **	+ *					+ *		+ *
Business association membership		+ *		+ **			+ *	+ *	+ *
Export ratio	+ **			+ *	+ *				
International joint venture					+ *	+ **			+ *
<i>Industry-level</i>									
Number of competitors	+ *	- *			+ *	+ *	+ **	- *	
Buyer's bargaining power									
Supplier's bargaining power		- *		- *			+ *	- ***	
<i>Country-level</i>									
Government subsidies					+ *		+ **	+ **	+ **
Property rights protection	+ **		- *			- *			
Financial access restrictions		+ **							
Hit ratio (%)	84.5	75.5	83.6	72.5	71.0	73.7	64.1	87.6	75.0
Number of observations	71	208	67	251	124	156	359	97	104
-2 Log likelihood	44.77	209.68	51.76	278.62	130.55	163.96	456.64	61.21	104.29
Chi-square	48.51***	63.41***	39.92***	41.37***	41.32***	51.38***	33.77***	53.52***	38.50***
Nagelkerke R ²	0.677	0.359	0.602	0.211	0.378	0.375	0.121	0.611	0.414

***p<0.001, **p<0.01, *p<0.05

negatively, but in Poland positively associated with innovativeness. Finally, property rights protection and innovativeness are positively related in the Czech Republic and negatively related in Greece and Korea.

3. Discussion

Product innovation in the manufacturing sector is a very complex process which is influenced by numerous internal and external factors. Several key findings emerge from our empirical analysis. First, we find that internal resources are important antecedents of the innovativeness of firms. Second, our findings indicate that various methods of networking and seeking external information, including membership in business associations and joint ventures with foreign partners, are effective ways to increase a firm's NPD. Moreover, we also find the degree of a firm's internationalization in general, as measured by its export intensity, to be positively related to product innovation in line with findings from other studies (Hitt et al. 1997; Keller 2004; MacGarvie 2006). Third, among the industry-level factors, we observe a positive association between the number of competitors and firms' NPD, which supports the idea that the threat of entry can stimulate innovation by incumbent firms (Reinganum 1985; Utterback 1974). Fourth, we find government subsidies to be positively related to firms' innovative-

ness, whereas no such association is observed for property rights protection and financial access restrictions. The positive relation between public subsidies and innovativeness is in line with the findings of earlier studies (Keizer et al. 2002; Romijn and Albaladejo 2002) and suggests that, notwithstanding various concerns such as potential crowding out effects or free riding, such subsidies can be an effective way to stimulate the innovativeness of firms.

The absence of an association between property rights protection and innovativeness in most countries, as well as negative relationship found in Greece and Korea, is noteworthy when considering that a strong legal system in general and effective intellectual property protection in particular are regarded as important conditions which induce companies to innovate and develop new products (Eicher and Garcia-Penalosa 2008; Teece 1986). A possible reason for this finding could be that in the advanced countries this study is focused on, the protection of property rights is regarded as reasonably high in general. Therefore, the remaining variation in companies' perceptions regarding this aspect may not exert a strong influence on their propensity to innovate. Alternatively, our results may indicate that property right protection and patent are not always the preferred method of protection against imitation when compared with other methods such as trade secrets and first mover advantages (Cohen et al. 2000;

Levin et al. 1987).

From a managerial perspective, the findings of our study suggest that there are various ways for managers to increase the innovativeness of their firms. Increased R&D spending, efforts to build and retain a highly skilled and educated workforce and initiatives to create a variety of external linkages on the local as well as on the international level in order to secure early access to valuable innovation-related information can all be effective approaches to enhance a firm's innovativeness.

Whereas this overall picture is quite similar across most countries, we also observed many notable differences regarding the relevance of specific factors between countries, supporting the notion that each national innovation system is in fact unique (Nelson 1993). This suggests that the determinants of firms' innovativeness differ to a considerable extent between countries and implies that findings from studies on single countries or small groups of countries cannot be easily applied to other countries.

4. Limitations, research directions and implications

This study has several limitations. First, while considering firm-, industry- and country-level factors, we cover only a fraction of all potential determinants of innovativeness. Second, the dependent variable and some in-

dependent variables are measured on simple binary scales which do not allow a subtle view on the relationship between specific managerial and public policies and the innovativeness of firms. Third, this study is based on one time observations only. The results for some predicting variables might differ if a longitudinal approach had been chosen. Finally, as our analysis is based on survey data from single respondents, common method variance is another potential concern. However, as most information used in this study is fact-based and the survey has been administered in a format which minimizes the application of implicit theories or socially desirable responses, the potential for a common method bias appears to be limited.

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