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Small firm internationalization, innovation, and growth

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Abstract This paper studies the effect of internationalization on innovation and firm performance (employment growth and sales growth) taking the interdependencies among the variables into account. Given the potential endogeneity, this study uses theory-driven instrumental variables and structural equation modelling to estimate the direct and indirect effects of internationalization. Firm-level data is obtained from a survey of 150 Dutch small firms that took part in an export promotion program. The main results show that internationalization has a positive impact on innovation. Internationalization increases firm performance directly and indirectly through innovation, while the direct impact of innovation on firm performance is insignificant. We contribute to the literature of export promotion programs as our results suggest that they not only increase small firm internationalization but also affect innovation and firm growth.

Keywords Internationalization · Innovation · Export promotion

JEL Classification D22 · F13 · H32 · L25 · L26

1 Introduction

For developed economies, it is a stylized fact that the larger and most productive firms are internationally active and most SMEs are not (Melitz 2003; Bernard and Jensen 2004; Bernard et al. 2011). A second stylized fact is that the more innovative SMEs are likely to venture abroad and often do this right after inception. Such 'born globals' start with a small but rich knowledge-intensive set of resources and rely on previous entrepreneurial experience and networks of its management (Oviatt and McDougall

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1994, 2005; Weerawardena et al. 2007). The broader picture is often that internationally active firms are large and productive and, when small, they are innovative before going international.

However, there is growing evidence that the relationship between internationalization, innovation and firm performance is more nuanced. Aw et al. (2008), Kafouros et al. (2008), Melitz and Costantini (2008) provide evidence that innovation often occurs in anticipation of internationalization, so that causality is hard to assess. Several studies show that firm performance also increases right after foreign market entry (Bausch and Krist 2007; Damijan et al. 2010; Bustos 2011). There is a developing literature for emerging economies that argues that internationalization not only increases firm performance but also spurs innovation itself (Van Biesebroeck 2005; De Loecker 2007; Wagner 2007; Hagemejer and Kolasa 2011; Yiu et al. 2007). A series of papers that analyze internationalization in emerging markets as an evolutionary process find that participation abroad exposes the firm's employees to international best practices, which enables firms to absorb new and innovative ways of doing business (e.g. O'Cass and Weerawardena 2009; Zahra et al. 2009; Naude and Matthee 2012), also on a macro-level (Verspagen and Wakelin 1997; Montobbio 2003).

There remains a gap in the literature on internationalization that links the effects of internationalization on innovation and firm performances for SMEs in highly developed countries. This paper takes up the challenge to assess how SME internationalization can foster innovation and firm growth. Data are obtained from a self-conducted survey of 150 Dutch firms with fewer than 20 employees that were enrolled in a public program supporting SME internationalization. As a first innovation, in the survey design we include several questions about the reasons for successful internationalization following the program; these question items have no obvious statistical connection to innovation that occurs later. In this way we create instrumental variables to estimate the effect of internationalization on firm performance in a more controlled setting. In addition, this paper is one of the first in this literature that uses a structural equation model, to explicitly take into account the complementarity between internationalization and innovation. We find that internationalization has a direct positive effect on the growth of the firm and indirectly increases firm performance through its contribution to innovation. The results show that internationalization is a necessary condition for innovation to increase firm performance.

This study makes the following contributions to the literature of SME internationalization. First, from a theoretical perspective, by using structural equation modeling, this paper is one of the first to take the simultaneity of internationalization and innovation into account in explaining variation in firm performance. This is important because studies that only look at one of the two may give confounding results as innovation may affect internationalization and vice versa, and thus leads to upwardly biased estimates of the true effect of internationalization. Moreover, our estimation strategy allows us to show whether in economic terms internationalization or innovation can be considered to make a bigger contribution to firm performance. That is, the findings allow us to interpret which effect dominates and is thus most relevant for economic policy.

A second contribution is sample driven. Most papers investigate the impact of internationalization using data from much larger firms, where it is possible that the firm size effect dominates the outcome of better performance (Hennart 2007). The problem is that larger firms are more productive and are therefore successful at internationalization, a self-selection that is difficult to correct fully when assessing the effects of internationalization on innovation. By contrast, our sample consists of a relatively homogenous group of relatively innovative firms with less than 20 employees in the Netherlands. All firms in the sample participate in an export promotion program. Hence, we focus on a particular set of small SMEs, which is likely to reduce the selection bias present in other studies.

This study contributes to the much smaller and specialized literature that investigates the effect of export subsidy programs for less innovative SMEs (Volpe Martincus and Carballo 2008, 2010; Chen et al. 2011; Freixanet 2012; Wilkinson and Brouthers 2006). Typically these papers study the effects of these programs on exporting, but do not investigate the pass-through effect on performance and innovation (Belloc and Di Maio 2011). Our main focus is on the spillovers effects from the stimulation of international activities, thereby showing the broader impact of export promotion programs.

Section 2 explains our preferred methodology of using instrumental variables and structural equitation modelling and provides a description of the sample. Section 3 presents our estimation results showing first the positive effect of internationalization on innovation and then its direct and indirect impact on firm performance. Section 4 concludes.

2 Method and data

2.1 Methodology

The empirical literature that investigates the effects of SME internationalization on innovation has to concur some well-known methodological problems. First, within sectors, both internationalization and innovation are concentrated in large firms. Hence, studies with large datasets that use matching techniques and time dimensions do not overcome that they essentially investigate the effects of internationalization on innovation for a small subset of *large firms*. This is also the reason that when controlling for firms size, for industrialized Western economies these studies do not find effects of internationalization on innovation (Hennart 2007; Bernard et al. 2011). Since we use a sample of small firms in a highly open Western economy, we are able to isolate the effects of internationalization for this group of small firms.

Second, in the studies that investigate the effects of internationalization on innovation and firm performance, the problem is that innovation and other key variables also drive the ability for firms to internationalize. Reverse causality leads to endogeneity problems when innovative firms have strong incentives to venture abroad, of which there is ample evidence (e.g. Altomonte et al. 2013; Cassiman et al. 2010; Van Beveren and Vandenbussche 2010; Harris and Moffat 2011; Ganotakis and Love 2011; Lachenmaier and Wößmann 2006).

In addition, firms may self-select into exporting and innovation based on (unobservable) firm characteristics, which may be difficult to filter out.

To overcome such problems in a cross-sectional setting, we use an instrumental variable approach which takes into account the potential simultaneous relationship between internationalization and innovation. We need a set of variables that is related only to internationalization and not to innovation. Such instruments are valid only when they are correlated with the endogenous variable and are unrelated to the outcome variable.[1] It is common to have a clear theoretical framework to identify potential instruments, although this is not a technical requirement for their validity. However, when using a questionnaire one can use theoretical frameworks to include questions of which the answers later serve as instrumental variables. There is a large business literature that identifies multiple factors associated with successful internationalization of SMEs, thus giving rise to potential candidates.

As a first instrument we use the *Resources* variable which measures the internal resource base of the firm associated with internationalization. We have asked senior management whether a specific resource is perceived as a competitive advantage of their firm and whether it contributes to internationalization. In this regard, we focus on foreign market knowledge, experience, and access to business networks which are factors associated with foreign markets entry of SMEs. We may call these factors the *internal knowledge base* of the firm, which are emphasized in the born global literature (Knight and Cavusgil 2004; Weerawardena et al. 2007; Zahra et al. 2009). Access to foreign business networks is vital for SME internationalization, so we include a question about how the subsidized use of trade fairs and international exhibitions have contributed to internationalization. As these fairs often focus on finding trade partners and selling products, its low potentially low correlation with innovation may provide for valid instruments (Eaton et al. 2011). Such information often also comes from local 'cooperative competitors', so that location in an urban industrial cluster may aid internationalization.[2] Clearly, it is our hope that resources which are important for internationalization are not correlated to the firm's innovation record. By sticking to resources directly connected to internationalization (e.g. foreign market knowledge and business networks), we hope to stay clear of crossing the border to include variables that also explain the variation in innovation across the SMEs in our sample.

New institutionalists argue that resources external to the firm such as those embedded in the local business cluster and supplied through public content based internationalization support are also important (Barney et al. 2001; Westhead et al. 2001). These *external resources* provide the firm's management with insights with respect to

[1] Technically speaking, instruments Z must be *relevant* such that $Cov(X,Z)\neq 0$ where Z predicts X (the endogenous regressor) while controlling for a subset of controls C that may influence both X and Y (the dependent variable). Furthermore, instruments Z are valid only if they are *exogenous* and therefore uncorrelated with the error term u of the outcome model for Y, such that $Cov(Z,u)=0$.

[2] At first sight the suggested instruments seem valid (see Appendix 1 for more details on the first stage regression results). First, EPP plan completed is highly correlated with *Internationalization* ($r=0.42$; $p<0.01$) and not strongly related to *New Product* ($r=0.11$; $p=0.17$) nor *Innovation* ($r=0.14$; $p=0.08$). Second, other government support is highly correlated with *Internationalization* ($r=0.28$; $p<0.01$) and not strongly related to *New Product* ($r=0.11$; $p=0.18$) nor *Innovation* ($r=0.12$; $p=0.12$). Third, the *Resources* of the firm are highly correlated with *Internationalization* ($r=0.28$; $p<0.01$) and not related to *New Product* ($r=0.10$; $p=0.21$) nor *Innovation* ($r=0.15$; $p=0.06$). Fourth, urban location is correlated with *Internationalization* ($r=0.17$; $p<0.05$) and not related to *New Product* ($r=0.08$; $p=0.32$) nor *Innovation* ($r=0.13$; $p=0.10$).

institutional barriers (subsidized entry research) and potential trade partners (fairs), which lower transaction costs in foreign markets and reduce risk (Belloc and Di Maio 2011; Eaton et al. 2011). With respect to external resources, we have asked the firm's management whether they are satisfied with the services of the public agency in supporting their internationalization. This informs us about the quality of the external resources as perceived by the firm. Second, whether the firm has finished the complete program indicates the use of external resources by the firm, which in turn should be correlated with successful internationalization.

We use a system of equations that allows for an indirect relationship between internationalization and innovation and relate it to the performance of the firm (see Dhanaraj and Beamish 2003). Figure 1 shows the conceptual framework that we use for the 3SLS structural equation modeling (SEM). This technique of path analysis (Kline 2005) involves the estimation of the presumed causal relationships among internationalization, innovation and firm performance. In Fig. 1, *Stage I* follows the same logic as instrumental variable (IV) estimation methods applied to estimate the 'causal' effect of internationalization on innovation (process *A*), where different instruments are used for internationalization and new products and innovation because of suspected endogeneity. *Stage II* underlines the mutual interdependencies between internationalization and innovation. As depicted, there are indirect feedback loops between two variables as they respond to each other in a process that influences firm performance. The feedback loops represent the mutual influence among internationalization and innovation through the interaction of processes B_1 and B_2.[3] In the estimation it is allowed for correlation between these two variables. The combination of the IV estimation in *Stage I* together with the non-recursive processes with feedback effects in *Stage II* recursively affect firm performance in *Stage III* as presented by the processes C_1 and C_2. By doing so we are able to capture the direct and indirect effects of internationalization and innovation on firm performance.

2.2 Data analysis

This study is based on cross-sectional data. Since we have no time dimension and a relatively small sample, we rely on a structural model to test for the effects of internationalization and innovation on performance.[4] We use data from a consultancy project to evaluate the effects of a public internationalization support program for Dutch SMEs with fewer than 20 employees. To obtain data for this study, we used an adjusted version of a well-validated questionnaire developed by Wilkinson

[3] Note that the structural model estimated here fundamentally differs from a simple OLS estimation with performance as outcome and, internationalization and innovation as explanatory variables, including an interaction term among the latter. Such interaction effect only implies that e.g. given a greater level of innovation, the effect of internationalization on performance will be magnified. In our setup, we take into account that because of a greater level of innovation, the observed level of internationalization may differ, such that a greater level of innovation not only can have a direct effect on performance, but also an indirect effect through the subsequent change of internationalization.

[4] As such, this study is not an impact assessment of export promotion programs. Our sample has no pure control group, in the sense that all firms are trying to move abroad. In this manner our results may not represent a full picture as those that are not successfully internationalizing are the low productive firms, whereas those that succeed are of the high productive type.

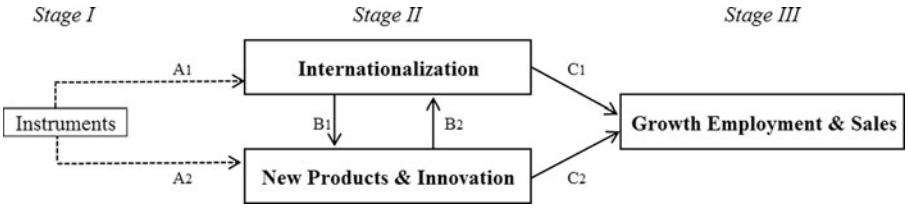

Fig. 1 Conceptual framework

and Brouthers (2006). The questionnaire covers various aspects of the firm including international sales, innovation efforts, and the effects of the state-sponsored export promotion program. A government agency provided the names and addresses of 684 firms that were enrolled to an export program between 2006 and 2011. Data were collected between April and May 2011. The response rate was high (25.3 %). After dropping 23 firms for incomplete questionnaires the final sample consists of 150 firms.

To measure internationalization, a standardized *Internationalization* scale with four items (Cronbach's alpha=0.72). The items include the share of international sales to total sales, export volume growth, satisfaction with the current level of international involvement, and a dummy for export start within the first years after inception; the so-called 'born globals'. One reason for the construction the scales is that we are analyzing internationalization of small firms in a broader sense and therefore obtain a better picture of the construct when including several dimensions. Given that measuring internationalization for small firms is difficult to grasp in a single concept, we strongly prefer the use of scales in our setting, since it allows us to avoid possible misspecification and validity issues. The scale also follows a more normally distributed pattern than the individual items and thus the scale is better suited for regression analysis than mere dummy variables.

We use two measures of innovation (Cassiman et al. 2010; Ganotakis and Love 2011). First, innovation output is a dummy that measures whether the firm has launched three or more new products or services in the past 3 years (*New Products*). Second, we ask the firms about their recent experiences under the program in terms of (i) product innovation, (ii) organizational improvements and process innovation, and, (iii) marketing innovation and new concepts. These variables deliver a standardized *Innovation* scale (Cronbach's alpha=0.69), which is correlated with *New Products* (r=0.16; p<0.05). This scale yields a broad measure of the innovation construct, covering various dimensions as we are not focusing on specific items. Moreover, the scale is normally distributed while the items are not; this is a useful property for the estimation method.

We measure the moderating *Resources* of the firm (see Barney et al. 2001) using six items related to human capital, entrepreneurial attitude, technological and market knowledge, organizational capabilities, and access to business networks (Cronbach's alpha=0.71). We do so because it is often assumed that firms with a broader resource base find it easier to venture abroad (Westhead et al. 2001).

As performance indicators we use the change in employment and the change in sales over the past three years. The advantage of these measures is that they relate to changes and not levels. Because we rely on self-reported data we have implemented some verification methods to check the accuracy of the items reported by the entrepreneurs (see Zahra et al. 2009; Chang et al. 2010). Of the completed surveys, 99 of the 150 companies agreed to supply their names for further research, while keeping their responses anonymous. With this list of data, two independent researchers who had no access to our data contacted the Chamber of Commerce and checked 'hard' figures about the firm, although enterprises with fewer than 20 employees are not liable to provide detailed information. Nonetheless, of 47 firms they could traced the number of employees and the total assets of the balance sheet over the period 2008 to 2011 (if applicable). To test the validity of our data, we examine the correlations among the self-reported employment and sales data with the hard figures. The self-reported employment growth is highly correlated with the officially reported change in the number of employees over the past 3 years (r=0.69; p<0.01). Also the self-reported growth in sales is correlated to the change in total assets over the past 3 years (r=0.31; p=0.06). Thus, the cross-verification results suggest that the responses to the questionnaire are very trustworthy.

Table 1 presents the correlations among the main variables employed in the analysis. Three observations stand out. First, the more internationally active firms have higher levels of innovation and better sales performance. These firms on average have higher levels of new product launches and employment growth, although these correlations are not very strong. A second contrasting observation is that innovation is not associated with better firm performance in terms of employment and sales growth. We can also see that innovation is spread evenly over firm size (although all the firms in our sample are small) and sectors. Thirdly, resources seem to be a potentially important moderator in the study, as they are highly correlated with both internationalization and the performance measures in terms of employment and sales growth. Firm resources are associated with higher levels of innovation, but the variance is much higher—a property that we will later exploit when choosing instruments to find the causal effect of internationalization on innovation.

Table 1 Correlation matrix

		1	2	3	4	5
1	Internationalization					
2	New Products	0.12				
3	Innovation	0.18**	0.16**			
4	Resources	0.27**	0.10	0.16*		
5	Employment Growth	0.11	0.10	0.03	0.21**	
6	Sales Growth	0.32**	0.00	0.06	0.21**	0.43**

n=150; **p<0.05, *p<0.10

3 Results

3.1 The effects of internationalization on innovation

Table 2 presents the main results for the effect of *Internationalization* on the two innovation measures *New Products* and *Innovation*. We show both the (potentially biased) OLS and simple probit regressions as well as the IV estimations. We control for firm size, age and the sector.[5] Overall we find a positive effect of internationalization on innovation. The economic significance is high: the elasticity is 0.4 and 0.5 for the instrumented values. The size of the effect increases significantly when we control for endogeneity, which points to substantial reverse causality. We find some evidence that older firms innovate more, which in our sample of small firms may be attributed to liquidity constraints in the start-up stage.[6] For robustness checking (not presented here), we also sequentially altered the internationalization scale using fewer items or even the single indicators. The main results are unaffected by the use of the scale in comparison to the single items.

3.2 The effects of internationalization and innovation on performance

Following the conceptual framework we estimate a structural equation model and analyze the effects of two endogenous variables, *Internationalization* and one innovation measure on firm performance. The results in Table 3 are based on a 3SLS setup using a maximum likelihood estimator to derive the direct and indirect effects of the explanatory variables on employment growth and sales growth, which combined in a non-recursive model express the total effect of each measure on performance (see Fig. 1).[7]

In general, the results show that internationalization has a positive 'causal' effect on performance. Table 3, Panel A indicates that the standardized direct (unmediated) effect of internationalization on employment growth is 0.11 which means that when the level of internationalization rises by one standard deviation, employment growth increases by 0.11 standard deviations, independent from the indirect (mediated) effect of internationalization. A similar coefficient is given in Table 4, Panel B. Combined with the

[5] The firm size groups are evenly distributed as follows: no employees (4.67 %), one employee (14.67 %), two to four employees (27.33 %), five to nine employees (26.67 %), and ten to nineteen employees (26.67 %). Firm age is measured as the log of the number of years that have passed since the date of incorporation. The age of the firms is also evenly distributed as follows: 32.0 % is younger than 5 years, 20.7 % is between 5 and 10 years, 21.3 % is between 10 and 20 years, and, 26.0 % is older than 20 years. Finally, the main sectors are industry (24.67 %), business services (22.00 %), trade (16.00 %) and, construction (6.00 %), while the other 31.1 % falls in another category such as transport, retail and agriculture.

[6] To further test for the effect of internationalization on innovation we applied propensity score matching techniques using the resource-base of the firm and knowledge intensive production as matching parameters. The findings (not reported here) show no significant effect of internationalization on the two innovation measures, which may be attributed to the small sample (treatment group consists of 65 firms) since matching methods are data intensive (Caliendo and Kopeinig 2008). Albeit insignificant, based on nearest neighbour procedure with a caliper of 0.05, the economic interpretation of the matching procedure still shows that treated firms (internationalizers) have a 12 % higher likelihood to launch new products, and, score 0.28 standard deviations higher on the standardized innovation scale than their matched counterparts (not-internationalizers).

[7] We have also run 2SLS regression to test the effect of innovation on internationalization. In general, we did not find significant effects. A structural equation model allows for correlation between the endogenous regressors so that we take this (insignificant) impact into account when estimating the direct effect of innovation on firm performance as well as the direct and indirect effect of internationalization on firm performance.

Table 2 Main results for the effect of internationalization on innovation

	(1)	(2)	(3)	(4)
	New products		Innovation	
	Probit	IV probit	OLS	2SLS
Internationalization	0.153	0.408**	0.203**	0.502**
	[0.108]	[0.178]	[0.089]	[0.163]
Firm size	0.097	0.101	−0.071	−0.063
	[0.099]	[0.099]	[0.068]	[0.071]
Firm age	−0.044	−0.0047	0.288**	0.333**
	[0.137]	[0.139]	[0.094]	[0.098]
Sector industry	0.150	0.076	−0.062	−0.139
	[0.289]	[0.290]	[0.216]	[0.233]
Sector trade	0.547	0.478	−0.050	−0.101
	[0.345]	[0.351]	[0.224]	[0.222]
Sector business services	0.269	0.283	0.013	0.037
	[0.292]	[0.274]	[0.237]	[0.230]
Sector construction	0.051	0.137	−0.492	−0.388
	[0.463]	[0.446]	[0.362]	[0.376]

n=150. Estimated with Stata 11. Robust standard errors in brackets, ** p<0.05, * p<0.10. Each specification includes sector dummies. Instruments for internationalization include resources, EPP plan completed, fairs*, other government support and urban, each of which enters significantly as explanatory variable for internationalization, first stage F-test confirms that instruments are relevant (F>10). The Sargent J over-identifying restrictions tests cannot reject the null hypothesis, suggesting the instruments are valid. The Wald tests for exogeneity are significant, suggesting that internationalization is an endogenous regressor The Hausman-Wu tests indicate that *Internationalization* is an endogenous regressor since we reject the null that the variable is exogenous. None of the sector dummies is significant. Notice that dichotomous classification of "goods" versus "services" sector shows a negative coefficient for "goods" relative to the benchmark, which is significant at the 10 % level (p=0.09)

indirect effect, the total effect of internationalization on employment growth is comparable to the direct effect as an increase on the internationalization scale by one standard deviation is associated with a rise in employment growth by 0.12 standard deviations. In comparison to employment growth, internationalization has a much larger effect on the sales growth. We also find robust direct and total effects of internationalization on sales growth between 0.30 and 0.31 suggesting that an expansion of international activities translate into higher growth rates.

Our findings imply that innovation has a much smaller effect on firm performance than internationalization. The analysis in Table 3 shows that there is no effect of *New Products* on employment growth nor on sales growth. *Innovation* has no effect on sales growth, although its impact on employment growth is significant at a 10 % significance level with a standardized estimated coefficient around 0.12.

In line with Fig. 1, we find that internationalization, new products and innovation have a direct positive effect on employment growth and sales growth. However, once we take into account the mutual influences among internationalization and innovativeness, our results suggest that there is no relationship between innovation and performance, thus potentially

Table 3 3SLS estimation results for the effects on firm performance Panel A

	(1) Employment growth	(2)	(3) Sales growth	(4)
	Direct effect	Total effect	Direct effect	Total effect
Internationalization	0.114*	0.122*	0.310**	0.304**
New products	0.082	0.071	−0.047	−0.074
Size	0.309**	0.307**	−0.053	−0.086
Firm age	−0.253**	−0.262**	−0.096	−0.118*

n=150. Estimated by maximum likelihood using SPSS AMOS20. Standardized coefficients and standard errors in brackets, ** $p<0.05$, * $p<0.10$. For the two estimation model (1–2) and (3–4) respectively the diagnostic test statistics for absolute model fit are χ^2 =352.01**, χ^2 =361.83**; RMR=0.038, RMR=0.037; GFI=0.816, GFI=0.813; RSMEA=0.093, RSMEA=0.096; AIC=466.012, AIC=475.834 which together suggest a reasonably good fit. Other control variables are insignificant and not presented here

giving rise to spurious conclusion when looking only at the direct effect of innovation (which may pick up the positive effect of internationalization). We find no effect of innovation on internationalization, therefore the direct effect of internationalization on firm growth is representative for the total effect as it does not depend on the firm's innovativeness.

That is, when we control for internationalization there is no effect of innovation on firm performance. Even the partial correlations suggest that there no connection between innovation and firm performance in our sample (Table 1). This also underlies the result that the indirect effect of innovation on sales growth is not significant (and the coefficient slightly negative). Even more, when controlling for internationalization there is a very small negative effect of innovation on sales growth, which explains why the total effect of internationalization is slightly smaller than the direct effect. In our study, the coefficient for innovation also carries over the impact of internationalization, which is positive and significant.

Table 4 3SLS estimation results for the effects on firm performance Panel B

	(1) Employment growth	(2)	(3) Sales growth	(4)
	Direct effect	Total effect	Direct effect	Total effect
Internationalization	0.109*	0.117*	0.311**	0.310**
Innovation	0.126*	0.117*	0.010	−0.013
Size	0.324**	0.309**	−0.056	−0.085
Firm age	−0.285**	−0.282**	−0.098	−0.115

n=150. Estimated by maximum likelihood using SPSS AMOS20. Standardized coefficients and standard errors in brackets, ** $p<0.05$, * $p<0.10$. For the two estimation model (1–2) and (3–4) respectively the diagnostic test statistics for absolute model fit are χ^2 =356.24**, χ^2 =367.274**; RMR=0.049, RMR=0.048; GFI=0.815, GFI=0.810; RSMEA=0.094, RSMEA=0.097; AIC=470.240, AIC=481.274 which together suggest a reasonably good fit. Other control variables are insignificant and not presented here

For internationalization the direct and total effects are of equal size, suggesting that there is no indirect effect of internationalization through other variables, including innovation. The findings indicate that innovation does not occur in isolation. If we allow for a multivariate setting with recursive relationships, the independent effect of innovation disappears for these SMEs. Hence, studies that analyze the connection between innovation and performance may overestimate the effect of the independent variables when they do not control for the fact that innovative firms are often also internationally active, leading to possible spurious results.

The results are comparable to those of Dhanaraj and Beamish (2003) who also estimate a structural model with firm resources, internationalization and innovation. In line with our results, they find for firms from Canada and the United States strong effects of internationalization on innovation (see Zahra et al. 2000, 2009). The findings contrast the broad literature that shows positive effects of innovation on performance (e.g. Cainelli et al. 2006; Altomonte et al. 2013) as our results indicate a key role for internationalization and not innovation. Table 3, Panel A shows no effect of new products on employment and sales growth. Table 4, Panel B presents a positive effect of innovation on employment growth, but the effect on sales growth is insignificant.

Apart for the importance of internationalization, we also highlight the effects of firm size and firm age because they are intricately connected to the SME literature on internationalization and the born global literature. First, we find that the 'larger' firms tend to have a *relatively* higher growth in employment than the smaller firms. Second, the size of the firm is unrelated to the relative sales growth. In addition to this we show that younger firms tend to be more reluctant to hire new personnel. These new internationalizing ventures grow relatively slower in terms of employment but there is no significant difference in terms of sales growth compared to older firms, although the data suggest that younger firms also increase sales relatively slower.

4 Conclusion

The recent trade literature in economics posits that in Western countries only the large firms internationalize and that these firms reap no additional gains from international experience in terms of innovativeness and firm performance. This paper highlights that small businesses from developed regions expand to foreign market to gain knowledge, adopt innovative practices and improve firm performance. The empirical results suggest that although these firms face a liability of smallness, they learn from international activities, become more innovative and expand their enterprises.

From a policy perspective, our study contributes to the debate on the effects of national export promotion programs (EPP) on innovation and growth. Within this field, there is a discussion about the effects of such programs (Volpe Martincus and Carballo 2008, 2010; Chen et al. 2011; Wilkinson and Brouthers 2006; Freixanet 2012). We complement this literature in four ways. First, we move beyond the simple correlations and OLS estimates and use a structural model with instrumental variables to account for endogeneity. Second, these studies rely predominantly on medium and large firms, where we focus on small firms with less than 20 employees. Third, studies that evaluate the EPPs impact focus on export volume growth while we are interested in the effects of internationalization on innovation,

sales and employment. Finally, there are only few studies that look at innovation, however, these selected papers do not present a full model which further analyzes the effects of internationalization (and innovation) on firm performance (for an exception, see Altomonte et al. 2013).

Export promotion programs are associated not only with increased international activities but also with innovation by small firms. In this way, one may suggest that these programs "kill two birds with one stone", namely, (i) the program induces firms to venture abroad which increases sales directly and, (ii) internationalization is associated with greater innovation. We find preliminary evidence that venturing abroad and innovation contribute to employment growth, although these effects are much smaller compared to sales growth. Overall, in a horse race setting, for the firms in our sample the positive contributions of internationalization on performance appear to be greater than those of innovation; the direct impact of innovation is even insignificant.

Appendix 1

Table 5 Summary statistics of key items

Variable	Description	Mean	S.D.
Internationalization		0.00	1.00
int1	share international sales	0.47	0.28
int2	export volume growth	0.67	0.47
int3	satisfaction internationalization	0.65	0.17
int4	born global	0.43	0.50
New products		0.61	0.48
Innovation			
innov1	product innovation	3.2	1.10
innov2	organizational improvements and process innovation	3.0	1.06
innov3	marketing innovation and new concepts	2.9	1.03
Resources			
resource1	technological know-how	4.3	0.71
resource2	market knowledge	4.5	0.72
resource3	organizational capabilities	3.9	0.84
resource4	human capital	3.8	0.82
resource5	entrepreneurial attitude management	4.1	0.81
resource6	business networks	3.8	0.86
Employment growth		3.5	0.83
Sales growth		3.9	0.96

For the innovation scale and the resources variable the items were measured on a five point Likert scale, ranging from totally disagree to totally agree. For the innovation items the senior manager was ask: "In general, in my opinion the international activities of the firm have made a significant contribution to ["innov" item]". For the resources variable the question was: "Relative to my direct competitors within my sector the competitive advantage and key resource of the firm is/are ["resource" item]"

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