Productivity differences among new firms involved in exporting

González-Pernía, José L.
Orkestra. Basque Institute of Competitiveness. Deusto Business School. Mundaiz, 50. 20012 Donostia
jogonzal@orkestra.deusto.es

Recep.: 15.06.2012
BIBLID [ISSN: 1137-442X, eISSN: 2255-1077 (2012), 15; 103-119] Accep.: 08.10.2012

Produktibitate-desberdintasunak aztertu ditugu esportatzaileen eta ez-esportatzaileen artean, Euskal Herrian sortutako 83 enpresa hasi berrien lagin batean. Emaitzek erakutsi dute esportatzen duten enpresa berriek produktibitate-maila handiagoak dituztela barne-merkatuetan bakarrik saltzen dutenek baino.

Giltza-Hitzak: Esportazioa. Produktibitatea. Antolaketa-aroa. Enpresa berriak.

Examinamos las diferencias en niveles de productividad entre exportadores y no exportadores a partir de una muestra de 83 nuevas empresas creadas en el País Vasco. Los resultados indican que las nuevas que exportan niveles de productividad mayores que las que solamente venden en mercados domésticos.

Palabras Clave: Exportación. Productividad. Edad organizativa. Nuevas firmas.

Nous avons examiné les variations de la productivité entre les entreprises exportatrices et non exportatrices au sein d'un échantillon de 83 sociétés récemment créées au Pays Basque. Les résultats montrent que les entreprises nouvellement créées qui abordent les marchés à l'exportation présentent une productivité plus élevée que celles qui se restreignent aux marchés intérieurs.

Mots-clés : Exportation. Productivité. Âge organisationnel. Nouvelles entreprises.

1. INTRODUCTION

Evidence from different countries shows that more and more new firms enter international markets at an earlier age (Bell, 1995; Knight and Cavusgil, 1996; McDougall and Oviatt, 2000; Oviatt and McDougall, 1997; Oviatt and McDougall, 1999; Shrader et al., 2000; Turnbull, 1987). One of the potential benefits of this international behaviour is the acquisition of new knowledge from foreign markets about technologies and practices that can be used in ways that increase productivity. Unfortunately, despite the interest of the extant literature on the relationship between exporting and productivity (Arnold and Hussinger, 2005; Aw and Hwang, 1995; Bernard and Jensen, 1999; Bernard and Jensen, 2004; Bernard and Wagner, 1997; Breau and Rigby, 2008; Clerides et al., 1998; Delgado et al., 2002; Greenaway and Kneller, 2004; Wagner, 2002), we know little about the relationship between the internationalisation of a new firm and its productivity. This is particular important because, compared to established businesses, new organisations face a higher risk of failure in international markets due to their liability of newness, smallness and foreignness. Therefore, if early exporting is not related to productivity advantages, goals behind the support of this behaviour from a policy point of view must be reconsidered. The belief that exporting is related to positive effects on firm's performance has encouraged policy makers to support export activities of firm from certain industries (e.g., manufacturing firms). From a policy point of view, the relevant question is whether new firms can benefit from entering foreign markets despite their limited resources and knowledge.

The aim of this paper is to explore the linkages between internationalisation through exports and labour productivity in a sample of innovative new firms from the Basque Country. We do this by examining productivity differences between exporting and non-exporting new firms, as well as between early exporting new firms, which enter foreign markets from inception, and late exporting new firms, which enter foreign markets a few years afterwards. We draw on notions from international business, entrepreneurship and organisational learning literature to understand how exporting is related to productivity differences among new firms.

Overall, we use a sample of 83 new firms that were set up on the premises of a network of business innovation centres in the Basque Country, in Northern Spain, during the period 2000 to 2005. All these new firms share the fact that they are innovative or have a technological orientation.

Our results show that, on average, exporting new firms outperform their non-exporting counterparts in terms of productivity. Moreover, our findings reveal that new firms that decide to export from inception (i.e. within the first year after the birth) exhibit a higher productivity level than those that enter the export market in the following years after they have gained some experience in the domestic market. This suggests the existence of certain differences in productivity not only between exporting and non-exporting new firms, but also among new firms involved in internationalisation activities.

In the next two sections we present the theory and propose our hypotheses. Section 4 describes data and methodology. Results are discussed in section 5. Finally, section 6 summarises the conclusions and implications of our study.

2. DIFFERENTIALS IN PRODUCTIVITY BETWEEN EXPORTING AND NON-EXPORTING NEW VENTURES

In general, exporting is related to increased productivity because the exposure to international markets is linked to the access to new knowledge, the development of economies of scale, and the complexity associated with competition in foreign markets. In particular, the literature on exporting and learning suggests that selling in foreign markets allows firms to access new information that would be otherwise inaccessible (Salomon and Shaver, 2005). For instance, firms gain information through exporting because foreign customers may provide some technical expertise or suggest new product designs, models and patterns (Castellani, 2002; Evenson and Westphal, 1995; Rhee et al., 1984), as well as new ways to improve manufacturing processes (Grossman and Helpman, 1991). The exposure to international markets also implies dealing with a more intense level of competition than in the domestic market (McKinsey-Global-Institute, 1993). Thus, in order to survive in such competitive environments, firms need to improve productivity faster than those that sell domestically and face no international competition. Finally, since selling abroad represents a natural expansion of the market, exporting allows firms to yield certain economies of scale (Bernard and Wagner, 1997; Castellani, 2002). Economies of scale result in cost advantages which are driven by selling goods and services to a broader market, provided that the increase in the level of inputs needed to satisfy the production is lower than the increase in the level of output.

The manner in which productivity differentials arise among new firms may, however, not be as evident as it is among established firms. Due to their young age, new (and, almost always, small) firms can expect to suffer from a lack of knowledge and resource constraints that lead them to face a high risk of failure. This has been largely described in the literature as liability of newness (Stinchcombe, 1965) and liability of smallness (Aldrich and Auster, 1986), respectively. At first glance, such liabilities would suggest the prevalence of low initial levels of productivity among most new firms at or near to their inception.

In spite of this, the main underlying arguments behind new models of internationalisation of new firms, compared to traditional models for established firms, emphasise the role of the entrepreneur's human capital and the means by which new organisations can access strategic resources through alternative governance structures (Oviatt and McDougall, 1994). These elements may provide exporting new firms with productivity advantages over non-exporting ones at the moment of their first international sale even if their life cycle history is short.

For instance, the entrepreneur's previous industry-specific or international experience, either of which is associated with exporting new firms[1], may lead to increased levels of productivity since the kind of human capital involved enables entrepreneurs to cope better with problems, as well as to identify what is needed to produce goods and to serve markets using inputs in a more efficient way than other entrepreneurs without such experience and knowledge. Similarly, exporting new firms can usually tolerate high costs of internationalisation by controlling, rather than by owning, foreign resources through strategic alliances. This means that they are able to use relatively less of their own capital input to produce the same level of output as new firms without such alternative governance structures[2].

For the aforementioned reasons, we expect to see significant differences in productivity levels between exporting and non-exporting new firms. Accordingly, we formulate our first hypothesis as follows:

H1: New firms that sell to foreign markets will show a higher productivity level than those that only sell to domestic markets.

3. DIFFERENTIALS IN PRODUCTIVITY BETWEEN EXPORTERS FROM INCEPTION AND LATE EXPORTERS

Since internationalisation involves adapting to and learning from new markets, the age of the new firm at foreign market entry is a critical factor determining how routines and knowledge of new markets –in which a firm has little or no previous experience– are acquired, accumulated and used for gaining productivity from foreign markets. This is because younger firms differ from older ones in the way they adapt and learn (Autio et al., 2000; Hannan and Freeman, 1984; Zahra et al., 2006). Accordingly, we consider that such differences may be related to differences in productivity among exporting new firms. A rationale for this can be found in Autio, et al.'s (2000) work, which provides evidence that younger firms (possessed of fewer cognitive, political and relational barriers to learning) might benefit from some "learning advantages" in international markets because they are able to absorb foreign knowledge more rapidly than their older counterparts. This view is supported by the fact that younger firms usually have low levels of structural inertia (Hannan and Freeman, 1984) and learn through less time-consuming processes (Zahra, Sapienza and Davidsson, 2006).

---

1. The entrepreneur's experience is mainly important, if not crucial, for the recognition and exploitation of opportunities Shane and Venkataraman (2000); prior experience as an employee or when self-employed –especially in international markets– may influence the decision to export as a way of exploiting business opportunities abroad.

2. Accessing strategic assets through alliances may reduce the costs of capital; however, it also may raise the price of other inputs in the production function (i.e. intermediate inputs). In the latter case, the gains in productivity from the use of alternative governance structures would be low.

As firms gain experience in the market, they create collections of routines (Hannan and Freeman, 1984; Zollo and Winter, 2002)[3]. However, once routines have been established, the costs associated with switching to a set of new routines or with changing the existing ones rise. As a result, accumulated experience leads to organisational routinisation, which in turn generates continuity of behavioural patterns and resistance to change (Hannan and Freeman, 1984; Nelson and Winter, 1982). In contrast, younger ventures apparently have fewer established routines than older firms. Indeed, within their first year, start-ups have little (if any) prior experience that biases their actions. Hence, they can be expected to have low levels of structural inertia, making them flexible and adaptable to new conditions.

Younger firms also differ from older firms in the way they learn. In particular, there is a tendency for younger firms to choose more improvised, unplanned methods of learning, whereas older firms usually rely more on deliberate, planned processes to learn. As a result, not only their choices may be different, but also the consequences of their choices may differ even if they make the same choices (Zahra, Sapienza and Davidsson, 2006). Entrepreneurs usually apply intuition as their preferred way of thinking (Allison et al., 2000), and this behavioural pattern enables very young firms to rapidly improvise and take action with incomplete information, ambiguity and uncertainty. Although this type of learning may lead to biased solutions which are obviously not as rigorous as those obtained through planned methods, it offers faster responses because intuition and improvisation take place in short time, without waiting for additional information and resources.

The ability to change and speed of learning are important factors which influence the achievement of high productivity levels. In particular, we argue that the higher productivity attributable to export activities depend on the degree to which the firm has a structure that is easy to modify such that it meets the new environmental conditions of foreign markets. When a firm internationalises its sales from inception it has few established routines to unlearn, which provides certain learning advantages when it comes to getting adapted to new foreign markets (Autio, Sapienza and Almeida, 2000). What is more, as younger firms tend to use improvised modes of learning, those firms selling abroad from their very inception are likely to be more flexible and get faster solutions to new problems (Zahra, Sapienza and Davidsson, 2006). This suggests that younger firms are more likely than older ones to absorb new knowledge derived from foreign markets and that is why the former may exhibit higher productivity levels.

The arguments above support the idea that the choice of entering foreign markets early or late is related to different productivity levels. More specifically, we predict that early exporting new firms have higher levels of productivity than those which late exporting ones.

---

3. This fact can be evidenced in the well-known learning curve concept, according to which production costs decline over time due to the repetition of the same set of operations or actions.

H2: New ventures that start selling to foreign markets from inception show a higher productivity than those that delay their foreign market entry until the second year after inception or later.

4. METHODOLOGY

4.1. Database

We use data from a sample of innovative new firms that were started up between 2000 and 2005 on the premises of the network of business innovation centres that is supported by the regional and provincial governments within the Basque Autonomous Community[4]. We were able to find contact information of 341 out of 378 innovative firms that were started up during the period 2000-2005 according to the information provided by these centres. In addition, we also identified 55 innovative new firms set up during the same period that were funded by venture capital funds at regional level[5]. Overall, we contacted 396 new ventures and asked one of the founders/entrepreneurs of each firm to fill in a structured questionnaire with information about general characteristics of the main entrepreneur and the firm, as well as specific aspects related to the innovation and internationalisation activities carried out by the firm at the end of 2006. All questionnaires were sent by mail between February and April 2008. The monitoring of the field work was conducted by an external market research firm, and closely supervised by the author. By the end of May 2008, we received a total of 129 answered questionnaires. The overall answer rate was 32.6%.

Data collected via mail were complemented with longitudinal data on sales, capital and employees from the commercial database "Iberian Balance Sheet Analysis System" (SABI). As not all surveyed firms were indexed in the SABI database, only 83 usable cases remained after the matching process. This final selected sample and the group of cases excluded from the original sample of respondents showed no systematic differences in technological level or employment size. Indeed, all these firms were characterised by having an innovative or technological orientation, and the fact that they were located in the same a region implies they shared cultural and economic similarities that make them a homogeneous sample with limited variance due to unobserved variables.

A quick look at the composition of the final sample shows that 30 out of the 83 selected firms were involved in exporting at the time of the survey with

---

4. This network is made up of the following centers: BEAZ, BIC BERRILAN, CEDEMI, CEIA and SAIOLAN.

5. These firms were participated by one of the following venture capital entities: Gestión de Capital Riesgo del País Vasco, SGECR (www.gestioncapitalriesgo.com), Seed Capital Bizkaia (www.seedcapitalbizkaia.com), Sortek (www.inasmet.es/home.aspx?tabid=32) and Hazibide (www.hazibide.es).

at least 1% of their sales coming from the export market. Only 12 of them were involved in exporting with 25% or more of their total sales coming from abroad. Of these, 4 firms had made their first international sale from inception, while the remaining 8 had done so in the second year or later.

4.2. Empirical model

Because the sample is relatively small, we use a parsimonious model including some key control variables and the predictors of interest. The basic regression model is as follows:

$$Y/L = \alpha_0 + \alpha_1 K/L + \alpha_2 Z + \beta_1 Exporter + \varepsilon \quad (1)$$

where labour productivity, as measured by the amount of value-added output per employee *(Y/L)*, depends on the amount of capital input per employee *(K/L)* plus a vector of control variables *(Z)*, our predictor of interest indicating the firm is involved in exporting *(Exporter)* and an idiosyncratic disturbance term *(ε)*.

Given that we combine cross-sectional data with longitudinal data over the period 2000-2007, we estimate a between-effect model using group means of the longitudinal variables, namely the value-added per employee and the capital per employee:

$$Y/L_{i\cdot} = \alpha_0 + \alpha_1 K/L_{i\cdot} + \alpha_2 Z_i + \beta_1 Exporter_i + \varepsilon_i \quad (2)$$

Here the coefficient β_1 represents the mean difference in labour productivity between exporting and non-exporting new ventures after controlling for the level of capital input per employee and some key control variables. If exporting new ventures have on average higher levels of productivity than non-exporting new ventures as suggested by hypothesis H1, β_1 then is expected to be significantly positive.

In our model we also distinguish between early and late exporters as follows:

$$Y/L_{i\cdot} = \alpha_0 + \alpha_1 K/L_{i\cdot} + \alpha_2 Z_i + \beta'_1 Early\_exporter_i + \beta'_2 Late\_exporter_i + \varepsilon_i \quad (3)$$

In this case the coefficient β'_1 is the mean difference in labour productivity between early exporting and non-exporting new ventures, while β'_2 is the mean difference in labour productivity between later exporting and non-exporting new ventures. If early exporting new ventures have on average higher levels of productivity than late exporting new ventures, then β'_1 should be significantly higher than β'_2.

4.3. Description of variables

Labour productivity (Y/L), the dependent variable, is measured as the amount of value-added divided by the number of employees. This variable is expressed in thousands of Euros adjusted for the regional change in prices of domestically produced goods and services (GDP deflator, 2005=100) at the subsection level of the NACE Rev. 1.1 industry classification[6]. Value-added is computed by subtracting the cost of raw materials, purchased services and other consumptions (i.e. intermediate inputs) from the gross output as measured by total sales receipts plus other operating revenues. Data on firms' value-added were obtained from SABI database, whereas the GDP deflator was calculated from the statistics on economic accounts which are published every year by the Basque Statistics Office (EUSTAT).

Capital input per employee (K/L) is measured as the net book value of total tangible fixed assets divided by the number of employees. Tangible fixed assets include the value in thousands of Euros of all durable goods that are acquired or produced with the aim of using them in the production process or business activity for a period longer than one year, less accumulated depreciation and amortisation. Our data on book value of total fixed assets come from SABI database and they were deflated by the change in prices of gross fixed capital formation (2005=100) at regional level, which was estimated using information published by EUSTAT.

A set of control variables was included to avoid overlooking the impact of other factors suggested by prior research. First, a categorical variable indicates the highest level of education achieved by the main entrepreneur behind the firm. This variable has four categories: non-university education *(Education_0)*, bachelor's degree *(Education_1)*, master's degree *(Education_2)* and doctorate's degree *(Education_3)*. We compare each specific level of tertiary education against non-university education, thus *Education_0* is the reference category. Second, a dummy variable indicates whether the main entrepreneur behind the firm has labour or professional experience in the same industry of his/her current business *(Prior_experience)*. Third, a dummy variable indicates whether the firm is in the manufacturing industry *(Manufacturing)*. Fourth, a variable controls for the initial firm's size in number of employees *(Initial_size)*. Fifth, a dummy variable controls for the ownership structure indicating whether the firm is participated by foreign investors (*Foreign_investors*). Data for these control variables were obtained from the survey described above.

6. The NACE Rev 1.1 subsection level is composed of 31 industry aggregations identified by two-character alphabetical codes.

Table 1. Descriptive statistics and correlation matrix of main variables[a]

Variables	Mean	s.d.	Min.	Max.	Obs.	N	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) Y/L_{it}	41.69	28.30	1	207	329	83	1.00											
(2) K/L_{it}	26.23	31.58	0	271	329	83	0.21***	1.00										
(3) *Education_1*$_i$	0.31	0.46	0	1	83	83	0.05	0.10†	1.00									
(4) *Education_2*$_i$	0.23	0.42	0	1	83	83	0.13*	-0.08	-0.37***	1.00								
(5) *Education_3*$_i$	0.13	0.33	0	1	83	83	0.00	0.07	-0.25***	-0.21***	1.00							
(6) *Prior_experience*$_i$	0.73	0.44	0	1	83	83	0.05	0.17**	0.00	-0.01	-0.12*	1.00						
(7) *Manufacturing*$_i$	0.31	0.46	0	1	83	83	0.14*	0.27***	0.15**	-0.17**	0.04	0.15**	1.00					
(8) *Initial_size*$_i$	5.39	6.05	0	31	83	83	0.02	0.13*	0.05	-0.19***	-0.09†	0.14**	0.24***	1.00				
(9) *Foreign_investors*$_i$	0.07	0.25	0	1	83	83	0.11†	0.12*	0.14*	0.14*	-0.10†	0.16**	0.11*	0.00	1.00			
(10) *Exporter*$_i$	0.16	0.37	0	1	83	83	0.33***	0.26***	0.00	0.07	0.2***	-0.03	-0.06	0.12*	0.15**	1.00		
(11) *Early_exporter*$_i$	0.06	0.24	0	1	83	83	0.23***	0.04	-0.01	-0.03	0.16**	-0.07	0.01	-0.09†	-0.07	0.60***	1.00	
(12) *Late_exporter*$_i$	0.10	0.30	0	1	83	83	0.23***	0.28***	0.00	0.11*	0.12*	0.01	-0.09	0.22***	0.24***	0.75***	-0.09	1.00

[a] All monetary values in thousands of Euros.
Level of statistical significance for the two-tailed test: *** $p \leq .001$, ** $p \leq .01$, * $p \leq .05$, † $p \leq .10$.

Finally, the predictor variable *(Exporter)* is a dummy that indicates whether or not the firm is substantially involved in exporting activity. More specifically, it takes the value one (1) if at least 25% of total sales are derived from the export market, and zero (0) otherwise. This criterion of 25% can be seen as a threshold from which exports becomes a strategic activity for the firm (Andersson et al., 2004; González-Pernía et al., 2010). Apart from the percentage of exports, the survey described above also provides data on the year of first international sale. Based on it, we distinguish between early exporting new ventures *(Early_exporter)*, which have at least 25% of sales coming from abroad provided that their first international sale was made within the first year from their inception, and late exporting new ventures *(Late_exporter)*, which have at least 25% of sales coming from abroad provided that their first international sale was made as from the second year after their founding. Both variables are included in the same model and take the value one (1) if the firm fits the corresponding criterion, and zero (0) otherwise. Thus, non-exporting firms are the reference category here.

Table 1 show some descriptive statistics of the variables described above for the whole sample.

5. RESULTS

According to the empirical model previously outlined, the differences in labour productivity among exporting and non-exporting new venture are formally tested through the models specified in equations (2) and (3). Results from these regressing models are shown in Table 2.

In Table 2, Model 1 is a basic model in which the labour productivity is explained by the amount of capital per employee. The estimated coefficient α_1 is statistically significant at the 0.05 level, and it suggests that one thousand Euros increase in the amount of capital per employee is related to an increase of 0.2 thousand Euros in the level of labour productivity. Model 2 adds some control variables related to the entrepreneur's human capital. The entrepreneur's education and prior experience in the same industry appear to be related to higher levels of labour productivity, but only the estimated coefficient α_3 is statistically significant at the 0.10 level, meaning that those new firms started up by entrepreneurs with master's degree have higher productivity levels than those new firms started up by entrepreneurs without university education. Control variables related to the firm are added in Model 3. Here, it seems that manufacturing firms and firms with a higher initial size in terms of employment are related to high productivity levels, whereas those firms participated by foreign investors are less productive. However, none of these coefficients are statistically significant. Thus, the capital per employee and the fact that the entrepreneur has a master's degree are the only significant explanatory variables of labour productivity before taking into account whether the new firm is exporter. This is not unexpected since, as we have mentioned in the methodology section, the sample is quite homogeneous.

Model 4 includes our first predictor which improves the R-squared from 0.0852 to 0.167. As we can see there is an average productivity difference between exporting and non-exporting new firms during the whole period of study. For instance, the estimated coefficient β_1 indicates that, once the level of capital input per employee and other control variables are accounted for, exporting new firms show a premium in labour productivity of 23.9 thousand Euros compared to non-exporting new firms. And this effect is statistically significant at the 0.001 level. Consequently, we can assert that new ventures selling to foreign markets exhibit a higher productivity level than those selling only to domestic markets, and this result allows us to accept our hypothesis H1.

In Model 5 we distinguish between early exporters, which export from inception, and late exporters, which export from the second year onward. After controlling for the level of capital input per employee and other control variables, the estimated coefficient β'_1 shows that early exporting new firms have on average a labour productivity level which is 31.6 thousand Euros higher than that of non-exporting new firms, while the estimated coefficient β'_2 reveals that late exporting new firms show an additional labour productivity of 18.4 thousand Euros compared to non-exporting new firms. These coefficients are significant at the 1% and 5%, respectively, supporting that exporting new firms in general have a productivity premium that might be related to the time of their first international sale. To see whether the average labour productivity of early new firms is significantly higher than that of late exporting new firms, we run a Wald test of simple and composite linear hypotheses after the estimation between coefficients β'_1 and β'_2. The test was significant at the 10% level (*Prob* > *F* = 0.098), which suggests that the difference in average labour productivity between early and late exporting new firms is seemingly large enough as to say that the former are more productive than the latter. Accordingly, we can accept our hypothesis H2.

Surprisingly, the effect of the amount of capital per employee and the entrepreneur's education become non-significant when we added our predictor variables to the model. However, it can be the case that exporting new firms are characterised by the use of higher amounts of capital inputs and by being started up by entrepreneurs with higher levels of human capital. In any case, exporting seems to be a better explanatory variable that captures the differences in labour productivity among new firms.

Table 2. Between-effects model predicting labour productivity

Variables		(1)	(2)	(3)	(4)	(5)
K/L_i (α_1)		0.205*	0.199*	0.180*	0.056	0.079
Education_1$_i$ (α_2)			6.185	6.748	7.059	7.023
Education_2$_i$ (α_3)			10.593†	11.73†	9.709	10.089†
Education_3$_i$ (α_4)			4.109	4.222	0.751	1.061
Prior_experience$_i$ (α_5)			2.747	2.017	3.887	4.001
Manufacturing$_i$ (α_6)				4.364	8.181	7.222
Initial_size$_i$ (α_7)				0.198	–0.006	0.068
Foreign_investors$_i$ (α_8)				–1.803	–5.158	–3.900
Exporter (β_1)					23.878***	
Early_exporter (β'_1)						31.635**
Late_exporter (β'_2)						18.376*
Constant (α_0)		33.785***	26.855***	25.56***	25.084***	24.244***
Observations Cases (N)		329 83	329 83	329 83	329 83	329 83
$R^{2:}$	within	0.0154	0.0154	0.0154	0.0154	0.0154
	between	0.0734	0.1135	0.1238	0.2546	0.2665
	Overall	0.0462	0.0788	0.0852	0.167	0.1677

Level of statistical significance: *** $p \leq .001$, ** $p \leq .01$, * $p \leq .05$, † $p \leq .10$

6. CONCLUSIONS AND IMPLICATIONS

During the last two decades there has been an increasing interest on the analysis of the productivity of established firms (Bartelsman and Doms, 2000), and the early internationalisation of new firms (Oviatt and McDougall, 2005; Zahra, 2005). The present work has been aimed at contributing to these two literature streams by addressing the question of whether exporting –and in particular exporting from inception– is related to higher levels of productivity among new firms. To this end, we have analyzed the differences in productivity between exporting and non-exporting new firms in the Basque Country, and thus expand an issue that has been traditionally addressed in established firms (Bernard and Jensen, 1995; Bernard and Jensen, 1999; Bernard and Wagner, 1997; Greenaway and Kneller, 2004; Wagner, 2007). By doing so, we have shed light on how internationalisation activities affects new firm's performance, a subject which has not been sufficiently analyzed yet according to Zahra & George (2002).

Exporting is related to high levels of productivity because it not only provides access to new knowledge (Salomon and Shaver, 2005), but also allows developing economies of scale (Castellani, 2002) and competitive advantages derived from the exposure to an expanded market in which very different conditions prevail (Sanders and Carpenter, 1998). In accordance with these ideas, our analysis has revealed that innovative new firms involved in exporting in the Basque Country are more productive than their non-exporting counterparts, and this finding is consistent with prior studies focusing on established firms which argue that exporters have a productivity premium (Alvarez and López, 2005; Arnold and Hussinger, 2005; Aw and Hwang, 1995; Baldwin and Gu, 2003; Bernard and Jensen, 1995; Bernard and Wagner, 1997; Blalock and Gertler, 2004; Breau and Rigby, 2008; Castellani, 2002; Clerides, Lach and Tybout, 1998; Delgado, Fariñas and Ruano, 2002; Girma et al., 2004; Greenaway and Kneller, 2004; Kraay, 1999; Wagner, 2002).

We have also analysed whether the productivity level of exporting new firms depends on the age at foreign market entry, since very young firms lack organisational rigidities and most of them tend to use faster learning modes (Hannan and Freeman, 1984; Zahra, Sapienza and Davidsson, 2006) which may enable them to benefit more from the exposure to foreign markets. Consistent with this, the empirical evidence found in our analysis confirms that new firms that export from inception exhibit higher levels of labour productivity than late exporting new firms.

However, several limitations should be acknowledged when interpreting these results. First, the sample analysed in this study is small and for that reason the evidence found can be limited since the number of observations is not sufficient to achieve very generalizable results. Second, our dichotomous measure of exporting distinguishes exporters from non-exporters, as well as early exporters from later exporters. While this type of measure is much easier to interpret, a better measure should provide the opportunity to see whether differences in productivity levels are related to different levels of export intensity. Third, due to the size of the sample the number of control variables included in the present study is also limited. Additional control variables should be taken into account in order to avoid the influence of unobservable factors. For instance, the breadth and quality of the entrepreneur's prior experience, the existence of a positive climate or reward systems that encourage employees to achieve results, and the managerial style of the entrepreneur, among other factors. Four, we have only analysed the firm's average labour productivity, yet an analysis from a dynamic, longitudinal perspective –and using a longer time-span– would be preferable to improve our understanding on the relationship between the early exporting behaviour of new firms and the productivity gained from export markets.

6.1. Policy implications

Exporting is related to higher levels of productivity not only in established firms, but also in new firms. Nonetheless, due to their short history, not all

young firms might be able to develop high levels of productivity before entering foreign markets and this may difficult their foreign market entry. For that reason, policy-makers in the Basque Country should consider the existence of potential learning-by-exporting effects (Alvarez and López, 2005; Blalock and Gertler, 2004; Kraay, 1999) in order to design public policies and programs that not only foster an early exporting behaviour, but also reduce the cost of internationalisation for new firms. Adaptation to new changes at an early age creates an open behaviour (Hannan, 1998) and, as the evidence shown in the present study suggests, exporting from inception is related to higher levels of productive. Thus, early exporting new ventures may develop a behaviour which makes them more adaptable to new conditions in the future (Brush, 1992), and therefore they are likely to create value-added in a sustainable manner over time.

6.2. Future research

Apart from overcoming the limitations of the present study, future research should analyse differences in the productivity growth rates achieved by exporting new firms after entering foreign markets. Here we have only analysed differences in productivity levels. Likewise, analyzing the impact of different foreign entry modes on productivity is an interesting research task that has not been addressed yet. Exporting is the predominant foreign entry choice used by new ventures (Knight and Cavusgil, 2004), even in high technology industries (Bell, 1995; Shrader, 2001). Accordingly, we focus on what new ventures actually do in the international arena. However, some new firms may choose more complex modes of entry into foreign markets such as strategic alliances with local distributors, joint ventures or wholly owned subsidiaries. The choice of more complex entry modes is a strategic decision with significant consequences for productivity. For instance, foreign direct investments in form of wholly owned subsidiaries or joint ventures involve the use of substantial capital inputs, and consequently low productivity levels during the first years after entering foreign markets. But what are the consequences in the long term? How does productivity grow as a consequence of the entry mode?

7. REFERENCES

ALDRICH, H. E.; AUSTER, E. R. “Even dwarfs started small: Liabilities of age and size and their strategic implications”. In: Research in Organizational Behavior, 1986, vol. 8; p. 165-198.

ALLISON, C. W.; CHELL, E.; HAYES, J. “Intuition and Entrepreneurial Behaviour”. In: *European Journal of Work and Organizational Psychology*, 9(1), 2000; p. 31-43.

ÁLVAREZ, R.; LÓPEZ, R. A. “Exporting and performance: evidence from Chilean plants”. In: *Canadian Journal of Economics*, 2005, vol. 38, no. 4; p. 1384-1400.

ANDERSSON, S.; GABRIELSSON, J.; WICTOR, I. “International Activities in Small Firms: Examining Factors Influencing the Internationalization and Export Growth of Small Firms”. In: *Canadian Journal of Administrative Sciences*, 2004, vol. 21, no. 1; p. 22-34.

ARNOLD, J. M.; HUSSINGER, K. Export Behavior and Firm Productivity in German Manufacturing: A Firm-Level Analysis. Review of World Economics, 141(2), 2005; p. 219-243.

AUTIO, E.; SAPIENZA, H. J.; ALMEIDA, J. G. "Effects of Age at Entry, Knowledge Intensity, and Imitability on International Growth". In: *The Academy of Management Journal*, 2000, vol. 43, no. 5; p. 909-924.

AW, B. Y.; HWANG, A. "Productivity and the Export Market: A Firm Level Analysis". In: *Journal of Development Economics*, 1995, vol. 47, no. 2; p. 313-332.

BALDWIN, J. R.; GU, W. "Export-market participation and productivity performance in Canadian manufacturing". In: *Canadian Journal of Economics*, 2003, vol. 36, no. 3; p. 634-657.

BARTELSMAN, E. J.; DOMS, M. "Understanding Productivity: Lessons from Longitudinal Microdata". In: *Journal of Economic Literature*, 2000, vol. 38, no. 3; p. 569-594.

BELL, J. "The Internationalization of Small Computer Software Firms - A Further Challenge to Stage Theories". In: *European Journal of Marketing*, 1995, vol. 29, no. 8; p. 60-75.

BERNARD, A. B.; JENSEN, J. B. Exporters, Jobs, and Wages in U.S. Manufacturing: 1976-1987. Brooking Papers on Economic Activity: Microeconomics, 1995, 1995; p. 67-112.

——; ——. Exceptional Exporter Performance: Cause, Effect, or Both? Journal of International Economics, 47(1), 1999; p. 1-25.

——; ——. Exporting and Productivity in the USA. Oxford Review of Economic Policy, 2004, vol. 20, no. 3; p. 343-357.

BERNARD, A. B.; WAGNER, J. Exports and Success in German Manufacturing Weltwirtschaftliches Archiv (Review of World Economics), 133(1), 1997; p. 134-157.

BLALOCK, G.; GERTLER, P. J. "Learning from Exporting Revisited in a Less Developed Setting". In: *Journal of Development Economics*, 2004, vol. 75, no. 2; p. 397-416.

BREAU, S.; RIGBY, D. "Participation in Export Markets and Productivity of Plants in Los Angeles, 1987-1997". In: *Economic Geography*, 2008, vol. 84, no. 1; p. 27-50.

BRUSH, C. G. *Factors motivating small firms to internationalize: The effect of firm age*. Boston: Boston University, 1992.

CASTELLANI, D. "Export Behavior and Productivity Growth: Evidence from Italian Manufacturing Firms". In: *Review of World Economics*, 2002, vol. 138, no. 2; p. 605-628.

CLERIDES, S. K.; LACH, S.; TYBOUT, J. R. "Is Learning by Exporting Important? Micro-Dynamic Evidence from Colombia, Mexico and Morocco". In: *Quarterly Journal of Economics*, 113(3), 1998; p. 903-948.

DELGADO, M. J.; FARIÑAS, C.; RUANO, S. "Firms' Productivity and the Export Markets". In: *Journal of International Economics*, 57, 2002; p. 397-422.

EVENSON, R. E.; WESTPHAL, L. E. "Technological Change and Technology Strategy". In: *Handbook of Development Economics, Volume 3A.* Amsterdam: North-Holland, 1995; p. 2209-2299.

GIRMA, S.; GREENAWAY, D.; KNELLER, R. Does Exporting Increase Productivity? A Microeconometric Analysis of Matched Firms. Review of International Economics, 2004, vol. 12, no. 5; p. 855-866.

GONZÁLEZ-PERNÍA, J. L.; NAVARRO-ARANZEGI, M.; PEÑA-LEGAZKUE, I. "Internacionalización de empresas jóvenes innovadoras en España". In: *Revista Europea de Dirección y Economía de la Empresa*, 2010, vol. 19, no. 2; p. 61-82.

GREENAWAY, D.; KNELLER, R. "Exporting and Productivity in the United Kingdom". In: *Oxford Review of Economic Policy*, 2004, vol. 20, no. 3; p. 358-371.

GROSSMAN, G. M.; HELPMAN, E. "Trade, Knowledge Spillovers, and Growth". In: *European Economic Review*, 35(2-3), 1991; p. 517-526.

HANNAN, M. T. "Rethinking Age Dependence in Organizational Mortality: Logical Formalizations". In: *American Journal of Sociology*, 1998, vol. 104, no. 1; p. 126-164.

——; FREEMAN, J. "Structural Inertia and Organizational Change". In: *American Sociology Review*, 1984, vol. 49, no. 2; p. 149-164.

KNIGHT, G. A.; CAVUSGIL, S. T. "The Born Global Firm: A Challenge to Traditional Internationalization Theory". In: T. K. MADSEN. *Advances in International Marketing.* New York, NY: JAI Press Inc., 1996; p. 11-26.

——; ——. "Innovation, Organizational Capabilities, and the Born-global Firm". In: *Journal of International Business Studies*, 2004, vol. 35, no. 2; p. 124-141.

KRAAY, A. *Exports and Economic Performance: Evidence from a Panel of Chinese Enterprises*. Washington: The World Bank, 1999.

MCDOUGALL, P. P.; OVIATT, B. M. "International Entrepreneurship: The Intersection of two Research Paths". In: *Academy of Management Journal*, 2000, vol. 43, no. 5; p. 902-906.

MCKINSEY-GLOBAL-INSTITUTE. Manufacturing Productivity. In. Washington, DC: McKinsey & Company Inc., 1993.

NELSON, R. R.; WINTER, S. G. *An Evolutionary Theory of Economic Change*. Edtion ed. Cambridge, MA: Belknap Press, 1982.

OVIATT, B. M.; MCDOUGALL, P. P. "Toward a Theory of International New Ventures". In: *Journal of International Business Studies*, 1994, vol. 25, no. 2; p. 45-64.

——; ——. "Challenges for Internationalization Process Theory: The Case of International New Ventures". In: *Management International Review*, 1997, vol. 37, no. 2; p. 85-99.

——; ——. "A Framework for Understanding Accelerated International Entrepreneurship". In: A. M. RUGMAN; R. W. WRIGHT. *International Entrepreneurship Globalization of Emerging Businesses.* Stamford, CT: JAI Press, 1999; p. 23-40.

——; ——. "The internationalization of entrepreneurship". In: *Journal of International Business Studies*, 2005, vol. 36, no. 1; p. 2-8.

RHEE, Y.; ROSS-LARSON, B.; PURSELL, G. *Korea's Competitive Edge: Managing the Entry into World Markets*. Edtion ed. Baltimore, MD: Johns Hopkins University, 1984.

SALOMON, R. M.; SHAVER, J. M. "Learning by Exporting: New Insights from Examining Firm Innovation". In: *Journal of Economics & Management Strategy*, 14(2), 2005; p. 431-460.

SANDERS, W. G.; CARPENTER, M. A. "Internationalization and Firm Governance: The Roles of CEO Compensation, Top Team Composition, and Board Structure". In: *Academy of Management Journal*, 41(2), 1998; p. 158-178.

SHANE, S.; VENKATARAMAN, S. "The Promise of Enterpreneurship as a Field of Research". In: *Academy of Management Journal*, 2000, vol. 25, no. 1; p. 217-226.

SHRADER, R. C. "Collaboration and Performance in Foreign Markets: The Case of Young High-Technology Manufacturing Firms". In: *Academy of Management Journal*, 2001, vol. 44, no. 1; p. 45-60.

SHRADER, R. C.; OVIATT, B. M.; MCDOUGALL, P. P. "How New Ventures Exploit Trade-Offs Among International Risk Factors: Lessons for the Accelerated Internationalization of the 21st Century". In: *Academy of Management Journal*, 43(6), 2000; p. 1227-1247.

STINCHCOMBE, A. L. "Social Structure and Organizations". In: *Handbook of Organizations.* Chicago, IL: Rand McNally, 1965; p. 142-193.

TURNBULL, P. W. A "Challenge to the Stages Theory of the Internationalization Process". In: P. J. ROSSON; S. D. REED. *Managing Export Entry and Expansion.* New York, NY: Praeger, 1987; p. 21-40.

WAGNER, J. The Causal Effects of Exports on Firm Size and Labour Productivity: First Evidence from a Matching Approach. Economics Letters, 2002, vol. 77, no. 2; p. 287-292.

——. "Exports and Productivity: A Survey of the Evidence from Firm Level Data". In: *The World Economy*, 30(1), 2007; p. 60-82.

ZAHRA, S. A. "A theory of international new ventures: a decade of research". In: *Journal of International Business Studies*, 2005, vol. 36, no. 1; p. 20-28.

——; GEORGE, G. "International Entrepreneurship: The Current Status of the Field and Future Research Agenda". In: M. A. HITT, R. D. IRELAND, S. M. CAMP AND D. L. SEXTON. *Strategic Entrepreneurship: Creating a New Mindset.* Oxford: Blackwell Publishing, 2002; p. 255-288.

——; SAPIENZA, H. J.; DAVIDSSON, P. "Entrepreneurship and Dynamic Capabilities: A Review, Model and Research Agenda". In: *Journal of Management Studies*, 43(4), 2006; p. 917-955.

ZOLLO, M.; WINTER, S. G. Deliberate Learning and the Evolution of Dynamic Capabilities. Organization Science, 13(3), 2002; p. 339-351