Private manufacturing SMEs survival and growth in Vietnam: The role of export participation

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Private manufacturing SMEs survival and growth in Vietnam: The role of export participation

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Abstract

This study investigates for the first time a linkage between export participation and firm performance in terms of survival and profit growth in Vietnam. Using an unbalanced panel dataset from 2005 to 2009, our study shows no difference in the survival probability between exporters and non-exporters. By digging deeper to export status at different stages, the results indicate that continuous exporters have a positive association with probability of survival whereas export stoppers indicate a negative relationship. In terms of the relationship between firm growth and export activity, using Average Treatment Effects (OLS), export status is not related to firm profit growth. However, the Quantile Treatment Effects estimates reveal that export participation is positively and statistically significant associated with firms having profit growth above the median. The above findings might imply that exporting promoting policies, coupled with policies maintaining positions of firms in export market could be helpful since this may help firms improve their survival probability and profit growth.

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1. Introduction

Since introducing the 'Đổi mới'[2] policy in 1986, Vietnam has shifted away from a centrally planned economy to a market-oriented one. This reform has involved the introduction of a series of policies and legal frameworks. For example, the Private Enterprise law issued in 1990, the Enterprise law in 2000, and especially shaping of the Unified Enterprise law in 2005 (Thanh & Anh, 2006). These changes have created the background and paved the way for the development and growth of private enterprises. However, the private domestic owned firms still face many constraints to their growth and survival. For example, the inequality in the business environment between private and state firms may be the first challenge (Hakkala & Kokko, 2007). Another disadvantage is a lack of accessibility to land (Carlier & Tran, 2004). This situation arises because the private firms are younger in comparison with stated owned enterprises (SOEs), and land in a prime location already occupied by SOEs. Furthermore, as indicated by Benzing, Chu, and Callanan (2005), private enterprises face limited access to capital for their growth due to complicated procedures and preferences for state companies.

More importantly, with the deeper integration of Vietnam into the world economy, the accessibility of private domestic owned firms to the output market may become the main obstacle for their growth and survival. As revealed by Hakkala and Kokko (2007), Vietnam is a developing country with low purchasing power of domestic consumers. Hence, this becomes a push factor for domestic SMEs to seek chances in exporting markets. There are at least two reasons why export participation may improve the survival probability and growth of firms. First, as explained by Wagner (2011a), sales in both foreign and home markets may help firms diversify and reduce risks when a negative demand shock from the domestic market occurs. Second, exporters often have a sufficiently high productive level to create enough profits to pay sunk costs and overcome entry barriers into foreign markets (Bridges & Guariglia, 2008). Therefore, exporters may gain a higher survival and growth probability than non-exporters. However, most private domestic SMEs in Vietnam are small size and face credit constraints (Rand, 2007). Therefore, they may not have the financial capability of participating or maintaining their positions in the export market. In addition, most do not have appropriate strategies to take advantage of the deeper integration of Vietnam to the global economy (Kokko & Sjöholm, 2005). Furthermore, recent global economic crises have

[2] Renovation process

negative impacts on the survival and growth of firms, especially for exporters. As a consequence, participating in exporting markets may create additional risks for the development of Vietnamese private SMEs.

This argument raises a question as to whether the presence of SMEs in exporting market makes them more vulnerable or helps them develop better than their non-exporting counterparts. While the previous chapter has already examined the linkage between export participation and employment benefits, investigating the role of export participation on the survival and growth of firms will provide insights into the relationship between export activities and firm performance. To the best of our knowledge, although some empirical studies have looked at determinants of survival and growth of firm, these studies have focused mainly on developed countries, and none has been considered the linkage between changing export status, firm closure and profit growth in Vietnam, especially for SMEs. Thus, this paper is the first to consider such linkage. These empirical results from this study may have policy implications. Vietnam government encourages firms to participate in exporting market as part of export led growth policies, and therefore, the empirical results might form the basis for evaluating the efficiency of these export-promotion strategies.

The remainder of the paper is in four parts. Section 2 presents a review of empirical literature relating to the impact of export status on firm growth and survival. Section 3 displays data sources and methodology. Section 4 discusses of empirical results and the sensitivity analysis to check robustness of results. The final section reveals main findings and provides some policy implications.

2. Literature review

2.1 Export status and firm survival

While there are a large number of studies of the relationship between export statuses and productivity, the evidence of the effect of export participation on firm survival is only just starting to emerge. Firstly, some previous empirical studies show that export participation leads to a lower probability of failure of firms. For example, Bernard and Wagner (1997) examine the survival nature of both exporters and non-exporters in the United States. Based on the probit estimation, their empirical results show that exporters have a higher survival probability than their non-exporting counterparts. Similarly, other studies (e.g., Baldwin & Yan, 2011; Bernard & Jensen, 1999) also used probit estimation and looking at Canadian and United States manufacturing firms. These empirical results indicate that after controlling for firm and industry characteristics, non-exporters are more likely to exit the market than exporters. However, these studies often use traditional estimations with probit or logit model, they may not take into account well survival time of firms and censoring data (Jenkins, 2005). Contribution to the literature, a different approach using survival model, for instance, Kimura and Kiyota (2006) answered the direct question between export participation and firm survival. Their results also show that export participation increase the survival probability of Japanese firms. However**,** a negative relationship between export status and survival of firms was observed by Giovannetti, Ricchiuti, and Velucchi (2011). They attributed this to the strong competition of exporting market.

In contrast, some studies found an insignificant relationship between export status and firm survival. For example, both studies of Alvarez and Görg (2009) and López (2006) concluded that export participation do not affect significantly on survival probability of Chilean manufacturing firms. In addition, an insignificant linkage between export participation and firm survival is also confirmed by Wagner (2011a) for firms in manufacturing industries in Germany in the period 2001-07.

It should be noted that all the above research has mainly focused on the relationship between the firm survival and export participation defined as a dummy variable with value 1 if firms export and 0 otherwise. Beyond this, recent studies consider the relationship between firm survival with exporting statuses at different stages (exporting stoppers, exporting starters and continuous exporters). For example, Spaliara and Görg (2009) used a complementary log-log hazard model to test the survival impact of export activities for the case of the United

Kingdom and French firms. Their results reveal that continuous exporters enjoy a higher probability of survival while exporting stoppers suffer from a lower probability of survival than non-exporters. These results are robust through different specifications and estimations. A similar result is also observed in the empirical study of Harris and Li (2010) for English manufacturing firms who concluded that the majority of continuous exporters have a higher survival probability than non-exporters. In addition, using a dataset from 1990-2002 of Spain manufacturing firms, Esteve-Pérez, Mánez-Castillejo, and Sanchis-Llopis (2008) show that not only export participation but also export intensity impact positively on the survival probability of SMEs.

For the case of Vietnam, there have been some studies of firm survivals. The first one is by Vijverberg and Haughton (2004). Using household living standard surveys datasets in 1993 and 1997, these authors examines of determinants of the survival probability of nonfarm household enterprises. The second one focuses on considering the impact of the government support on firm survival (Hansen, Rand, & Tarp, 2009). However, these studies use logit or probit estimation, and it do not consider the survival data well (Jenkins, 2005). A recent study applies survival analysis techniques to examine the linkage between growth of sales and firm survival from 2000-05 (Ha, 2012). However, none study so far has examined the linkage between export activity and the firms' probability of closure.

2.2 Export status and firm profit growth

It is of interest whether exporters with higher productivity can gain higher profitability or it is compensated by extra costs facing and by wages paid. Among pioneering works, Amendolagine, Capolupo, and Petragallo (2010) carried out a study in identifying impacts of the export status on the profit rate of manufacturing firms. Using a panel dataset in the period from 1995-2003 of Italian manufacturing firms with least squares and matching methods, they found evidence that export participation had a positive impact on profit growth. In addition, Fryges and Wagner (2010) also showed that export activity has a positive impact on profitability growth of manufacturing German firms. However, firms generating 90 percent or more of their total sales in export markets do not benefit in terms of an increased rate of profit. They suggested that profitability improvement is the result of learning from exporting. This means that observed higher productivity of exporters is not completely absorbed by the

extra costs of exporting or higher wages by international firms from manufacturing industries (Fryges & Wagner, 2010).

On the contrary, export participation may generate adverse effects on firms' performance in terms of profits. Using a similar methodology (OLS) with a panel data in the period from 1986 to 1997 for Japanese manufacturing SMEs, Lu and Beamish (2006) examined profitability growth before and after entry into export markets. Researchers found that firms entering the export market were unlikely to increase their profitability, and export participation leads to a decrease in profitability. A similar result is also observed for German services companies in the period from 2003-05. However, the difference in profitability between exporters and non-exporters becomes statistically insignificant when controlling unobserved heterogeneity (Vogel, 2009). More recently, Wagner (2011b) and (Grazzi, 2011) also found an statistically insignificant effect of export participation on firm profitability growth for German and Italian enterprises.

2.3 Summary

The role of export participation in survival firm seems to be controversial and most investigations have been carried out in developed countries. As suggested by Wagner (2011c), all empirical evidence of the effect of export status on profit growth has focused on European countries. In addition, in terms of methodology, the studies reviewed often test for differences in profitability performance between exporters and non-exporters at the conditional mean of the outcome distribution (distribution of profitability). However, if firms are heterogeneous, the influence of export participation may be different across points on the outcome distribution (Wagner, 2006). Last but not least, previous studies often focus on firms in general, and a few consider the effect of export participation on the survival and growth of SMEs. The current study is expected to fill this gap by providing the first empirical evidence about the role of export participation on profit growth and firm exit in Vietnamese domestically manufacturing SMEs context.

3. The data and methodology

3.1 The data source

This study uses the source of information drawn from a newly micro dataset of non-state domestic small and medium enterprises 2005, 2007, and 2009. This data set was produced by the Institute of Labor Science and Social Affairs (ILSSA) in collaboration with Central Institute for Economic Management (CIEM) and Copenhagen University, Denmark.

The inherent advantages of the dataset are as follows. Firstly, this is a uniquely rich dataset surveyed from ten provinces within three regions of Vietnam: the North, Centre and South. It covers all the major manufacturing sectors namely food processing, wood products, fabricated metal products and other sectors. The original dataset with 2821 enterprises were interviewed in 2005, and 2635 firms in 2007, while a slightly larger number of 2655 were interviewed in 2009**.** Secondly, the dataset contains the main information on export status of the enterprise, the number of labourers, productive capital, location, economic indicators, and innovative activities. This enables a test of export status on firm survival and growth.

In order to clean the data, we excluded missing value, outliers and checked the consistency of time-invariant variables among the three survey rounds. In addition, since our interest focused on manufacturing industries and SMEs, firms do not meet these criteria that were excluded. In regards to calculating the firm survival rate, the information of identity of firm (ID) is the foundation allows us to observe the status of firm survival through the study period. Firms in 2007 and 2009 that were not surveyed previously in 2005 were excluded from the dataset. As a result, from 2687 observations in 2005, we follow these firms over time. Finally, there are 2144, and 1782 survived firms in 2007, 2009 respectively.

A potential problem with time variant data is that it is often expressed in current prices. Therefore, our data on current variables are deflated to 1994 prices using the GDP deflators to avoid biases that might arise because of inflation. More information about the dataset, measurements and statistical description of variables in the regression analysis is presented in the appendix 3 and 4.

3.2 Methodology

3.2.1 Model specification of the role of export status on firm survival and growth

To ensure the comparability of the estimated results in the previous stages (1991-2001), the empirical specification of determinants of survival and growth of firms is preserved as close as possible to the work of Hansen et al. (2009), and is specified as below:

$$Y_{it} = \varphi_0 + \varphi_1 X_{it} + \varphi_2 Z_{it} + \varphi_3 EX_{it} + u_{it} \quad (1)$$

where Y_{it} is the firm survival or profit growth ratio. As revealed by descriptive statistics in Table 1 and 2, while firm survival rate increases slightly from 79.8 % to 82%, the profit growth rate of firms decreases significantly from 6.7 % to -17.6% in the research period. Among independent variables, X_{it} is a vector of firm characteristics. Firstly, firm size and firm age are included in the model because they represent the differences in efficiency among firms (Jovanovic, 1982). Firms with higher efficiency are assumed to be positively associated with higher survival and growth. Furthermore, firm size and firm age are also captured in the squared forms to consider the nature of non-linear relationship between them with firm survival and growth**.** It can be seen in Table 1 and 2 that although firm size is rather stable around 16 employees, firm age witnessed an increasing trend through this period 2005-09. Beyond this, innovative activities of firms such as the application of new technology, improvement in products are also considered as an independent variable in the model. Based on the theoretical model and empirical findings (e.g., Cefis & Marsili, 2012; Ericson & Pakes, 1995), it is expected that innovators have a higher survival probability and growth than non-innovators. In the cleaned sample, although firms having innovative activities is rather high (approximately 50%), this index shows a declining trend in the research period.

Vector Z_{it} includes other characteristics as guided by previous studies. Kinds of ownership may be an important factor for growth and firm survival. To account for this, this study includes a dummy variable of household enterprises. It is often argued that household enterprises have a smaller size than their counterparts (Coung, Rand, Silva, Tam, & Tarp, 2010). Hence, it is hypothesized that household businesses have a lower survival and growth probability than their counterparts. The statistical summary in Table 1 and Table 2 shows that the majority of firms in sample are household enterprises (nearly 70%). Another attention is also considered for sector characteristics. As argued by Konings and Xavier (2002), different sectors have differences in production technology, customer demand and market

concentration, and hence characteristics of sectors may affect survival and growth of firms differently. This study accounts for these characteristics by adding the dummy of low technology sector in the model to compare with firms in high and medium technology industries. In addition, location of firms is also considered as one of independent covariates in the model to capture the fact that provinces in Vietnam are relatively autonomous (Malesky, 2010). To control the difference among provinces, this study uses a dummy variable taking the value 1 if provinces in urban regions (Hanoi, Haiphong and HoChiMinh) and 0 otherwise.

With regard to the variable of main concern, export participation (EX_{it}) is used as a dummy variable to capture the role of export activities on firm survival and growth. A positive association will be expected between export participation with firm survival and profit growth since exporters often are financially healthier than non-exporters (Greenaway, Guariglia, & Kneller, 2007). As displayed by Table 1 and 2, export participation of firms through the 2005-09 periods is small and tends to be stable around 5%. By investigating further the role of export activity, we also consider export participation at different stages in the linkage with firm growth and survival. According to Sharma and Mishra (2011), we define continuous exporters as firms that export through the sample, whereas starting exporters are enterprises that do not export in year t-1 but export in year t. Exporting stoppers are firms that export in year t-1 but do not export in year t, and non-exporters are firms that have not exported.

Based on recent studies, other independent covariates have also been added into the firm survival model, which are not controlled for the profit growth equation. First, leverage, as measured by the ratio between short term debt and total assets, is considered as an explanatory variable in the model. This index reflects one aspect of the financial health of firms, and is considered as an independent variable in the model based on findings that there is a linkage between firms' leverage ratio and probability of failure (e.g., Bridges & Guariglia, 2008; Tsoukas, 2011). As indicated by Table 1, this ratio is nearly constant from 2005-09. Second, another dimension of financial situation of firms is the index of Return on Assets (ROA), measured as the ratio between net profit and total assets. This index reflects the ability of firms to create profits. As observed in Table 1, the ratio increased slightly from 0.231 to 0.31 in the research period. This index is captured in the model since this profitability ratio may stand for the efficiency of firms, and therefore, an increase in this indicator is expected to go together with higher survival prospects of firms (Bunn & Redwood, 2003).

Last but not least, it is predicted that there is a positive linkage between productivity and firm survival based on the finding that firms with higher productivity gain a higher survival probability (Shiferaw, 2009). In this study, productivity is calculated based on the methodology by Levinsohn and Petrin (2005) with advantages in overcoming the endogeneity of input factors. As reported by descriptive statistics in Table 1 and table 2, productivity level is nearly constant in the study period.[3]

Table 1: Summary Statistics for Variables in the model of firm survival

Variables	**Total**		**2005**		**2007**	
	Mean	SD	Mean	SD	Mean	SD
Firm survival	0.807	0.393	0.798	0.401	0.819	0.384
Exporter	0.055	0.228	0.058	0.234	0.051	0.22
Both	0.026	0.159				
Start	0.010	0.099				
Stop	0.019	0.137				
Firm size	16.61	30.47	16.68	30.99	16.51	29.836
Firm age	12.59	9.97	11.55	9.27	13.88	10.65
Innovation	0.582	0.493	0.666	0.471	0.478	0.499
Household ownership	0.697	0.459	0.693	0.461	0.702	0.457
Urban Location	0.101	0.301	0.105	0.306	0.096	0.294
Low tech sectors	0.527	0.499	0.504	0.50	0.556	0.496
TFP	15.34	61.14	15.10	80.31	15.64	19.42
ROA	0.266	1.605	0.231	1.387	0.31	1.83
Leverage	0.062	0.181	0.062	0.179	0.063	0.183
Total observations	4841		2680		2161	

Table 2: Summary Statistics for Variables in the model of firm growth

Variables	**Total**		**2005**		**2007**		**2009**	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Profit growth	-0.027	0.502	0.067	0.645	0.023	0.397	-0.176	0.371
Exporter	0.055	0.228	0.058	0.23	0.0515	0.221	0.055	0.229
Both	0.014	0.119						
Start	0.013	0.11						
Stop	0.012	0.108						
Firm size	16.56	29.98	16.64	31.09	16.5	29.85	16.54	28.92
Firm age	13.25	10.50	11.63	9.25	13.54	10.62	14.66	11.37
Innovation	0.534	0.498	0.66	0.471	0.479	0.499	0.449	0.497
Household ownership	0.689	0.462	0.699	0.458	0.699	0.458	0.66	0.470
Urban Location	0.108	0.311	0.104	0.306	0.111	0.314	0.11	0.313
Low tech sectors	0.548	0.497	0.502	0.50	0.562	0.496	0.583	0.493
Total observations	7611		2645		2462		2504	

3.2.2 Method of estimation

a. Cloglog (complementary log and log)

[3] Discussion of Levisohn- Petrin methodology is presented in appendix 1

The main purpose of this study is to consider the role of export status on firm survival. Firm survival is measured as a dummy variable, and therefore, a binary framework of model logit or probit is used. However, these models may not solve survival time data very well in three aspects: censoring, time-varying covariates and structural modelling (Jenkins, 2005). As a result, following recent studies of firm failure (e.g., Esteve-Pérez et al., 2008; Spaliara & Görg, 2009), the estimation of our empirical models used the complementary log-log model. This model is a type of the proportional hazard model which is suitable for discrete data. However, the estimated results can be driven by unobservable heterogeneity (or frailty). As a result, a discrete-time duration model in complementary log-log form with a frailty term that distributed normally is estimated in the model**.** As shown by Cefis and Marsili (2012), the statistical value of Chi-square from the estimation results is used to test a pair of hypotheses. The null hypothesis is that the "Rho" statistics will be equal to zero**,** while the alternative hypothesis is that the ratio will not be zero.[4] When failing to reject the null hypothesis, Jenkins (2005) shows that the regression results will not be affected significantly by unobserved heterogeneity.

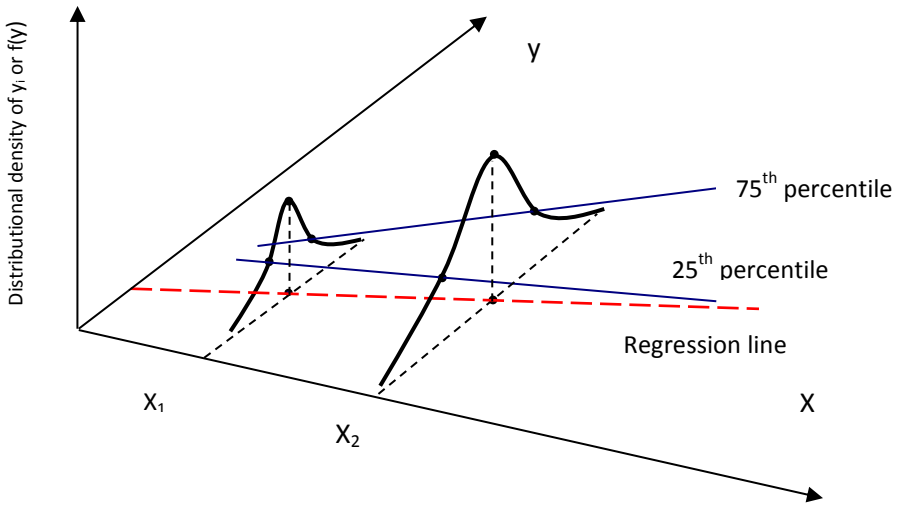
b. OLS estimation and Quantile Regression Method

OLS estimation is a conventional method to consider the role of export status on firm profit growth (e.g., Fryges & Wagner, 2010; Wagner, 2011b). However, the linkage between export participation and firm growth may be affected by unobserved factors. To deal with the problem, a common method is the use of fixed effect panel data estimations (Wooldridge, 2002). Fixed-effect (FE) regression with panel data can capture unobserved heterogeneity, where these unobservable factors are treated as time invariant components of the error (Cameron & Trivedi, 2009)

While the OLS approach estimates the conditional mean of the outcome distribution, the effect might be different across points on the outcome distribution of firms. As Buchinsky (1994, p. 453) claims that " 'On the average' has never been a satisfactory statement with which to conclude a study on heterogeneous populations." When the outcome distribution of error term (u_i) is heteroskedastic, the distance of symmetric percentiles (say, 25^{th} and 75^{th}) from median is different at any value of X. Therefore, 25^{th} and 75^{th} percentiles lines are not

[4] As indicated by Cefis and Marsili (2012), "Rho" statistic is defined as " the ratio between heterogeneity variance to one plus the heterogeneity variance"

paralleled to the regression line by the mean approach if the points corresponding to the 25th and 75th percentiles of the conditional outcome distributions are connected.



When the normality of residual distributions of each quantile is satisfied, the model specifies the q^{th} – quantile ($0< q<1$) of conditional distribution of the dependent variable, given a set of variables $X_{i,}$ as follows:

$$Q_q\,(yit \mid xit) = \alpha_q + xit.\beta_q \qquad (2)$$

where y_{it} is the profit growth of firm i through time and x_{it} is a vector of independent variables including export participation, and covariates for firm and sector characteristics as discussed in the model specification part. Cameron and Trivedi (2009, p. 207) show that estimation of equation (1) based on the q^{th} quantile regression is to minimize the absolute value of residual with the objective function as below:

$$Q(\beta_q) = \min_{\beta} \sum_{i=1}^{n} \left[\left| y_i - X_i \beta_q \right| \right] = \min \left[\sum_{i:\, y_i \geq x_i \beta} q \mid y_i - x_i \beta_q \mid + \sum_{i:\, y_i < x_i \beta} (1-q) \mid y_i - x_i \beta_q \mid \right] \qquad (3)$$

QR estimator provides a "much more complete picture" about the relationship between the outcome and independent variables (Koenker & Hallock, 2001). Hence, this study reconsiders the role of export activities across different percentiles of profit growth distribution in a quantile apporach. In order to estimate the above model, we use command "sqreg" written in STATA with bootstrap standard errors 1000 times.

4. Empirical results and discussion

This section is in two parts. First, empirical results of the linkage between export statuses and firm survival are presented in Part 4.1. It is followed by Part 4.2 that considers the association between export participation and firm profit growth with mean and quantile approaches.

4.1 The linkage between export status and firm survival

4.1.1 Estimates of complementary log-log model without unobserved heterogeneity

Table 1: Marginal effects on the linkage between export participation and firm survival [5]

VARIABLES	Cloglog without unobserved hetegeneity	Cloglog without unobserved hetegeneity	Cloglog without unobserved hetegeneity	Cloglog without unobserved hetegeneity
	(1)	(2)	(3)	(4)
Export	-0.0044	0.002		
	(0.028)	(0.027)		
Both			0.078*	0.0818*
			(0.031)	(0.031)
Start			0.0215	0.0198
			(0.056)	(0.000)
Stop			-0.1376**	-0.1268*
			(0.052)	(0.052)
Size in log	0.012	0.0125+	0.0115	0.012
	(0.0075)	(0.007)	(0.0075)	(0.0075)
Size squared	-3.70e-06**	-3.59e-06**	-3.43e-06**	-3.30e-06**
	(0.000)	(0.000)	(0.000)	(0.000)
Firm age	0.0013	0.0013	0.0013	0.0013
	(0.0015)	(0.001)	(0.001)	(0.0015)
Firm age squared	0.00002	0.00002	0.00002	0.00001
	(0.000)	(0.000)	(0.000)	(0.000)
Innovation dummy	0.0610**	0.0618**	0.0608**	0.0619**
	(0.0126)	(0.012)	(0.012)	(0.013)
Year dummy	0.0244*	0.0241*	0.0175	0.0177
	(0.0116)	(0.0117)	(0.011)	(0.011)
Legal dummy1	0.062**	0.0609**	0.0642**	0.063**
	(0.017)	(0.0171)	(0.0171)	(0.017)
Province dummy	-0.078**	-0.0783**	-0.0764**	-0.0763**
	(0.021)	(0.0214)	(0.0213)	(0.0214)
Low tech	0.0315**	0.030**	0.0296*	0.0282*
	(0.011)	(0.011)	(0.0116)	(0.0116)
TFP		0.00002		0.00002
		(0.000)		(0.000)
ROA		0.00009		0.0001
		(0.003)		(0.003)
Leverage		-0.0658+		-0.0664+
		(0.035)		(0.0351)
Observations	4,849	4,841	4,849	4,841

Notes: Robust standard errors in parentheses; statistically significant at 10% (+), at 5% (*), and at 1% (**). The marginal effects of estimated coefficients are reported. Dependent variable is a dummy variable which takes value of 1 if SMEs is in the market, and 0 if has left the market

[5] Similar findings about linkage between export activities and firm survival are also found when using pooled probit estimation, and the results are reported in appendix 2.

Columns 1 and 3 report estimation results for basic specifications, while the estimation results of the extended specification model are presented in Columns 2 and 4. First, Table 1 shows that no relationship between number of years in business and firm probability of closure, and the larger firms have a higher probability of survival than smaller enterprises. In addition, a non-linear and statistically significant relationship between firm size and survival probability is also established well regardless which model is used. These results partly agree with empirical results by Hansen et al. (2009).

Second, as expected, innovation activities such as improvement in existing products, and introduction of new products play an important role in firm survival. This finding confirms the findings from the majority of previous empirical studies (e.g., Cefis & Marsili, 2012). More specifically, estimated coefficients in Table 3 show that innovators gain around nearly 7 percentage higher probability of survival than non-innovators, keeping other factors constant. This may be explained by the fact that firms with innovative activities may respond appropriately to changes in market demand and policies, and therefore, gain a better survival chances (Hansen et al., 2009).

Third, firms in urban areas have a lower probability of survival than those in rural regions, while firms in low tech industries gain a lower probability of failure than their counterparts in medium and high tech industries. This may be because enterprises in rural areas may face a lower level of competition than those in urban regions. In addition, compared to low tech firms, a higher level of competition is likely to be existed among firms in medium and high tech industries.

Fourth, Table 3 shows that household businesses gain a more than 6% higher survival probability than their counterparts (limited, cooperatives or joint-stock companies), keeping other variables constant. The household firms are often small scale, and hence, they are flexible in operation, and can easily adapt to new contexts and challenges.

Fifth, while firm productivity and returns of assets have a positive association with probability of firm survival, there is a positive linkage between leverage and the hazard of failure. However, only the latter relationship is statistically significant, and this result is established well in all cases. The estimated coefficients show that a SME with a 1% higher proportion of leverage is accompanied by an around 6% higher probability of failure, keeping

other covariates equal. This result is consistent with the findings by Bridges and Guariglia (2008), who also concluded that an increase in firms' leverage ratio is negatively related to the survival probability of firms. As explained by Spaliara and Görg (2009), a high of debt is associated with a poor balance sheet, and therefore, it is difficult for firms to obtain external finance. As a result, a firm with a high level of debt may be negatively associated with their survival probability.

Finally, export participation, the variable of main interest, has a statistically insignificant association with the fates of firms. This result is in contrast with findings by Esteve-Pérez et al. (2008)**.** However, the picture changes totally when we consider export participation at different stages with exit probabilities of firms. The difference between continuous exporters, export stoppers and non-exporters is statistically significant. More specifically, compared to non-exporters, the regression results indicate that being a continuous exporter provides a 7.8% higher survival probability, while export stoppers have a 13.6% lower survival probability, keeping other factors constant. These results are in line with the majority of empirical results from other studies and confirm the role of continuous exporting in raising the survival probability (e.g., Harris & Li, 2010; Spaliara & Görg, 2009). As claimed by Greenaway et al. (2007)**,** continuous exporters are firms with the best financial health compared to export starters, export stoppers and non-exporters. However, export stoppers may be firms that lack financial capability to maintain exporting activities in highly competitive foreign markets. Hence, it is not surprising when continuous exporters have a lower probability of exit, but export stoppers have a higher probability of failure than non-exporters.

4.1.2 Sensitivity analysis

Table 2: Marginal effects on the linkage between export participation and firm survival

VARIABLES	Cloglog with unobserved hetegeneity	Cloglog with unobserved hetegeneity	Cloglog with unobserved hetegeneity	Cloglog with unobserved hetegeneity	RE-Probit	RE-Probit
	(1)	(2)	(3)	(4)	(5)	(6)
Export	-0.0036	0.0027			0.003	
	0.0301	(0.029)			(0.0267)	
Both			0.0984	0.0982 +		0.083*
			(0.0367)	(0.036)		(0.030)
Start			0.0276	0.0247		0.0208
			(0.0633)	(0.062)		(0.055)
Stop			-0.1536	-0.1387 *		-0.121**
			(0.0626)	(0.0611)		(0.051)
Size in log	0.013	0.0132	0.0135	0.0137	0.012	0.0117

	0.0087	(0.008)	(0.0092)	(0.009)	(0.0075)	(0.0076)
Size squared	-3.59 e-06	-3.74e-06*	-3.98 e-06	-3.75e-06**	-3.37e-06**	-3.18e-06**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Firm age	0.0013	0.0013	0.0014	0.0013	0.0012	0.0012
	0.0017	(0.0017)	(0.0018)	(0.0018)	(0.0016)	(0.0016)
Firm age squared	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002
	0.00004	(0.00004)	(0.00004)	(0.00004)	(0.00003)	(0.00003)
Innovation dummy	0.0654	0.0645 **	0.0698	0.0695**	0.063**	0.0636**
	0.1801	(0.0176)	(0.0173)	(0.017)	(0.0126)	(0.0131)
Year dummy	0.0135	0.0178	-0.0084	-0.003	0.0237*	0.0166
	0.0346	(0.0316)	(0.0362)	(0.111)	(0.012)	(0.029)
Legal dummy1	0.067	0.064 **	0.0765	0.0732**	0.0625**	0.0648**
	0.0240	(0.023)	(0.0248)	(0.023)	(0.017)	(0.0191)
Province dummy	-0.086	-0.0825 **	-0.0919	-0.089**	-0.077**	-0.075**
	0.0312	(0.0295)	(0.0320)	(0.0307)	(0.0213)	(0.0244)
Low tech	0.0344	0.0317 *	0.0356	0.033*	0.031**	0.0302*
	0.015	(0.014)	(0.0153)	(0.014)	(0.0116)	(0.012)
TFP		0.00002		0.00002	0.00002	0.00002
		(0.0001)		(0.000)	(0.000)	(0.000)
ROA		0.00008		0.00008	0.00004	0.00007
		(0.0024)		(0.0028)	(0.0028)	(0.0028)
Leverage		-0.0676 +		-0.0719+	-0.0569+	-0.0584+
		(0.0362)		(0.0382)	(0.029)	(0.029)
Observations	4,849	4,841	4,849	4,841	4,841	4,841
Chi squared	0.13	0.05	0.8	0.59	0.01	0.01
Pvalue	0.36	0.411	0.185	0.222	0.461	0.467

Notes: Robust standard errors in parentheses; statistically significant at 10% (+), at 5% (*), and at 1% (**). The marginal effects of estimated coefficients are reported. Dependent variable is a dummy variable which takes value of 1 if SMEs is in the market, and 0 if has left the market.

As argued by Esteve-Pérez et al. (2008), estimated results of the linkage between export participation and firm survival may be strongly inconsistent when ignoring the effects of unobserved heterogeneity. As a result, the above models have been re-estimated with controlling for unobserved heterogeneity. The probability of rejecting the null hypothesis is 0.36 and 0.185 respectively in basic models, and 0.411 and 0.222 respectively for the extended model. This means that the null hypothesis cannot be rejected and the result strengthens the confidence that the estimated results in the model are not driven by unobserved heterogeneity.

In the regression results, although there are some small changes in magnitude and signs of coefficients, the majority of the previous set of empirical results remains the same. In terms of the role of firm characteristics, the coefficients of size and size squared remain expected signs but only the latter is statically significant. While no relationship between firm age and probability of survival is observed, innovators still have a higher probability of

survival than non-innovators. Firms in better financial health gain a higher probability of survival. With regard to the role of export participation in firm survival, while signs and statistical significances of coefficients are precise as in the set of empirical results in Table 1, the magnitude of coefficients is higher when taking into account unobserved heterogeneity in the estimation.

As an additional check of the robustness of results, the relationship between export activities and firm survival in both basic and extended specifications has been estimated again using a Random effect Probit model that also captures unobserved heterogeneity. In columns 3 and 4, a similar pattern of the linkage between export participation and firm survival is evident in all cases. In addition, we also observe the similar role of other factors on firm survival. All these findings imply that our estimation results are not sensitive to changes in different regressions specification of estimations.

4.2 The relationship between export statuses and firm growth

4.2.1 Average Treatment effect

Another focus of this study is to examine the role of export activities on firm profit growth. First, Table 2 shows that the effect of firm age and size are reflected clearly in the regression results. Larger firms enjoy higher profit growth, but older firms have a negative association with firm profit growth. Specifically, each year in business is associated with a decrease of 0.5% in firm profit growth, whereas a 1% increase in size is accompanied by nearly 6% growth in profit, keeping other factors constant. The estimated results also show that there is a positive and non-linear relationship between firm age, firm size and profit growth. A positive association between firm size and firm profit growth is in contrast to findings of Fryges and Wagner (2010). However, this result may be attributed to the fact that larger sized firms may raise funds more easily, have economies of scale and are in a better positions to recruit qualified human resource than their smaller counterparts (Esteve-Pérez et al., 2008). A negative linkage between age and firm profit growth is in line with the majority of the previous empirical results, and reflect that when firms become mature their growth seems to slow down (Nguyen & van Dijk, 2012).

In addition to the firm characteristics covariates, the role of innovation and kinds of ownership in firm profit growth show the same pattern. Columns 1 and 3 indicate that there is a statistically significant difference in the growth of profit between innovators and non-

innovators, and household enterprises have a lower profit growth than their counterparts. However, when controlling for unobserved heterogeneity, the absence of statistically significant coefficients relating to the relationship between firm growth with innovation and household dummy suggests that the impact of these variables on firm profit growth is driven by unobserved factors.

Table 1: The linkage between export participation and firm profit growth [6]				
VARIABLES	Pooled	Fixed effect	Pooled	Fixed effect
	(1)	(2)	(3)	(4)
Export	-0.0120	0.0581		
	(0.037)	(0.056)		
Both			0.0047	
			(0.060)	
Start			-0.0332	0.0321
			(0.044)	(0.063)
Stop			-0.0913	-0.0473
			(0.066)	(0.098)
Size in log	0.0161**	0.0556**	0.0169**	0.0566**
	(0.006)	(0.014)	(0.006)	(0.014)
Size squared	0.0000	-0.0000	0.0000	-0.0000
	(0.000)	(0.000)	(0.000)	(0.000)
Firm age	-0.0101**	-0.0052+	-0.0101**	-0.0052+
	(0.002)	(0.003)	(0.002)	(0.003)
Firm age squared	0.0002**	0.0001+	0.0002**	0.0001+
	(0.000)	(0.000)	(0.000)	(0.000)
Innovation dummy	0.0241*	0.0078	0.0243*	0.0080
	(0.011)	(0.014)	(0.011)	(0.014)
Legal dummy1	-0.0713**	-0.0177	-0.0716**	-0.0171
	(0.018)	(0.027)	(0.018)	(0.027)
Province dummy	-0.0309		-0.0300	
	(0.020)		(0.020)	
Low technology	0.0235+	0.0878**	0.0244+	0.0892**
	(0.013)	(0.023)	(0.013)	(0.022)
Year 2009	-0.2143**	-0.2355**	-0.2146**	-0.2372**
	(0.023)	(0.022)	(0.023)	(0.022)
Constant	0.1229**	-0.0612	0.1220**	-0.0612
	(0.039)	(0.048)	(0.039)	(0.048)
Observations	7,611	7,611	7,611	7,611
R-squared	0.068	0.089	0.069	0.089
Notes: Robust cluster standard errors in parentheses; statistically significant at 10% (+), at 5% (*), and at 1% (**). Dependent variable is the firm profit growth.				

As expected, the year 2009 dummy has a negative and statistically significant impact on firm profit growth. The growth of firm profit in 2009 decreased significantly, approximately 23%, in comparison with previous years, keeping other factors constant. It can be argued that the

[6] An insignificant impact of export participation on firm profit growth is also observed when the full data set is divided into different levels of technology (see appendix5).

global financial crisis in this period has a negative impact on the development of firms in general and SMEs, in particular, in Vietnam.

Going to the variable of main interest, there is a statistically insignificant difference in profit growth between exporters and non-exporters regardless of which estimation this study uses. Similar results have also been found when using export participation at different stages in the linkage with profit growth. Exporting stoppers have a negative relationship with firm growth of profit, while there is a positive association between firm growth and continuous exporters. However, in all cases, the estimated coefficients are statistically insignificant. These results are also confirmed by using fixed effect estimation with controlling for unobserved heterogeneity. Furthermore, one may argue that the role of export participation on firm growth may differ with respect to different levels of technology. In order to check further results, the linkage between export participation and firm growth were re-examined in different levels of technology. The study results show a positive relationship between export participation and firm profit growth in low technology industries, with a negative association for medium and high tech sectors. However, estimated coefficients are statistically insignificant in all cases.[7]

4.2.2 Quantile treatment effect estimation

Usage of the above Effect Average Treatment approach (OLS) may cloud the role of export activities on firm growth at different points since this linkage may be heterogeneous across residual distribution of profit growth. Hence, the relationship between export activities and firm profit growth is re-examined using the Quantile Treatment approach. As shown in Table 2, moving the percentile (25^{th}) to percentile (75^{th}), changes in the association between export participation and profit growth can be seen. For firms with profit growth below the median, export participation has a negative relationship with the profit growth. However, export participation is positively and statistically significant associated with firm profit growth above the median. Specifically, keeping other factors constant, exporters gain a 7.3 percentage higher profit growth than non-exporters at the 75^{th} percentile. This implies that the statistically significant linkage between export participation and firm growth at the 75^{th}

[7] The empirical results are displayed in appendix 2

percentile is hidden when using average treatment estimation. A similar pattern is also observed for the effect of export participation at different stages (continuous exporters, starting exporters, and exporting stoppers) on firm growth; the estimated coefficients increase from lowest quantile to highest percentile, although the majority of estimated coefficients are statistically insignificant.

Table 2: Quantile regression of the linkage between export participation and firm profit growth

VARIABLES	q25	q50	q75	q25	q50	q75
	(1)	(2)	(3)	(4)	(5)	(6)
Export	-0.0202	0.0153	0.0730*			
	(0.027)	(0.019)	(0.034)			
Both				-0.0336	0.0405	0.0909
				(0.071)	(0.035)	(0.098)
Start				-0.0288	-0.0632+	0.0400
				(0.049)	(0.032)	(0.069)
Stop				-0.0226	0.0068	0.0115
				(0.069)	(0.027)	(0.078)
Size in log	0.0036	0.0133**	0.0316**	0.0039	0.0138**	0.0327**
	(0.006)	(0.004)	(0.005)	(0.006)	(0.004)	(0.005)
Size squared	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Firm age	-0.0055**	-0.0032**	-0.0049**	-0.0055**	-0.0032**	-0.0051**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Firm age squared	0.0001**	0.0000**	0.0001**	0.0001**	0.0000**	0.0001**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Innovation dummy	0.0041	0.0065	0.0136	0.0040	0.0070	0.0154+
	(0.008)	(0.006)	(0.009)	(0.008)	(0.006)	(0.009)
Legal dummy1	0.0056	-0.0157*	-0.0713**	0.0036	-0.0151*	-0.0707**
	(0.014)	(0.008)	(0.014)	(0.013)	(0.007)	(0.014)
Province dummy	-0.0396*	-0.0237*	-0.0346*	-0.0421**	-0.0240*	-0.0345*
	(0.016)	(0.010)	(0.014)	(0.016)	(0.010)	(0.014)
Low technology	0.0233**	0.0040	-0.0017	0.0247**	0.0039	-0.0006
	(0.008)	(0.006)	(0.008)	(0.008)	(0.005)	(0.009)
Year dummy3	-0.1959**	-0.1634**	-0.1890**	-0.1950**	-0.1623**	-0.1882**
	(0.009)	(0.005)	(0.008)	(0.009)	(0.005)	(0.008)
Constant	-0.0996**	0.0076	0.1808**	-0.0987**	0.0056	0.1782**
	(0.022)	(0.013)	(0.022)	(0.021)	(0.013)	(0.022)
Observations	7,611	7,611	7,611	7,611	7,611	7,611

Notes: Bootstrap standard errors in parentheses with 1000 times, statistically significant at 10% (+), at 5% (*), and at 1% (**). Dependent variable is the firm profit growth.

5. Summary and policy implications

In an attempt to contribute to a small but growing empirical evidence of the determinants of SMEs survival and growth, this study extends the earlier work of Hansen et al. (2009) in several aspects. First, the study revisits this topic in a new period from 2005-09 when Vietnam integrated deeply into the world economy and became a member of the WTO. More

importantly, it provides the first evidence on the role of export activities on SMEs' survival and growth. This is of much importance as Vietnam is continuing to pursue export led growth strategies and the majority of Vietnamese firms are SMEs. Based on the empirical results, some main findings may be summarized as below.

First, firms of larger size have a higher probability of survival and growth than their counterparts. In addition, firm age has a negative association with profit growth but not with firm survival probability. Furthermore, it is not surprising that innovators who have flexible policies are able to quickly respond with the market demand and gain a higher probability of survival than non-innovators. However, the study finds no evidence of a difference in profit growth between innovating and non-innovating firms.

Second, location and legal structures are found to be determinants of firm survival. For example, rural firms have a higher probability of survival than urban enterprises, and household business gain a lower probability of exit than their counterparts. However, these factors do not have a association with firm profit growth.

Third, firms in low tech industries are found to have a higher survival probability and profit growth than firms in high and medium technologies. In terms of the role of financial health and productivity for firm survival, the results indicate that firms with higher leverage are related to a lower probability of survival firms but we find no evidence that profitability returns and productivity are determinants of firm survival.

Fourth, in terms of the linkage between export participation and firm profit growth, while estimates of Average Treatment Effect (OLS) indicate that there is not a linkage between export participation and the growth of profit, the Quantile Treatment Effects estimates reveal that export participation has a positive association with SMEs profit growth above the median. This suggests that the role of export activities on firm profit growth is heterogeneous at different points of distribution of profit growth.

Finally, our micro-econometric analysis indicates that while there is no difference in survival probability between exporters and non-exporters, export activities at different stages have various effects on the failure probability of firms. More specifically, there is a positive and statistically significant association between continuous exporters and firm survival probability, whereas a positive relationship is observed between exporting stoppers and firms' probability of failure.

Regarding policy implications, changes in exporting status of firms are accompanied by an improvement in profit growth and survival probability of firms. This suggests that export promotion policies and policies helping to maintain exporting activities through time could be helpful since it may help firms improve the growth in profitability and reduce the probability of failure.

Appendices

Appendix1: Estimation TFP using Levinsohn-Petrin methodology

In previous studies, Levinsohn-Petrin approach is popular method in productivity measurement because of advantages in controlling endogeneity of input factors. In this research, total value added is used as the output while the capital variable proxied by value of machinery and equipments and buildings for production, labour variable measured by total employees are input factors. The freely input are raw material costs and electricity cost that stand for unobservable shocks. All the variables with current price are deflated by deflator GDP index in 1994. In addition, all variables in regression model are employed in natural logarithmic forms. "Levpet" program in Stata written by Levinsohn-Petrin (2003) with 250 time bootstrap replication is used to estimate productivity.

Appendix 2: The linkage between export participation and firm survival

Dependent variable: firm survival				
VARIABLES	Cloglog without unobserved heterogeneity	Cloglog without unobserved heterogeneity	Cloglog without unobserved heterogeneity	Cloglog without unobserved heterogeneity
	(1)	(2)	(3)	(4)
Export	-0.0140	0.0064		
	(0.088)	(0.089)		
Both			0.2786*	0.2908*
			(0.127)	(0.127)
Start			0.0702	0.0644
			(0.188)	(0.188)
Stop			-0.3991**	-0.3695*
			(0.142)	(0.144)
Size in log	0.0383	0.0400+	0.0365	0.0384
	(0.024)	(0.024)	(0.024)	(0.024)
Size squared	-0.0000**	-0.0000**	-0.0000**	-0.0000**
	(0.000)	(0.000)	(0.000)	(0.000)
Firm age	0.0043	0.0041	0.0043	0.0041
	(0.005)	(0.005)	(0.005)	(0.005)
Firm age squared	0.0001	0.0001	0.0001	0.0001
	(0.000)	(0.000)	(0.000)	(0.000)
Innovation dummy	0.1920**	0.1948**	0.1917**	0.1951**
	(0.039)	(0.040)	(0.040)	(0.040)
Year dummy	0.0777*	0.0770*	0.0558	0.0566
	(0.037)	(0.037)	(0.038)	(0.038)
Legal dummy1	0.1926**	0.1893**	0.1994**	0.1966**
	(0.052)	(0.052)	(0.052)	(0.052)
Province dummy	-0.2376**	-0.2361**	-0.2304**	-0.2305**
	(0.062)	(0.062)	(0.062)	(0.062)
Low technology	0.1000**	0.0953**	0.0941*	0.0895*
	(0.037)	(0.037)	(0.037)	(0.037)
TFP		0.0001		0.0001
		(0.000)		(0.000)
ROA		0.0003		0.0003

		(0.010)		(0.010)
Leverage		-0.2090+		-0.2109+
		(0.111)		(0.112)
Constant	0.0676	0.0797	0.0776	0.0886
	(0.087)	(0.088)	(0.088)	(0.088)
Observations	4,849	4,841	4,849	4,841

Notes: Robust standard errors in parentheses; statistically significant at 10% (+), at 5% (*), and at 1% (**). The estimated coefficients are reported. Dependent variable is a dummy variable which takes value of 1 if SMEs is in the market, and 0 if has left the market

Appendix 3: The linkage between export participation and firm survival

Dependent Variable: Firm survival				
VARIABLES	Pooled probit	Pooled probit	Pooled probit	Pooled probit
	(1)	(2)	(3)	(4)
Export	-0.0033	0.0029		
	(0.0269)	(0.0266)		
Both			0.08*	0.082*
			(0.029)	(0.028)
Start			0.0218	0.0204
			(0.054)	(0.055)
Stop			-0.1309**	-0.1209**
			(0.049)	(0.049)
Size in log	0.0119	0.0123+	0.0112	0.0116
	(0.007)	(0.0074)	(0.0073)	(0.073)
Size squared	-3.45e-06**	-3.3e-06**	-3.2e-06**	-3.15e-06**
	(0.000)	(0.000)	(0.000)	(0.000)
Firm age	0.0012	0.0012	0.0012	0.0011
	(0.0016)	(0.0016)	(0.0016)	(0.0016)
Firm age squared	0.00002	0.0002	0.00002	0.00002
	(0.000)	(0.0003)	(0.0000)	(0.00003)
Innovation dum	0.0626**	0.063**	0.0626**	0.0633**
	(0.0127)	(0.0127)	(0.012)	(0.0128)
Year dummy	0.0251*	0.0247*	0.0187	0.018
	(0.0116)	(0.0116)	(0.0118)	(0.0117)
Legal dummy1	0.0633**	0.0622**	0.0652**	0.0642**
	(0.0173)	(0.0174)	(0.0173)	(0.0173)
Province dum	-0.077**	-0.0767**	-0.0741**	-0.0742**
	(0.0211)	(0.0212)	(0.0211)	(0.0021)
Low tech	0.0328**	0.0314**	0.0313**	0.0299**
	(0.0116)	(0.0116)	(0.0115)	(0.0116)
TFP		0.00002		0.00002
		(0.00006)		(0.00006)
ROA		0.00004		0.00007
		(0.0044)		(0.0044)
Leverage		-0.0568+		-0.0582*
		(0.0292)		(0.0292)
Observations	4,849	4,841	4,849	4,841

Notes: Robust standard errors in parentheses; statistically significant at 10% (+), at 5% (*), and at 1% (**). The marginal effects of estimated coefficients are reported. Dependent variable is a dummy variable which takes value of 1 if SMEs is in the market, and 0 if has left the market

Appendix 4: The linkage between export participation and firm survival

Dependent Variable: Firm survival						
VARIABLES	Cloglog with unobserved heterogeneity	Cloglog with unobserved heterogeneity	Cloglog with unobserved heterogeneity	Cloglog with unobserved heterogeneity	RE_Probit	RE_Probit
	(1)	(2)	(3)	(4)	(5)	(6)
Export	-0.0117	0.0088			0.0115	
	(0.096)	(0.094)			(0.101)	
Both			0.3855+	0.3797+		0.3727*
			(0.205)	(0.197)		(0.187)
Start			0.0943	0.0833		0.0810
			(0.226)	(0.220)		(0.224)
Stop			-0.4511*	-0.4085*		-0.3925**
			(0.177)	(0.172)		(0.152)
Size in log	0.0422	0.0423	0.0444	0.0451	0.0461	0.0439
	(0.029)	(0.028)	(0.031)	(0.030)	(0.028)	(0.029)
Size squared	-0.0000*	-0.0000*	-0.0000*	-0.0000*	-0.0000**	-0.0000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Firm age	0.0045	0.0043	0.0047	0.0045	0.0045	0.0045
	(0.006)	(0.005)	(0.006)	(0.006)	(0.006)	(0.006)
Firm age squared	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Innovation dum	0.2083**	0.2047**	0.2274**	0.2250**	0.2324**	0.2347**
	(0.063)	(0.061)	(0.063)	(0.062)	(0.046)	(0.055)
Year dummy	0.0436	0.0572	-0.0276	-0.0100	0.0889*	0.0625
	(0.110)	(0.100)	(0.121)	(0.111)	(0.045)	(0.105)
Legal dummy1	0.2115**	0.2003**	0.2442**	0.2324**	0.2244**	0.2337**
	(0.079)	(0.074)	(0.085)	(0.080)	(0.061)	(0.075)
Province dum	-0.2609**	-0.2497**	-0.2823**	-0.2723**	-0.2638**	-0.2587**
	(0.096)	(0.090)	(0.100)	(0.095)	(0.068)	(0.087)
Low tech	0.1106*	0.1014*	0.1171*	0.1077*	0.1174**	0.1129*
	(0.051)	(0.048)	(0.054)	(0.051)	(0.043)	(0.048)
TFP		0.0001		0.0001	0.0001	0.0001
		(0.000)		(0.000)	(0.000)	(0.000)
ROA		0.0003		0.0003	0.0002	0.0003
		(0.008)		(0.009)	(0.011)	(0.011)
Leverage		-0.2164+		-0.2351+	-0.2124+	-0.2189+
		(0.118)		(0.128)	(0.109)	(0.113)
Constant	0.0644	0.0775	0.0797	0.0892	0.3786**	0.3914**
	(0.095)	(0.093)	(0.108)	(0.104)	(0.102)	(0.116)
Observations	4,849	4,841	4,849	4,841	4,841	4,841

Notes: Robust standard errors in parentheses; statistically significant at 10% (+), at 5% (*), and at 1% (**). The estimated coefficients are reported. Dependent variable is a dummy variable which takes value of 1 if SMEs is in the market, and 0 if has left the market

Appendix 5: The linkage between export participation and profit growth

Dependent Variable: Firm profit growth			
VARIABLES	Fixed effect	Fixed effect	Fixed effect
	(1)	(2)	(3)
	Low technology	Medium technology	High technology
Export	0.0926	-0.0278	-0.0135
	(0.081)	(0.125)	(0.107)
Size in log	0.0885**	0.0595*	0.0049
	(0.021)	(0.024)	(0.039)
Size squared	-0.0000	0.0000	0.0000
	(0.000)	(0.000)	(0.000)
Firm age	-0.0007	-0.0170**	0.0086
	(0.004)	(0.006)	(0.007)
Firm age squared	0.0000	0.0003*	-0.0001
	(0.000)	(0.000)	(0.000)
Innovation dummy	0.0084	0.0067	-0.0573
	(0.019)	(0.028)	(0.040)
Legal dummy1	0.0162	-0.0199	-0.0879
	(0.057)	(0.054)	(0.073)
Year dummy3	-0.2277**	-0.2147**	-0.2967**
	(0.024)	(0.031)	(0.042)
Constant	-0.1364*	0.0663	0.0442
	(0.063)	(0.090)	(0.126)
Observations	4,175	2,391	1,045
R-squared	0.087	0.085	0.150
Notes: Robust cluster standard errors in parentheses; statistically significant at 10% (+), at 5% (*), and at 1% (**). Dependent variable is the firm profit growth.			

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