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Working Paper

Determinants of export intensity and propensity among small and medium-sized enterprises: The case of the Philippines

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Determinants of export intensity and propensity among small and medium-sized enterprises: The case of the Philippines

Philip Tuaño
George Manzano
Isabela Villamil

ASIA-PACIFIC RESEARCH AND TRAINING NETWORK ON TRADE

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Determinants of export intensity and propensity among small and medium-sized enterprised: The case of the Philippines

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Abstract: The small and medium enterprise (SME) sector in the Philippines is a significant group within the economy in terms of firm numbers and total employment. However, the SME sector's share of exports is disproportionately small, which raises considerable policy concerns. Prompted by the aforementioned policy issue, this study assesses the different factors that affect SME decisions (a) to export (propensity) and (b) on how much to export (intensity), i.e., export performance. The study utilizes data from the World Bank enterprise surveys, which contain subjective elements concerning the impediments to conducting business in general, e.g., concerns regarding labour regulations, shipping etc.

Using a Heckman selection model, the study finds that firm size is a robust determinant, both of export propensity and intensity. It also suggests that while labour productivity is important in determining the value of firm exports, there are certain firm qualities that are important to the initial export decision, such as foreign ownership and the presence of informal competition. Finding such determinants of SME export intensity and propensity provides the direction for policy discussions.

JEL Classification code: F23, L25

Keywords: Small and medium-sized enterprises, export, propensity, intensity, performance, the Philippines, manufacturing.

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Introduction

One of the main issues in the Philippine's trade and industrial policy concerns the existence of considerable segmentation in the size structure of the country's manufacturing firms (Balisacan and Hill, 2003). A recent review of the number of firms by size from the 2011 List of Establishments survey of the Philippine National Statistics Office shows that there are a disproportionately small number of medium-sized enterprises operating in the country, compared with the sizeable number of micro and small firms. Balisacan and Hill (2003) traced this "missing middle" phenomenon to government trade and industrial policy interventions in certain industries that do not have strong links to small enterprises. In addition, these interventions contain features that penalize micro-sized firms that "graduate" to larger business units in addition to restrictive labour market and land regulations, and infrastructure constraints.

Notwithstanding these constraints, the small and medium-sized enterprise (SME) sector in the Philippines clearly remains a significant group in the economy. Estimates from the 2008 Annual Survey of Philippine Business and Industry show that small-scale enterprises (with less than 20 employees) total 113,366 with a total of Philippine peso (P) 951.7 billion in revenue and P 221.5 billion in value-added, compared with 21,217 large enterprises (with 200 or more employees), P 6.3 trillion in revenue and P 2.08 trillion in value-added. However, the SME sector's share of exports is disproportionately diminutive. In the 2006 Census of Philippine Business and Industry, for example, small manufacturing firms produced P 3.6 billion in total exports and P 58 billion in the domestic market, while large enterprises produced P 1.1 trillion in exports and P 1.7 trillion in the domestic market.

During the past decade in particular, support for SME growth has been of important concern for the Government as it tries to prepare the sector for participation more fully in a number of bilateral and multilateral free trade agreements that the Philippines has signed (Micro, Small and Medium-Scale Enterprise Development Council, 2011). Thus, identifying the specific concerns of SME exporters is an important issue in formulating better and well-directed government policies.

Numerous studies have been carried out that identify the factors that motivate firms to export, (see, for example: Bernard and Jensen, 2004; Roberts and Tybout, 1997; and Clerides and others, 1998), in the past few years. More specifically, a number of papers

have examined the participation of SME firms in exporting, particularly in Asian countries (Amornkitvikai and others, 2012), in the case of Thailand, and Trung and others, Trung and others, 2008, in the case of Viet Nam). Like the Thai study, this paper examines the determinants of SME export activity in two parts, (a) the decision on whether or not to participate in exporting, and (b) the decision on the volume of exports, using a Heckman two-step selection model. This study utilizes a dataset of enterprises in selected regions of the Philippines, taken from the World Bank Enterprise Survey for the Philippines (World Bank, 2010).

This study assesses the different factors that affect the decisions made by SMEs to (a) export (propensity) and (b) on how much to export (intensity), i.e., export performance, in order to draw the appropriate policy implications. Section 1 provides a brief review of the SME sector in the Philippines, followed in section 2 by a review the literature on the factors that affect the SMEs' propensity and intensity of trade. Sections 3 and 4 contain short descriptions of the survey data used in the regression analysis, and the empirical model. Section 5 discusses the empirical results. The policy implications for the SME sector are described in section 6 followed by the conclusion in section 7.

1. Review of the small and medium-sized enterprises sector in the Philippines

Micro, small and medium enterprises (MSMEs) in the Philippines are defined by the Department of Trade and Industry (2011) as "any business activity/enterprise engaged in industry, agri-business/services, whether single proprietorship, cooperative, partnership or corporation whose total assets, inclusive of those arising from loans but exclusive of the land on which the particular business entity's office, plant and equipment are situated," and must have less than P 100 million in assets and at least 200 employees. The Small and Medium Enterprise Development Council, which is an attached agency of the Department of Trade and Industry, is tasked with coordinating efforts by the Government to assist small enterprises, defines firm size according to the following categories:

(a) Micro enterprise – with up to P 3 million in assets, and 1 to 9 employees;
(b) Small enterprise – P 3 million to P 15 million in assets, and 10-99 employees;
(c) Medium enterprise – P 15 million to P 100 million in assets, and 100-199 employees;
(d) Large enterprise – More than P 100 million in assets, and 200 or more employees.

According to the Updating List of Establishments Survey of the Philippine National Statistical Office, in 2011 the number of micro, small and medium enterprises (SMEs[1]) reached 774,644, comprising 99.7% of the total number of firms in the country. This number includes 709,899 micro enterprises (91.3% of the total number), 61,979 small enterprises (8%) and 2,786 medium enterprises (0.4%).

More than half of the SMEs are operating in the wholesale and retail trade sector, which also contains approximately half of the total number of firms in the country. The sectors that contain the highest share of SMEs in the total number of establishments include "other service" activities (99.98%), followed by accommodation and food services (99.93%), and wholesale and retail trade (99.91%). The sectors that contain the lowest share of SMEs include the electricity, gas, steam and air-conditioning supply sectors (85.39%), followed by mining and quarrying (93.81%) and construction (94.87%) (tables 1 and 2).

In terms of geographical distribution, in 2011 the National Capital Region contained the highest number of SMEs (210,574 or 27.1% of the total). This was followed by the Calabarzon Region (114.378 firms or 14.7%) and Central Luzon (79,219 or 10.2%); interestingly, these regions are located close to Metro Manila and also host the highest number of establishments. In terms of percentages of firms that are SMEs, the highest proportions are in the Mimaropa Region (99.94%), Ilocos Region (99.92%) and Cagayan Valley (99.91%); the regions with the lowest percentages of firms that are SME are National Capital Region (99.36%), Central Visayas (99.37%) and the Calabarzon Region (99.51%). Table 3 lists the number of firms by size and region.

[1] The terms 'MSME' and 'SME' are used interchangeably in this paper.

Table 1. Number of firms by size and sector, 2011

	Total	Micro	Small	Medium	Large
The Philippines	777 687	709 899	61 979	2 786	3 023
Agriculture, forestry and fishing	5112	3505	1306	145	156
Mining and quarrying	420	233	146	15	26
Manufacturing	111 846	100 779	9 334	809	924
Electricity, gas, steam and air-conditioning supplies	623	160	288	84	91
Water supply - sewerage waste management and remediation activities	994	482	456	37	19
Construction	2416	1284	883	125	124
Wholesale and retail trade - repair of motor vehicles and motorcycles	371 650	352 577	18 338	419	316
Transportation and storage	6 120	4 356	1 541	105	118
Accommodation and foodservice activities	97 055	87 634	9 197	160	64
Information and communications	11 808	10 652	993	66	97
Financial and insurance activities	26 485	21 491	4 766	93	135
Real estate activities	4 108	3 079	959	39	31
Professional, scientific and technical activities	18 273	16 464	1 692	60	57
Administrative and support service activities	18 720	15 952	2 072	207	489
Education	14 313	7 742	6 089	268	214
Human health and social work activities	31 174	29 546	1 398	110	120
Arts, entertainment and recreation	11 723	10 787	868	33	35
Other service activities	44 847	43 176	1 653	11	7

Source: National Statistics Office, 2012.

Table 2. Number of firms by size and sector, 2011 (percentage within the sector)

Industry	Micro	Small	Medium	Total SMEs	Large
The Philippines	91.28%	7.97%	0.36%	99.61%	0.39%
Agriculture, forestry and fishing	68.56%	25.55%	2.84%	96.95%	3.05%
Mining and quarrying	55.48%	34.76%	3.57%	93.81%	6.19%
Manufacturing	90.11%	8.35%	0.72%	99.17%	0.83%
Electricity, gas, steam and air-conditioning supplies	25.68%	46.23%	13.48%	85.39%	14.61%
Water supply - sewerage waste management and remediation activities	48.49%	45.88%	3.72%	98.09%	1.91%
Construction	53.15%	36.55%	5.17%	94.87%	5.13%
Wholesale and retail trade - repair of motor vehicles and motorcycles	94.87%	4.93%	0.11%	99.91%	0.09%
Transportation and storage	71.18%	25.18%	1.72%	98.07%	1.93%
Accommodation and food service activities	90.29%	9.48%	0.16%	99.93%	0.07%
Information and communications	90.21%	8.41%	0.56%	99.18%	0.82%
Financial and insurance activities	81.14%	18.00%	0.35%	99.49%	0.51%
Real estate activities	74.95%	23.34%	0.95%	99.25%	0.75%
Professional, scientific and technical activities	90.10%	9.26%	0.33%	99.69%	0.31%
Administrative and support services activities	85.21%	11.07%	1.11%	97.39%	2.61%
Education	54.09%	42.54%	1.87%	98.50%	1.50%
Human health and social work activities	94.78%	4.48%	0.35%	99.62%	0.38%
Arts, entertainment and recreation	92.02%	7.40%	0.28%	99.70%	0.30%
Other service activities	96.27%	3.69%	0.02%	99.98%	0.02%

Source: National Statistics Office, 2012.

Table 3. Number of firms by size and region

	Total	Micro	Small	Medium	Large
The Philippines	777 687	709 899	61 979	2 786	3 023
National Capital Region	210 574	180 235	27 743	1 245	1 351
Cordillera Administrative Region	14 079	13 258	768	30	23
Ilocos Region	42 202	40 419	1 692	58	33
Cagayan Valley	23 723	22 856	821	25	21
Central Luzon	79 219	73 567	5 250	202	200
Calabarzon Region	114 378	106 478	6 992	389	519
Mimaropa Region	22 499	21 524	949	13	13
Bicol Region	27 428	25 866	1 477	51	34
Western Visayas	45 315	41 850	3 182	144	139
Central Visayas	45 609	40 977	4 123	222	287
Eastern Visayas	18 023	16 961	997	37	28
Zamboanga Peninsula	24 259	23 164	1 018	38	39
Northern Mindanao	28 454	26 138	2 145	89	82
Davao Region	36 719	33 882	2 552	146	139
Soccsksargen Reion	24 919	23 482	1 303	59	75
Caraga Region	12 298	11 466	777	25	30
Autonomous Region for Muslim Mindanao	7 989	7 776	190	13	10

Source: National Statistics Office, 2011.

In terms of employment, of the registered firms covered by the 2011 NSO survey, SMEs employed 3.872 million workers out of a total of 6.345 million workers, or more than 60%.

The SME sector with the most workers was wholesale and retail trade, which registered 1.3 million employees; this included more than 792,000 workers in micro enterprises, some 361,000 in small-sized enterprises and more than 57,000 in medium-sized enterprises. This was followed by more than 648,000 workers in the manufacturing sector, and more than 530,000 employees in the accommodation and food services sector. The sector with the least number of workers employed by SME firms included mining and quarrying (less than 9,000) and the water supply and sewerage sector (approximately 20,000).

In terms of the percentage of workers with SME firms, the ratio was largest in the “other services” activities (96.94%), and accommodation and food services (93.64%). The sector with the lowest proportion of workers in the MSME sector was administrative and support services (18.99%), followed by mining and quarrying (20.54%), and electricity, gas, steam and air-conditioning supply (35.32%). Table 4 contains details of employment across different firm sizes and sectors.

Table 4. Number of employees by firm size and sector, 2011

Industry	Micro	Small	Medium	Large	Total
Agriculture, forestry and fishing	13 027	36 216	19 074	107 230	175 547
Mining and quarrying	1 354	5 059	2 353	33 916	42 682
Manufacturing	253 945	270 123	124 524	724 775	1 373 367
Electricity, gas, steam and air-conditioning supplies	991	11 149	14 633	49 020	75 793
Water supply - sewerage waste management and remediation activities	2 441	13 322	4 870	14 351	34 984
Construction	6 382	34 431	16 338	86 751	143 902
Wholesale and retail trade - repair of motor vehicles and motorcycles	806 164	430 900	75 987	174 630	1 487 681
Transportation and storage	16 298	46 532	17 300	74 099	154 229
Accommodation and food service activities	241 907	272 452	24 960	36 659	575 978
Information and communications	33 836	38 434	13 753	81 147	167 170
Financial and insurance activities	85 883	91 323	15 875	218 117	411 198
Real estate activities	15 857	30 477	6 801	16 327	69 462
Professional, scientific and technical activities	42 908	44 353	10 307	58 155	155 723
Administrative and support services activities	41 102	63 431	39 119	612 948	756 600
Education	33 583	158 971	41 840	98 089	332 483
Human health and social work activities	50 568	38 705	17 367	61 635	168 275
Arts, entertainment and recreation	28 354	19 467	4 091	20 969	72 881
Other service activities	103 753	37 147	2 369	4 518	147 787
Total	1 778 353	1 642 492	451 561	2 473 336	6 345 742

Source: National Statistics Office, 2011.

In terms of regional disaggregation (table 5), the National Capital Region contains the largest number of workers in the SME sector (1.493 million, or 37%), followed by the Calabarzon region (506,134 workers) and Central Luzon (353,872).

Table 5. Number of employees by firm size and region, 2011

	Micro	Small	Medium	Large	Total
The Philippines	1 778 353	1 642 492	451 561	2 473 336	6 345 742
National Capital Region	496 685	740 981	201 609	1 303 819	2743 094
Cordillera Administrative Region	29 818	16 948	3 978	22 934	73 678
Ilocos Region	88 599	42 631	8 805	17 676	157 711
Cagayan Valley	48 808	19 574	3 826	7 700	79 908
Central Luzon	174 998	141 765	37 109	109 425	463 297
Calabarzon Region	251 208	190 549	64 377	441 366	947 500
Mimaropa Region	44 689	20 400	3 028	5 453	73 570
Bicol Region	60 708	35 509	7 653	16 996	120 866
Western Visayas	104 386	79 689	22 033	64 419	270 527
Central Visayas	113 141	110 885	33 986	222 733	480 745
Eastern Visayas	41 742	21 405	5 774	11 723	80 644
Zamboanga Peninsula	53 413	30 137	7 302	20 597	111 449
Northern Mindanao	66 315	56 100	16 206	62 117	200 738
Davao Region	90 994	72 467	22 271	89 198	274 930
Soccsksargen Region	65 001	39 074	8 147	51 044	163 266
Caraga Region	30 075	19 281	4 288	19 936	73 580
Autonomous Region for Muslim Mindanao	17 773	97	1 169	6 200	30 239

Source: National Statistics Office, 2011.

Data from the National Statistics Office (2008) show that SMEs contributed about 35.7%, or P 751.9 billion, of the total census value-added (table 6) among all industries. Micro enterprises contributed 4.9%, or P 103.9 billion, followed by small enterprises at 20.5% or P 431.3 billion, and medium-sized enterprises at 10.3% or P 216.7 billion.

The contribution by the SME sector to census value-added is highest in the manufacturing sector (6.87% or P 144.9 billion), followed by the wholesale and retail trade (6.58% or P 138.7 billion) and financial intermediation (6.02% or P 126.9 billion).

Table 6. Census value-added, by firm size and industrial sector, in percentage of total, 2006

	Total	Micro	Small	Medium	SMEs	Large
Value-added (millions of pesos)	2 108 546	103 918	431 340	216 685	751 943	1 356 603
Agriculture, hunting and forestry	0.79	0.01	0.22	0.09	0.32	0.47
Fishing	0.15	0.01	0.02	0.02	0.04	0.1
Mining and quarrying	1.86	0.92	0.01	0.4	1.33	0.53
Manufacturing	32.91	0.28	3.82	2.77	6.87	26.05
Electricity, gas and water	8.35	0.02	2.92	1.92	4.86	3.49
Construction	1.64	0.02	0.46	0.23	0.72	0.92
Wholesale and retail trade	8.24	1.73	4.07	0.78	6.58	1.66
Hotels and restaurants	1.91	0.16	1.1	0.2	1.46	0.46
Transport, storage and communication	14.09	0.11	1.58	0.65	2.33	11.76
Financial intermediation	16.21	0.8	3.35	1.87	6.02	10.19
Real estate	7.67	0.62	1.56	0.71	2.88	4.78
Education	3.15	0.8	0.84	0.45	1.37	1.78
Health and social work	1.18	0.8	0.18	0.13	0.4	0.79
Other service activities	1.85	0.9	0.34	0.06	0.49	1.36
Total percentage	100	4.9	20.5	10.3	35.7	64.3

Source: National Statistics Office, 2008

According to the 2006 survey, SMEs accounted for 25% of the country's total export revenue. It was also estimated that 60% of all exporters in the country were in the SME category. SMEs are able to contribute to exports either through subcontracting arrangements with large firms or as suppliers to exporting companies.

Tables 7 and 8 show that the SME sector in the manufacturing industry has suffered significant declines in the number of firms and employees in the past several years. The same is true for the large enterprises. The total number of MSME firms declined from 129,609 in 1999 to 111,765 in 2011. The total number of employees also declined from 883,185 in 1999 to 648,592 in 2011.

Table 7. Number of firms in the manufacturing sector, by firm size, 1999-2011

Year	Micro	Small and Medium	Large	Total
1999	113 861	15 748	1 322	130 931
2000	108 998	15 231	1 238	125 467
2001	108 986	13 615	1 194	123 795
2002	108 847	13 148	982	122 977
2003	107 398	12 763	1 024	121 185
2004	103 926	13 081	1 120	118 127
2005	103 982	12 392	1 008	117 382
2006	105 083	11 278	985	117 346
2008	100 605	10 703	1 069	112 377
2009	101 208	10 779	953	112 940
2010	100 779	10 143	924	111 846
2011	100 837	10 928	1 024	112 789

Source: National Statistics Office, 2012.

Table 8. Number of employees in the manufacturing sector, by firm size, 1999-2011

Year	Micro	Small and Medium	Large	Total
1999	366 689	516 506	791 277	1 674 472
2000	354 025	505 062	730 127	1 589 214
2001	353 415	446 600	734 088	1 534 103
2002	353 255	437 490	676 443	1 467 188
2003	360 576	403 923	698 173	1 462 672
2004	327 112	432 869	775 969	1 535 950
2005	323 510	408 100	731 736	1 463 346
2006	259 664	385 263	727 984	1 372 911
2008	255 021	379 999	794 350	1 429 370
2009	259 534	377 990	674 012	1 311 536
2010	258 117	352 728	680 459	1 291 304
2011	253 945	394 647	724 775	1 373 367

Source: National Statistics Office, 2012.

1.1. Constraints faced by Philippine SMEs

SMEs in the Philippines face several institutional and legal impediments to their growth. According to a recent survey of literature on SMEs (Aldaba and others, 2010), several constraints exist that may explain the lack of growth among MSMEs in the Philippines:

(a) Financing constraints – because SMEs have limited track records, inadequate financial records and limited collateral, and because banks are generally averse to

lending to large numbers of small-sized businesses, the flow of funds to these firms is generally limited;

(b) Technology and information – SMEs, which generally produce labour-intensive goods, are constrained in accessing the latest advances in production technology and, consequently, do not generally invest enough in upgrading their standards. Thus, output usually suffers from poor quality as these firms operate at low levels of productivity;

(c) SMEs usually face barriers in undertaking firm registration procedures as well as constraints in undertaking customs clearance procedures (also in Tecson, 2004);

(d) SMEs have inadequate access to human capital and technical training.

In addition, SMEs face constraints in overcoming infrastructure problems such as access to transport and other utilities (power and water). As a result, access to different markets is curtailed by escalating costs of doing business. A number of regulatory issues exist, particularly with regard to taxation, which act as disincentives for firms to expand beyond a certain size. For example, the marginal cost of labour spikes as firms “graduate” from micro status (20 workers) because they lose exemption from having to pay minimum wages (Hill, 2003).

The study by Aldaba and others (2010), which utilized a dataset of 101 firms in Metro Manila and neighbouring regions, pointed out that “integrated firms” (those with links with producers abroad) were more concerned with product and price barriers and in maintaining relationships with partners, while “non-integrated firms” were concerned with tax and tariff barriers as well as the general business environment.

The issues that SMEs in the Philippines face are the same as those faced by heir counterparts in the Asian region. Harvie and others (2010) reported the results of a survey on the determinants of the participation by Asian SMEs in international production networks. The survey results showed that the major problems confronting the SME sector in Asia were the lack of (a) access to finance, (b) skills and expertise in operational management and (c) sustainable entrepreneurship drive due to weak innovation. Other factors included overdependence on foreign technology and the lack of networking, which affected the state of financial and technological resources.

2. Review of studies on export activity and SMEs

In the past 15 years, a number of studies have examined the factors that affect the decision of firms to engage in international trade. Those studies, often using information at the enterprise level, showed that the decision to export varied across different producers within industrial sectors. Moreover, the studies provided a richer explanation of intra-industry trade compared to traditional comparative advantage and increasing returns-to-scale theories. For example, one of the early studies done at the firm level by Bernard and Jensen (2004) identified the differences in the characteristics of exporters and non-exporters. Exporters were found to be more productive, larger in terms of employment and to use capital more intensively than non-exporters. Such studies have spurred increasing interest in understanding the factors that affect the decision of firms to export as well as in the over-all size of export volumes, i.e., the intensive and extensive margins.

Some of the firm and industry variables that affect export behaviour among companies are examined below. These factors include firm size, age, labour productivity, type of ownership, access to finance, and constraints to registration and legal procedures.

2.1. Firm size

Several studies have already found that firm size is a significant variable that affects export behaviour; this is due to the fact that there are significant sunk costs in exporting, and firms have to generate significant profits before they are able to export. Roberts and Tybout (1997) found that in Colombia, firm size (as measured by the amount of capital stock), increases the possibility of exporting. Dueñas- Caparas (2006) found a non-linear but positive relationship between a firm's export decision and enterprise size, in terms of the number of employees, in the clothing sector in the Philippines. However, this relationship was not significant in the electronics and food processing sectors. Jongwanich and Kohpaiboon (2008), by using sales data as a proxy for firm size, also showed a significant positive relationship in the export decision in Thai manufacturing firms; however, but unlike the Philippine study, they showed that the relationship was linear.

Several recent studies on SMEs have shown similar results. Amornkitvikai and others (2012) found a non-linear relationship between export participation and firm size. Trung and others

(2008) also found that SMEs were more likely to participate in export markets, compared to micro firms.

2.2. Firm age and experience

It is not clear whether or not there is a positive relationship between firm age and the decision to export, see for example Moen and Servais (2002). Nevertheless, Roberts and Tybout (1997) found a positive relationship between firm age and exporting decision. Using data from a set of Columbian plants, they explained that because older firms had experience and familiarity with the production process, they were more efficient than younger firms. However, it is also possible that younger firms, established during a period of greater trade openness, are more likely to undertake export activities. In the Philippines, Dueñas-Caparas (2006) found that although non-linear, the export-age relationship was robust in the clothing sector but was not present in the electronics and the food processing sectors.

2.3. Productivity

Roberts and Tybout (1997) found evidence that high-productivity firms were more likely to export rather than low-productivity firms. Since there are sunk costs of entry into export markets, only the more profitable, and therefore more productive, firms are able to hurdle the constraints posed by sunk costs. Aldaba (2012b) provided data from the Philippines that showed this relationship also worked in the opposite way, i.e., that trade liberalization and greater opportunities for export lead to higher productivity.

Conversely, trade protection results in productivity losses. This is consistent with findings that show trade liberalization leads to greater availability, and subsequently lower transaction costs for intermediate goods and raw materials. Amornkitvikai and others (2012) found a non-linear relationship between export participation and performance, and labour productivity. Trung and others (2008) also found that SMEs were more likely to participate in export markets. Using Tobit and probit regressions, Rasiah and others (2010) undertook an analysis of the participation of Malaysian SMEs in export markets, and found that labour productivity has an impact on export intensity.

2.4. Firm ownership and networks

Using the fragmentation theory of Jones and Keirzkowski (1990), Tranh and others (2010) noted that production networks were important in the East Asian perspective (Ando and Kimura, 2005). Thus, particularly in Asia, international trade is also tied to membership in production networks or value chains within and around the region, and the relationship is strong across the countries within the region. They found that foreign ownership increased the likelihood of firm participation in such networks. Trung and others (2008) also found that foreign investment enterprises were positively and significantly related to exporting. Athukorala and others (1995) found that while affiliation with a multinational enterprise increased the propensity for exporting, it did not increase its intensity.

2.5. Regulatory and infrastructure barriers

Suarez-Ortega (2003) noted that, based on Ramaswami and Yang (1990), burdensome regulations and poor infrastructure acted as barriers to exporting by SMEs. These constraints can be varied and complex, and include bureaucratic rules and regulations such as those concerned with quality control procedures and safety standards. In addition, the existence of corruption, tariff and non-tariff barriers, transportation and infrastructure raises the costs incurred by SMEs when engaging in export activities.

2.6. Access to finance

Beck and Demirguc- Kunt (2006) examined the literature on the relationship between financial variables and the growth of SMEs, and found that a lack of access to formal sources of finance placed constraints on SME growth. Thus, strengthening the development of financial institutions should be a priority for policy reform as these institutions are crucial to improving trade flows, as several studies have pointed out. Berman and Hericourt (2008) studied the relationship between financial variables and trade, and found that access to finance had an impact on the decision to export but not on the volume of exports. They also noted that access to finance removed the constraints affecting the connection between productivity and trade.

In addition, Harvie and others (2010) found that financial leverage variables had an impact on the decision by SMEs to participate in international production networks in Asia.

However, Trung and others (2008) did not find any significant relationship between the decision to trade and the availability of credit for small Vietnamese firms.

2.7. Location, including transportation costs and industrial agglomeration

The presence of transportation and communication infrastructure makes it more likely that firms will undertake export activities. Because efficient infrastructure services reduce the cost of trading, they enhance the competitiveness of firms. In China, for example, Zhao and Zhou (2002) found that firms located in the coastal regions (where the infrastructure is better developed) were able to provide more timely deliveries as well as respond better to changing economic and market conditions. Trung and others (2008) and Amornkitvikai and others (2012) found that regional variables were also important in terms of explaining the decision among Vietnamese and Thai firms to export.. Regional variables could thus serve as indicators of the state of the infrastructure.

2.8. Capital and skills intensity

Bernard and Jensen (2004) showed that exporters in developed countries are more capital-intensive and skill-intensive than non-exporters; this is consistent with the standard Hecksher-Ohlin-Samuelson theory which states that more capital-abundant countries will export capital-intensive goods. But it is more difficult to apply the theory in developing countries, which is said to be more labour-abundant, since exporters in these countries are, like their developed country counterparts, are also more capital- and skill- intensive. Bernard, Redding, Jensen and Schott (2011) acknowledged that this may be explained by capital-skill complementarities in the production of goods and quality upgrading among exporting firms.

In many empirical papers examining developing countries, the evidence regarding the existence of capital and skills premium among exporters had been mixed. Athukorala and others (1995) found a positive relationship between capital intensity and export activity, but Amornkitvikai and others (2012) found a negative relationship. Xeugong and Xueyan (2010) observed that the skill intensity of an SME was a positive factor as it had an impact on participation in production networks. In the Philippines, Dueñas-Caparas (2006) found that skill intensity, as measured by the share of skilled workers in the total number of workers,

and capital intensity, as measured by the ratio of value of capital stock to total wages, had a positive relationship with the decision to export.

2.9. Managerial expertise and quality certification

Holzmuller and Kasper (1991) also observed that certain characteristics of firm managers had an impact on a firm's ability to export; the orientation of managers towards international trade has been identified as a critical performance factor for export propensity among SMEs. Araujo and Niera (2006) suggested that several managerial factors affected this trade view, including education level, number of languages spoken, length of experience (especially internationally) and risk-taking attitudes. On the other hand, quality certification has been found to be an important factor in the growth of services exporting industries in India, i.e., Arora and Asundi (1999). Terlaak and King (2006) noted that certification acted as a "signal" for firm managers seeking to credibly communicate their ability to produce quality goods to their customers, thereby reducing information costs. Certification thus addresses partially problems arising from asymmetry issues.

3. Data utilized in this study

The present study utilized the 2008 Enterprise Survey for the Philippines, undertaken by the World Bank (2010) as part of the World Bank's "East Asia and Pacific Enterprise Survey" and utilized as inputs to their "Costs of Doing Business Surveys". The survey operations were undertaken between May and December 2008.

A total of 1,326 firms were surveyed in Manila City, Metro Manila (outside of Manila), Southern Tagalog, Central Luzon and Metro Cebu. The sample was taken from the 2007 NSO Updated List of Establishments. The survey responses were self-reports by managers or staff. In the survey, more than 100 variables covered the following aspects: (a) basic firm information for productivity and accounting analysis (e.g., value of sales and exports; and number of workers); (b) objective data on certain firm processes (e.g., amount of time needed to get permits, and time to export); and (c) subjective information on business constraints (e.g., perception of corruption and infrastructure as obstacles).

Tables 9, 10 and 11 show the industry and regional breakdown of the survey respondents, by size of firm and non-exporter/exporter categories. The World Bank Enterprise Survey defines small firms as firms with 5 to 19 employees, medium firms as firms with 20 to 99 employees, and large firm as those with 100 or more employees. The sub-sample of 1,000 SMEs was taken from the study for the analysis. Firms belonging to the retail and other services industries were also excluded from the study.

Table 9. Breakdown of survey respondents by industry and size, 2008

Industry (2-digit PSIC code)	Small firms	Medium firms	Large firms	Total number of respondents
Food (15)	71	45	23	**139**
Textiles and garments (17 and 18)	72	42	31	**145**
Chemicals (24)	20	73	32	**125**
Plastic and rubber (25)	44	88	45	**177**
Non-metallic mineral products (26)	29	69	25	**123**
Electronics (31 and 32)	26	43	67	**136**
Other manufacturing	40	66	40	**146**
Retail	86	56	29	**171**
Other services	63	67	34	**164**
Total	**451**	**549**	**326**	**1 326**

Source: World Bank, 2010.

Table 10. Regional breakdown of survey respondents, 2008

Region	Non-exporters		Exporters		Total number of respondents
	Obs.	%	Obs.	%	
NCR (excluding Manila)	620	83%	124	17%	744
Manila	55	93%	4	7%	59
Region 3	91	83%	18	17%	109
Region 4	176	67%	85	33%	261
Region 7 (Cebu)	111	74%	40	26%	151
Total	1,053	80%	271	20%	1,324

Source: World Bank, 2010.

Table 11. Industry breakdown of exporting survey respondents, 2008

Industry (2-digit PSIC code)	Small exporters		Medium exporters		Large exporters	
	Obs	%	Obs	%	Obs	%
Food (15)	4	6%	4	9%	7	30%
Textiles and garments (17 and 18)	7	10%	8	19%	22	71%
Chemicals (24)	1	5%	10	14%	6	19%
Plastic and rubber (25)	6	14%	20	23%	17	38%
Non-metallic mineral products (26)	1	3%	13	19%	12	48%
Electronics (31 and 32)	5	19%	15	35%	48	73%
Other manufacturing	2	5%	21	32%	23	58%
Retail	1	1%	1	2%	0	0%
Other services	2	3%	9	13%	6	18%
Total	29	6%	101	18%	141	43%

Source: World Bank, 2010.

4. Empirical model

This paper assesses the factors that determine the decision by SMEs in the Philippines to export (export propensity) as well as the variables that affect export value (export intensity). The empirical model has to take into consideration the possibility that the sub-sample of firms with positive export value is not random, i.e., the unobservable factors determining export propensity are correlated with the unobservable variables affecting export value (Estrin and others, 2008). To correct for this possible sample selection bias, the Heckman selection model was used in this study.

The likelihood function for the Heckman selection model can be divided into two parts: (a) a probit for the probability of being selected; and (b) an OLS regression for the expected value of the outcome variable in the selected sub-sample (Correa and others, 2007)

The structural model applied in this study is:

$$\begin{aligned} Export\ propensity_i^* &= \alpha_0 + \alpha_1 Firm\ Size_i + \alpha_2 Foreign\ ownership_i + \alpha_4 Quality\ certification_i \\ &+ \alpha_5 Overdraft + \sum_m \eta_m\, Obstacles_{mi} + \sum_k \theta_k\, Controls_{ki} + e_i \end{aligned} \quad (1)$$

$$\begin{aligned} Export\ value_i^* &= \beta_0 + \beta_1 Small_i + \beta_2 Labor\ productivity_i + \beta_3 Firm\ Age_i \\ &+ \beta_4 Managerial\ education_i + \beta_5 Quality\ certification_i \\ &+ \sum_n \vartheta_n\, Obstacles_{ni} + \sum_p \theta_p\, Controls_{pi} + u_i \end{aligned} \quad (2)$$

$$Export\ propensity_i = \begin{cases} 1, & \text{if } Export\ propensity_i^* > \mathbf{0} \\ 0, & \text{otherwise} \end{cases} \quad (3)$$

$$Export\ value_i = \begin{cases} Export\ value_i^*, & \text{if } Export\ propensity_i = \mathbf{1} \\ 0, & \text{otherwise} \end{cases} \quad (4)$$

where equation (1) represents a firm's export participation decision (propensity) and is associated with the indicator function in equation (3). Equation (2) describes the latent variable, i.e., the export value of a firm. The observed export value is positive if the firm decides to export, and is zero if the firm decides not to export. The Heckman selection model is used to estimate both equations to avoid the problem of sample selection bias.

The variables utilized in this study are given in table 12. Other variables in the firm dataset are also explored in conjunction with this study. For example, other finance variables are available in the dataset, including the proportion of working capital and fixed assets coming from different sources (internal generation, banking sources, non-bank sources and supplier credit), the value of loans in the previous year, necessity of collateral for borrowing, the provision of trade credit, among others. In addition, the years of experience and gender of a manager are available. Similarly, numerous "obstacle" variables are available in the dataset, including the perceptions of firms' informants of the presence of crime, access to infrastructure (such as power and electricity), and customs and trade regulations. However, the only variables that are significantly related to the export propensity and export value are reported in table 12; the choice of these variables is based on the significance of this relationship.

The descriptive statistics and correlation matrix of the variables are also provided in annexes 1 and 2, respectively. See annexes 3a and 3b for the measures of the relationship.

Table 12. Definition of variables

Dependent variables	
Export propensity	Dummy variable taking the value 1 if the firm was an exporter in 2008, and 0 if the firm did not export.
Export Valua	Export value of firm, in Philippine pesos, in natural logarithm form.
Small	Dummy variable taking the value of 1 if firm size is small (5 to 19 employees), and 0 if firm size is medium (20 to 99 employees).
Foreign Ownership	Percentage of firm owned by private foreign individuals, companies, or organizations.
Labour Productivity	Ratio of sales over number of employees, in natural logarithm form
Age	Firm age (in years).
Managerial Education	Qualitative variable denoting the education level of firm manager; has a value of 0 if no education completed, 1 if completed primary education, 2 if secondary education, 3 if vocational education, 4 if tertiary education and 5 if graduate education.
Quality Certification	Export value of firm, in Philippine pesos, in natural logarithm form.
Overdraft Facility	Presence of an overdraft facility, i.e., arrangement with bank to fund withdrawals without sufficient deposits.
Transportation Administration	Administration and management of shipping ports and airports
Foreign Ownership	Practices of competitors in the informal sector
Finane	Access to finance, including availability and cost of credit, interest rates, fees/ other charges and collateral requirements
Regional Dummy	Dummy variable taking the value of 1 if the firm is located in Manila/ Central Luzon/ Southern Tagalog/ Cebu, and 0 if the firm is not located in the regions. Comparator is National Capital Region (ex- Manila).
Industry Dummy	Dummy variables that take on the value of 1 if the firm is part of the following industries: textiles and garments, chemicals, plastics and rubber, non-metallic mineral, electronics, and other manufacturing. The comparator is other manufacturing.
Orientation Dummy	Dummy variables that take on the value of 1 if the firm is part of a sub- sector which exhibits a specific trade orientation: exportable, importable, mixed or non-traded; these are based on their Philippine Standard Industrial Code (PSIC) code. This dummy is at the sub-industry level so that sub-industries belonging to the same industry may have different trade orientation levels. The comparator is exportable. See Aldaba (2010) for the specific definition of the variables, and the classification of the sectors

5. Empirical results

The results for the following independent models are provided in this section: (a) the probit model and the logit model for export propensity, and (b) the OLS for export value. In addition, for the export propensity and export value (intensity) regressions, the regional, industry and trade orientation dummies are utilized in order to check for the robustness of the results.

The results for the export propensity regressions are shown in table 13. The signs for all variables, except for labour productivity, are correct; however, only foreign ownership, quality certification and competition obstacle variables are significant across different specifications. Firm size (small) only becomes significant only when industry dummies were included. The full results are replicated in annex 4.

The results for the export value (intensity) regressions are shown in table 14. Size, labour productivity and firm age are the only variables that are significant. Other variables, such as quality certification, managerial education, foreign ownership, and firm perception of poor performance of ports and airports as well as access to finance are not significant in any of the specifications below. The full results are replicated in annex 5.

Table 13. Export propensity regressions

	Export as dependent variable				
Regressors	(1)	(2)	(3)	(4)	(5)
Foreign ownership	0.00949***	0.00984***	0.00855***	0.00907***	0.00887***
	(0.001850)	(0.001900)	(0.001930)	(0.001910)	(0.001970)
Labor productivity (in logs)	-0.0165	-0.0214	0.0181	-0.013	0.0132
	(0.0488)	(0.0491)	(0.0489)	(0.0485)	(0.0493)
Firm size (small)	-0.286	-0.287	-0.323*	-0.27	-0.330*
	(0.1520)	(0.1530)	(0.1590)	(0.1530)	(0.1600)
Managerial education	0.209	0.202	0.216	0.227	0.207
	(0.1340)	(0.1370)	(0.1380)	(0.1400)	(0.1420)
Quality certification	0.445**	0.469**	0.461**	0.442**	0.485**
	(0.1570)	(0.1590)	(0.1610)	(0.1600)	(0.1640)
Overdraft facilities	0.00343	0.00486	0.033	0.0342	0.0388
	(0.1600)	(0.1590)	(0.1630)	(0.1620)	(0.1620)
Competition as Obstacle	-0.329*	-0.349*	-0.352*	-0.342*	-0.370*
	(0.1460)	(0.1450)	(0.1490)	(0.1480)	(0.1490)
Constant	-1.654*	-1.571*	-2.008**	-1.536	-1.952*

	(0.7290)	(0.7510)	(0.7570)	(0.8820)	(0.7810)
With regional dummies	N	Y	N	N	Y
With industry dummies	N	N	Y	N	Y
With trade orientation dummies	N	N	N	Y	N
N	530	530	530	510	530
pseudo R-sq	0.150	0.153	0.173	0.150	0.178

Asterisks denote level of signifiance: *, p<0.05; **, p<0.01; ***, p<0.001. Y and N signify presence and absence of dummy variables, respectively.
Note: Probit regression marginal effects reported; robust standard errors in parentheses.

Table 14. Export intensity regressions

	Log value of exports as dependent variable				
Regressors	-1	-2	-3	-4	-5
Firm size (small)	-0.736*	-0.711*	-0.711*	-0.700*	-0.719*
	(0.3240)	(0.3090)	(0.3490)	(0.3360)	(0.3380)
Labor productivity (in logs)	0.906***	0.961***	0.878***	0.883***	0.941***
	(0.1050)	(0.1050)	(0.0979)	(0.1120)	(0.1000)
Age	0.0715*	0.0657*	0.0685*	0.0701*	0.0640*
	(0.0319)	(0.0298)	(0.0316)	(0.0327)	(0.0301)
Age squared	-0.00186***	-0.00183***	-0.00186***	-0.00182**	-0.00182***
	(0.0005)	(0.0005)	(0.0005)	(0.0006)	(0.0005)
Quality certification	-0.126	-0.132	-0.236	-0.0189	-0.191
	(0.3320)	(0.3310)	(0.3220)	(0.3520)	(0.3190)
Managerial education	0.0785	0.0238	0.0344	0.145	-0.0169
	-0.2440	-0.2250	-0.2710	-0.2650	-0.2650
Foreign ownership	0.001	-0.000659	-0.00068	0.000495	-0.00178
	(0.0032)	(0.0033)	(0.0030)	(0.0034)	(0.0032)
Ports and airports	0.104	0.0711	-0.00234	0.0868	-0.0164
administration as obstacle	(0.3400)	(0.2770)	(0.3190)	(0.3470)	(0.2800)
Finance as obstacle	-0.0422	0.0707	-0.0243	-0.0209	0.11
	(0.4050)	(0.3120)	(0.3960)	(0.4290)	(0.3270)
Constant	3.665*	2.953	5.060**	4.117*	4.187*
	(1.7080)	(1.7530)	(1.6850)	(1.7380)	(1.7930)
With regional dummies	N	Y	N	N	Y
With industry dummies	N	N	Y	N	Y
With trade orientation dummies	N	N	N	Y	N
N	91	91	91	88	91
adj. R-sq	0.557	0.625	0.589	0.541	0.644

Asterisks denote level of signifiance:*, p<0.05; **, p<0.01; ***, p<0.001. Y and N signify presence and absence of dummy variables, respectively.
Note: Robust standard errors are in parenthesis.

The Heckman selection model was then applied to the 2008 Enterprise Survey in order to investigate constraints to export propensity and export value (intensity) at the firm level in the Philippines. Table 15 shows the outcome of the Heckman estimation. Firms make two

interdependent decisions: (a) whether to export or not; and (b) how much to export. The linear regression results for export value are shown in column (1), while those of the probit model estimates for export propensity are given in column (2).

The Heckman two-stage model explicitly addresses bias caused by correlation of the regressor with omitted variables. This is done through the addition of the inverse Mills ratio that represents the non-zero expectation of the error term in the regression. A common interpretation of this term is to consider it as private information driving the selection decision to export. The results of the selection mode are specified in table 15; the alternative specifications of the Heckman estimation are also given in annex 6.

Table 15. Heckman estimation of export propensity and intensity

Specification	(1)	(2)	(3)
	Export value (logs)	Export propensity	
	Outcome	Selection	Mills
Firm size (small)	-0.762*	-0.345*	
	(0.3180)	(0.1430)	
Labour productivity (logs)	0.967***		
	(0.0942)		
Foreign ownership		0.00973***	
		-0.00173	
Quality certification		0.479**	
		-0.15	
Presence of overdraft facility		-0.011	
		-0.164	
Competition as obstacle		-0.330*	
		-0.14	
Lambda			-0.352
			-0.346
Constant	4.031**	-1.123***	
	-1.496	-0.119	

Standard errors in parenthesis. Number of asterisks denote level of significance:
*,p<0.05; **, p<0.01; ***, p<0.001. Note: Heckman two-step maximum likelihood estimation method.

In order to further check the robustness of the results, particularly in assessing the robustness of quality certification and managerial education variables, regional and industry indices have been utilized for managerial education and quality certification. In addition, regional-industry indices have been created by utilizing the mean of the regressors by region or industry and then applying the results as the values for these variables in each of the firms. Lanzona and Evenson (1997) used this procedure in analysing the effects of transaction costs on labour participation and earnings.

Table 16 assesses the effect of various quality certification and managerial education indices on export propensity. Firm size, foreign ownership and competition variables are still significant and have the correct signs; however, only the industry index for quality certification has the correct sign and is significant. Annex 7 shows the export propensity regressions with the same indices; there are no indices for quality certification and managerial education that are significant in this regression.

Table 16. Export propensity regressions with indices for quality certification and managerial education

	Export propensity as the dependent variable				
Regressors	(1)	(2)	(3)	(4)	(5)
Firm size (small)	-0.286	-0.391**	-0.429**	-0.380*	-0.431**
	(0.1520)	(0.1470)	(0.1500)	(0.1480)	(0.1510)
Foreign ownership	0.00949***	0.0106***	0.00989***	0.0102***	0.00970***
	(0.0019)	(0.0018)	(0.0019)	(0.0019)	(0.0019)
Labour productivity (ln)	-0.0165	0.0305	0.052	0.03	0.0494
	(0.0488)	(0.0444)	(0.0447)	(0.0439)	(0.0451)
Managerial education	0.209				
	(0.1340)				
Quality certification	0.445**				
	(0.1570)				
Presence of overdraft facilities	0.00343	0.0618	0.0559	0.055	0.0689
	(0.1600)	(0.1600)	(0.1610)	(0.1600)	(0.1600)
Competition as an obstacle	-0.329*	-0.330*	-0.314*	-0.325*	-0.336*
	(0.1460)	(0.1410)	(0.1430)	(0.1430)	(0.1410)
Regional index - quality certification		-0.313			-0.716
		(0.6480)			(0.8360)
Regional index - managerial education		0.956			0.895
		(0.8970)			(1.0100)
Industry index - quality certification			3.073*		3.071
			(1.4620)		(1.6080)
Industry index - managerial education			-3.077*		-3.510*
			(1.4110)		(1.5770)
Regional-industry index - quality certification				0.227	0.358
				(0.4100)	(0.6590)
Regional-industry index - managerial education				-0.0854	0.153
				(0.34)	(0.44)
Constant	-1.654*	-5.017	9.758	-1.018	7.453
	(0.7290)	(3.5620)	(5.1600)	(1.4060)	(6.6130)
N	530	546	546	546	546
pseudo R-sq	0.15	0.127	0.134	0.126	0.138

Number of asterisks denote level of signifiance:*, p<0.05; **, p<0.01; ***, p<0.001.
Note: Probit regression marginal effects reported; robust standard errors in parentheses.

Table 17 assesses the effect of various quality certification and managerial education indices on export intensity. Only firm size and labour productivity are still significant and have the correct signs; however, only the regional and regional industry for managerial education indices have the correct sign and are significant. Annex 8 shows the export intensity regressions with the same indices.

Table 17. Export intensity regressions with indices for quality certification and managerial education

	Export intensity as the dependent variable			
Regressors	-1	-2	-3	-4
Firm size (small)	-0.810*	-0.837**	-0.776*	-0.871**
	(0.3410)	(0.3140)	(0.3190)	(0.3150)
Labour productivity (ln)	0.975***	0.951***	0.907***	0.929***
	(0.1040)	(0.0863)	(0.0937)	(0.0857)
Age	0.0487	0.0471	0.0444	0.05
	(0.0359)	(0.0318)	(0.0311)	(0.0320)
Age squared	-0.00124	-0.00124	-0.00128	-0.00124
	(0.0008)	(0.0006)	(0.0007)	(0.0007)
Quality certification	-0.234			
	(0.3200)			
Managerial education	0.105			
	(0.2390)			
Foreign ownership	0.00238	0.00163	0.00244	0.00238
	(0.0031)	(0.0032)	(0.0029)	(0.0031)
Regional index - quality certification		0.673		
		(1.3000)		
Regional index - managerial education		3.903**		
		(1.2670)		
Industry index - quality certification			-4.752	
			(2.8300)	
Industry index - managerial education			5.633	
			-2.842	
Regional- industry index - quality certification				-0.746
				(0.7830)
Regional-industry index- managerial education				1.768**
				-0.667
Constant	2.709	-12.39*	-16.92	-3.195
	(1.6270)	(5.1140)	(10.1300)	(2.6460)
N	100	106	106	106
adj. R-sq	0.575	0.608	0.587	0.607

Number of asterisks denote level of significance:*, p<0.05; **, p<0.01; ***, p<0.001.
Note: Robust standard errors are in parenthesis.

5.1. Firm size

The results show that firm size has a significant effect both on export propensity and on the log of export value. Relatively larger firms are more likely to participate in foreign markets and have higher export value. This may be because larger firms have production and cost advantages over smaller firms. Firm size is robust to the inclusion of other regressors only in the export intensity equation.

Small firms are less likely to export than large ones. Unlike large companies, small firms cannot easily harness the necessary resources to cover the sunk costs associated with breaking into export markets. On the other hand, large firms have the resources to develop marketing channels, new product testing and standard compliance procedures, which are important when penetrating export markets. The volume of exports, which is the measure of performance in this study, is related to the supply capacity of a firm, which in turn, is limited by the size of that enterprise. The findings are consistent with those of Jongwanich and Kohpaiboon (2008), Trung and others (2008), and Amornkitvikai and others (2012).

5.2. Foreign ownership

The results show that foreign ownership has a significant and positive effect on a firm's export propensity; a higher percentage of foreign ownership increases the probability of a firm exporting. This implies that foreign ownership helps domestic firms export to foreign markets.

As noted in the literature review, the same factor has been observed in similar studies of SME export behaviour (Jongwanich and Kohpaiboon, 2008; Amornkitvikai and others, 2012). Those studies identified foreign ownership as a conduit for technology or technical know-how transfer, capital and market intelligence from the foreign partners to the domestic counterparts or affiliates.

Foreign or multinational firms are thought to have a firm-specific or inherent advantage in terms of technology or in-depth knowledge of the markets they serve (distribution, pricing, consumer preferences, trade regulations etc.). This indicates that foreign partners have already incurred, by and large, the sunk costs associated with penetrating the export market, such as establishing distribution channels and networks of raw material suppliers, financing

arrangements etc. The domestic affiliates/partners are thus spared from having to provide the necessary resources to meet the fixed costs incurred in exporting.

5.3. Labour productivity

Labour productivity, on the other hand, has a significant and positive relationship with the log of export value. This implies that more efficient firms have a better export performance. This is consistent with the principle that the export premium of firms is linked to their superior productivity compared to domestically-oriented firms.

5.4. Quality certification and managerial education

The presence of international quality certification among firms has been found to be a significant determinant of export activity. However, when assessed by transforming the quality certification variable into regional and industry indices to control for exogeneity, the relationship disappears. Thus, this shows that the "signalling" relationship that affects firm performance, as observed in several articles, may also be present for this sample of Filipino firms. Managerial education was significant in some of the export propensity equations (see annex 4), but the results were not robust to the inclusion of several other regressors.

5.5. Competition and access to finance and infrastructure

For the analysis of the effects of obstacles to business operations, the perception of firms on the severity of these obstacles has been used. The obstacles included in the model are:

(a) Competition – significant and negatively-related to export propensity;
(b) Management of ports and airports – significant and positively-related to the log of export value, but not robust to the presence of additional regressors;
(c) Finance – significant and negatively-related to the log of export value, but not robust to presence of additional regressors.

The only variable that is significant in the regressions is the "obstacles" cited as practices of competitors from the informal sector. It is interesting to note that the sign is negative, implying that the probability of increasing export volumes declines with the frequency of citations of this obstacle. As in the previous observation, as the export volume expands, the

linkage of a firm with the informal sector diminishes – be it in contractual labour or a subcontracting arrangement. As operations expand, the demands for compliance with regulations – accounting, labour arrangements, taxes and documentation – usually increase. The documentation required for exporting activities are, of course, much more stringent.

The empirical results indicate that some concern exists over the administration of port and airport shipping services in the Philippines, since this affects the amount of trade being undertaken by the country. Radelet and Sachs (1998) showed that the quality of ports administration affects shipping costs; the better the management of trading ports, the less are the bureaucratic impediments to trade and the greater are the volumes that can be traded.

Access to finance is an important concern of exporters. The results of this study partially support recent research in the Philippines (Aldaba, 2012a; Aldaba and others, 2010) that examined the channels through which finance supports SME growth. SMEs are relatively more liquidity-constrained due to fewer contacts in the formal banking industry and a relative shorter history in their relationship with the financial sector. The provision of finance also affects innovation and the opening of new markets, which, in turn, have an impact on a company's ability to trade overseas. As indicated above, the literature is replete with works identifying financing as a major constraint for SMEs in general, particularly when exporting. However, ports administration and access to finance only have an impact on export intensity in individual cases.

6. Policy implications

6.1. Firm size

The size of an enterprise is also a significant determinant in deciding whether or not to export as well as in export performance. Small firms are less likely to export than large ones. Unlike large companies, small firms cannot easily harness the necessary resources to cover the sunk costs associated with breaking into the export market. On the other hand, large firms have the resources to develop marketing channels, new product testing and standard compliance procedures, among other factors, all of which are important in successfully penetrating the export market. The volume of exports, which is the measure of performance

in this study, is related to the supply capacity of a firm; this, in turn, is limited by the size of enterprise.

Given the empirical results, policy action to promote SME exports should be directed towards increasing the size of firms. From the supply side perspective, increasing firm size among SMEs is associated with increasing capacity. Expanding capacity, in turn, is tantamount to investment. What, then, impedes investment spending by SMEs?

Given that markets work well, it is natural to expect firms that are competitive to grow. However, if there are market failures (that impede the natural course of firm growth), there is scope for policy action. Thus, Tecson (2004) argued that since small firms faced growth constraints that were specific to them, they might require the provision of specialized institutions or instruments that were perhaps inadequate in prevailing market conditions. Such conditions call for government intervention.

As discussed above, the literature on the policy environment surrounding SMEs in the Philippines is replete with references to financing constraints. The impediments to financing for SMEs appear to be a major obstacle to growth in terms of size (Japan Organization for Small and Medium Enterprises and Regional Innovation, 2008; Aldaba, 2010 and 2012a; Tranh and others, 2010). Aldaba (2012a) stated that SMEs had been unable to access needed funds due to their limited track record, limited acceptable collateral, and inadequate financial statements and business plans, all of which are normally required by banks to determine the creditworthiness of SMEs.

Policymakers are well aware of the problems experienced by SMEs in accessing financing. Government programmes, together with international aid agencies, have embarked on a number of programmes and project interventions designed to address credit and financing bottlenecks. Microcredit schemes and government-mandated guidelines for SME financing by commercial banks are some of the initiatives being pursued in this area. It appears however, that the performance of many such programmes has not been on a par with expectations (Japan Organization for Small and Medium Enterprises and Regional Innovation, 2008).

Because financing constraints arise from information asymmetry, Aldaba (2012a) recommended the implementation of the Central Credit Information Corporation. She pointed out that there was scope for training and capacity-building programmes for SMEs to improve their financial literacy and management capacity. Improving the capacity of SMEs to

construct prepare financial statements at a level of quality that is acceptable to financing institutions would lower the transaction costs of financing.

6.2. Foreign ownership

The present study has found that the presence of foreign ownership is a consistently significant factor in affecting both export participation and export performance. As noted in the literature review, the same factor has been observed in similar studies of SME export behaviour (Jongwanich and Kohpaiboon, 2008; Amornkitvikai and others, 2012).

The presence of foreign ownership, as stated above, contributes to improved firm performance through the provision of better access to technology, finance and market information. Multinational corporations would likely have made significant investments in developing distribution and supplier networks as well as financial channels, which their local partners can utilize in producing and marketing their products.

Aldaba (2012c) investigated the determinants of survivability or resiliency of manufacturing firms in the Philippines. The results indicated that higher levels of foreign equity participation were associated with greater survivability. Further, the study claimed that firms with foreign ownership were generally more export-oriented, and had higher productivity levels. Such observations are consistent with the findings of the present study.

If foreign participation is an important factor in the extensive and intensive margins of the firms covered in this study, then policy action directed at facilitating foreign investments should be promoted. There are a number of avenues through which this can be done. The first approach is the creation of an environment that encourages foreign direct investment (FDI), especially export-oriented FDI. Another approach is to promote or facilitate the matching of foreign interests with local companies with the objective of forming a joint venture or partnership. Investment incentives have a role in the former, while matching programmes based on databases and accreditations can be designed for the latter.

There are already a number of provisions that extend incentives to export-oriented SME exporters. For example, the Bureau of Small Medium Establishment Development (2004) reported that the EO 226 Omnibus Investments Code of 1987 and RA 7918, an Act Amending Article 39 of EO 226 extended trade-tied incentives. These provisions enable:

(a) The exemption of exporters from the requirement for advance payment of customs duties and taxes;
(b) Duty-free importation of machinery and equipment, raw materials and packaging;
(c) Tax credit for imported inputs and raw materials that are primarily used in the production and packaging of export goods and which are not readily available locally;
(d) A tax credit of 25% of duties paid on raw materials and capital equipment and/or spare parts. The credit is available to exporters of non-traditional products that use or substitute locally- produced inputs.

Tecson (2004) further reported that if they were located in the Philippine Economic Zone Authority, Clark Special Economic Zone Authority and the Subic Special Economic and Freeport Zone Authority, export-oriented SMEs were eligible to apply for incentives such as:

(a) Exemption from corporate income tax from four to eight years, duties and taxes on imported capital equipment, spare parts, raw materials and supplies, and national and local taxes (including value-added tax for certain exporting industries); and
(b) Tax credit for import substitution, domestic capital equipment.

These sets of existing incentives could also conceivably attract FDI from SMEs wanting to use the Philippines as an export platform. Alternatively, these incentives would improve the prospects for domestic SMEs being able to match with a foreign interest in a joint venture or partner agreement.

A related programme area concerns the identification of a suitable foreign partner or joint venture counter party. Tecson (2004) stated that it was difficult for SMEs to find suitable foreign partners to engage in joint ventures, networks or alliances for internationalization. A lack of adequate information for prospective foreign interests on the capability and quality standards of domestic SMEs could be a hurdle. Therefore, the ability of SMEs to demonstrate their production capability at acceptable quality standards, using accreditation instruments, will be an important factor in securing contracts or partnership arrangements. Another programme to overcome inadequate information on domestic SMEs, according to Tecson (2004), was the use of appropriate databases that match SMEs with specific capabilities with subcontractors in need of such services.

6.3. Governance issues

Governance is an important enabler for all industries to prosper, particularly SMEs engaged in exporting. Although specific governance variables do not explicitly appear in the regression, they should be considered in policy discussions. General governance issues arise in the context of the growth of the SMEs. For example, as export volume expands, the linkage of a firm with the informal sector – be it through contractual labour or a subcontracting arrangement – will diminish. Furthermore, as operations expand, the demands for compliance with regulations – accounting, labour arrangements, taxes and documentation – usually increase. The documentation required for exporting activities are, of course, much more stringent. Thus, governance issues such as regulation could become a constraint to SMEs growth, depending on how SMEs deal with it.

The Government of the Philippines is aware of the above-mentioned governance issues that are affecting SMEs. Legislation, such as the “Magna Carta” for MSMEs, and various initiatives undertaken by international bodies such as the Canada International Development Agency and the German aid agency, GIZ, have been introduced with the aim of improving the business environment for SMEs. In addition, the Micro, Small and Medium-Scale Enterprise Development Council, which was established to coordinate and facilitate national efforts to develop SMEs, has produced the MSME Development Plan for 2011-2016. The Plan outlines the various programmes and projects designed to improve the following areas: (a) the business environment; (b) access to finance; (c) access to markets; and (d) productivity and efficiency.

To what extent has the business environment improved as a result of all the regulations, programmes and projects designed to develop the SMEs? Fortunately, a number of indicators have been developed by the international agencies concerned to enable to improvements in governance to be tracked. For example, partly with the objective of promoting awareness of improving governance, the World Bank launched the “Doing Business Project” in 2002. The project provides objective measures of business regulations and their enforcement across 185 economies. More importantly, the project has a focus on domestic SMEs, and analyses the regulations affecting them throughout their life cycle. By ranking countries against a set of objective criteria, it is hoped that the project will encourage policymakers to promote efficient and effective regulation.

Using the indicators in "Doing Business', the frontier analysis is an approach to monitoring improvements in a country's regulatory standards. According to the World Bank,[1] "this measure shows the distance of each economy to the 'frontier', which represents the highest performance observed for each of the indicators across all economies covered in 'Doing Business', since each indicator was included in 'Doing Business'. An economy's distance to the frontier is indicated on a scale of zero to 100, with zero representing the lowest performance and 100 the frontier. For example, a score of 75 in Doing Business 2012 means an economy was 25 percentage points away from the frontier, constructed from the best performances across all economies and across time. A score of 80 in Doing Business 2013 would indicate the economy is improving. In this way, the distance to frontier measure complements the yearly ease of doing business ranking, which compares economies with one another at a point in time".

It would thus be interesting to study how the business environment in the Philippines has improved by using the governance indicators developed by the World Bank. Table 18 shows the performance of the Philippines, using frontier analysis only for a subset of the full range of indicators in Doing Business.

Table 18. Doing business: Distance to frontier analysis

Indicators	DB 2006	DB 2010	DB 2013
Overall	50.4	50.7	51.7
Starting a business	62.4	63.5	65.3
Dealing with Construction Permit	60.2	60.8	62.4
Registering Property	64.1	64.1	64.1
Getting Credit	43.8	43.8	43.8
Trading Across Borders	67.6	68.2	71
Enforcing Contracts	52	51.6	51.6
Resolving Insolvencies	5.3	5.7	6.2

Source: World Bank "Doing Business", available at www.doingbusiness.org/data/distance-to-frontier.

The analysis indicates that the relative performance of the Philippines in matters dealing with permits, as shown in the indicators for (a) starting a business, (b) dealing with construction permits and (c) registering property, showed only a slight improvement from 2006 to 2013. In legal matters, the indicators to look at are enforcing contracts and resolving insolvencies. In this regard, there have been improvements in resolving insolvencies but a very slight deterioration in enforcing contracts. The indicator for trading on time, represented by the

[1] See www.doingbusiness.org/data/distance-to-frontier.

number of days it takes to transport cargo from factory gate to ship. Overall, there has been an improvement in the Philippines over time, given the movements in the indicators of Doing Business, albeit moderately.

6.4. Human capital and quality certification

The empirical results suggest that human capital factors play an important role in the performance of exporters. Firms with high levels of labour productivity usually have higher levels of export volume. This observation implies that one of the sources of competitiveness in exports is the quality of human resources.

According to Aldaba and others (2010), labour productivity of SMEs in the Philippines has, in general, remained at only about half that of large enterprises. In addition, Fukumoto (1998) noted that most SMEs in the Philippines suffered from a lack of skilled labour, insufficient technical training, a lack of information about market opportunities and limited market access. These factors could contribute to the low levels found in firm productivity in manufacturing during the period covered by the study.

These observations and findings clearly indicate the need for human resource development, particularly training. At the firm level, SMEs can be encouraged to conduct training programmes. The Government can provide incentives for these activities by making them tax-deductible. Skills upgrading, through better delivery of vocational programmes should be supported by a government budget. Public-private-academe partnerships in designing curricula, taking into account the evolving demand for competencies, should be pursued in order to make the products of the educational institutions adequately prepared for the workplace.

Firms could also be encouraged to participate in quality certification programmes. This could have an effect similar to that gained from improving efficiency processes within a firm because the programmes would indicate to potential customers outside the Philippines that the company produces “good” products. The criteria for quality certification developed by Philippine Bureau of Product Standards are also important guidelines for exporters.

6.5. State of infrastructure

The state of the infrastructure is recognized as having a direct impact on export competitiveness. Especially with regard to the international production networks, the ability to respond to market requirements and deliver products at the least cost is a premium attribute. Inefficiencies, brought about by the poor state of infrastructure, could act as an indirect or “hidden” tax on exporters. A number of infrastructure-related factors, such as the availability, cost and efficiency of international shipping services (excluding air services), and locational factors, have been found to have a significant influence on the performance of exporters.

The empirical results of this study indicate that firms that voice concern over the port administration services in the Philippines tend to have higher export volumes than those businesses that have not registered complaints. This is rather perplexing. One interpretation is that when firms start to show concern over the quality of international shipping services, then they are already recording adequate levels of export volume.

The general quality of the infrastructure in the Philippines leaves much to be desired. In order to address such limitations, industrial estates and export processing zones have been established. These zones have privately-operated infrastructure services, e.g., ports, power plants, customs offices etc. However, unless they are well-capitalized, SMEs cannot easily afford to be located in export processing zones. Hence, the upgrading of infrastructure of the whole economy becomes an important consideration, particularly for SMEs.

The World Bank has embarked on projects that seek to assess the quality of logistics for 155 countries. To monitor the development of the logistics per country, the World Bank has developed a Logistics Performance Index (LPI). The LPI is based on a worldwide survey of logistics users, such as global freight forwarders and express carriers, which evaluates the ”friendliness” of the countries in which they operate. Thus, it provides a useful benchmark in assessing the progress of a country’s logistical development over time, or rankings across countries. Table 18 presents the comparative LPI of the Philippines compared with certain countries. Germany is the highest-ranked country for LPI, followed by Singapore. The Philippines is ranked at 44, ahead of its ASEAN neighbours, Viet Nam, Indonesia and Myanmar. The Philippines performs quite well against other upper middle income countries in the sample. However, while it does not score satisfactorily in quality of infrastructure relative to Thailand or Malaysia, it does score reasonably well in international shipments, which captures the ease of arranging competitively-priced shipments.

Table 19. Logistical performance Index

Int.	Country	LPI	Customs	Infrastructure	International shipments	Logistics competence	Tracking and tracing	Timeliness
LPI Rank								
1	Germany	4.11	4	4.34	3.66	4.14	4.18	4.48
2	Singapore	4.09	4.02	4.22	3.86	4.12	4.15	4.23
29	Malaysia	3.44	3.11	3.5	3.5	3.34	3.32	3.86
35	Thailand	3.29	3.02	3.16	3.27	3.16	3.41	3.73
44	Philippines	3.14	2.67	2.57	3.4	2.95	3.29	3.83
53	Viet Nam	2.96	2.68	2.56	3.04	2.89	3.1	3.44
75	Indonesia	2.76	2.43	2.54	2.82	2.47	2.77	3.46
133	Myanmar	2.33	1.94	1.92	2.37	2.01	2.36	3.29
Regions								
3	East Asia and Pacific	2.73	2.41	2.46	2.79	2.58	2.74	3.33
Income groups								
1	High income: all	3.55	3.36	3.56	3.28	3.5	3.65	3.98
2	Upper middle income	2.82	2.49	2.54	2.86	2.71	2.89	3.36
4	Low income	2.43	2.19	2.06	2.54	2.25	2.47	2.98

Source: World Bank, available at www1.worldbank.org/PREM/LPI/tradesurvey/mode1b.asp.

Conclusion

This paper briefly reviews the different determinants of export propensity and intensity among SMEs in the Philippines. It utilizes the data from the World Bank enterprise surveys, which contain subjective elements concerning the impediments to conducting business in general (e.g., concerns over labour regulations, shipping etc.). Firm size is shown to be a robust determinant, both of export propensity and intensity. It is also suggested that while labour productivity is important in determining the value of firm exports, there are certain qualities that are important to the initial decision to export, such as foreign ownership as well as the presence of informal competition that acts as a barrier to initial export efforts. This suggests that there are fixed costs that firms have to surmount before they can export. These findings share many similarities with other studies on the exporting behaviour of SMEs in other countries.

The study likewise discusses the policy implications of the findings and suggests that policy focus should be accorded to firm ownership, governance and human capital (training). Addressing the issue of infrastructure improvements is also recommended as an enabling factor in promoting competitiveness.

A review of the various programmes and development plans of the Government of the Philippines as well as various international aid agencies that are aimed at addressing the needs of SMEs reveals that the Government is cognizant of the challenges that SMEs face. The fact that SME concerns still persist suggests that the implementation of related policies can still be strengthened. Enabling SMEs to export is particularly important if trade activities are to be truly inclusive.

References

Aldaba, R.M. (2012a). “Small and medium enterprises’ access to finance: Philippines”, Philippine Institute for Development Studies Discussion Paper No. 2012-05. Makati City.

——— (2012b). “Trade reforms, competition and innovation in the Philippines”, Philippine Institute for Development Studies Discussion Paper Series No. 2012-06. Makati City.

——— (2010). “Does trade protection improve firm productivity? Evidence from Philippine Micro Data”, Philippine Institute for Development Studies Discussion Paper Series No. 2010-32. Makati City.

Aldaba, R.M., E. Medalla, F. del Prado and R. Yasay (2010). “Integrating SMEs into the East Asian region: Philippines”, in V.T. Tranh, D. Narjoko and S. Oum (eds.), *Integrating Small and Medium Enterprises into the more Integrated East Asia*, ERIA Project Report 2009, No. 8. Economic Research Institute for ASEAN and East Asia, Jakarta.

Amornkitvikai, Y., C. Harvie and T. Charoenrat (2012). “Factors affecting the participation and performance of Thai manufacturing small and medium-sized firms”, paper presented at fifty-seventh International Council for Small Business World Conference. International Council for Small Business, Wellington, New Zealand.

Ando, M. and F. Kimura (2005). “The formation of international production and distribution networks in East Asia”, in T. Ito and A. Rose (eds.), *International Trade in East Asia*, National Bureau of Economic Research, East Asia Seminar on Economics. University of Chicago Press, IL, United States.

Araujo, M. L. del Rio and M. C. V. Niera (2006). “Managerial characteristics and export performance in Spanish SMEs”, *ESIC Market* vol. 37, No. 1; pp 191-222.

Arora, A. and J. Asundi (1999). “Quality certification and the economics of contract software development: A study of the Indian software industry”, NBER Working Paper No. 7260. National Bureau of Economic Research, Cambridge, MA, United States.

Athukorala, P-C., S. Jayasuriya and E. Oczkowski (1995). “Multinational firms and export performance in developing countries: Some analytical issues and new empirical evidence”, *Journal of Development Economics*, vol. 46, No. 1; pp 109-122.

Balisacan, A. and H. Hill (2003). *The Philippine Economy: Developments, Policies and Challenges*. Ateneo de Manila University Press, Quezon City, the Philippines.

Beck, T. and A. Demirguc-Kunt (2006). “Small and medium-size enterprises: Access to finance as a growth constraint”, *Journal of Banking and Finance*, vol. 30; pp. 2931-2943.

Berman, N. and J. Hericourt (2008). “Financial factors and the margins of trade: Evidence from cross-country firm-level data”, CES Working Paper No. 50. Centre d’Economie de la Sorbonne, Paris.

Bernard, A. and B. Jensen (2004). “Why firms export”, *Review of Economics and Statistics*, vol. 86, No. 2; pp. 561-569.

Bureau of Micro, Small and Medium Enterprise Development (2004). SME Development Plan 2004-2010. Department of Trade and Industry, Makati City, the Philippines.

Clerides, S., S. Lach and N. Tybout (1998). "Is ‘learning-by-exporting’ important? Micro-dynamic evidence from Colombia, Mexico and Morocco", NBER Working Paper No. 5715. National Bureau of Economic Research, Cambridge, MA, United States.

Correa, P., M. Dayoub and M. Francisco (2007). “Identifying supply-side constraints to export performance in Ecuador: An exercise with investment climate survey data”, World Bank Policy Research Working Paper No. 4179. Washington, D.C.

Dueñas-Caparas, Ma. T. (2006). “Determinants of export performance in the Philippine manufacturing sector”, Philippine Institute for Development Studies Discussion Paper Series No. 2006-18. Makati City.

Estrin, S., K. Meyer, M. Wright, and F. Foliano (2008). “Export propensity and intensity of subsidiaries in emerging economies”, *International Business Review*, vol. 17, No. 5; pp. 574-586.

Fukumoto, M. (1998). “Development policies for small and medium enterprises in APEC – in the case of the Philippines”, APEC Study Centre – Institute of Developing Economies, Chiba, Chiba Prefecture, Japan. Available at www.ide.go.jp/English/Publish/Download/Apec/pdf/1998_04.pdf.

Harvie, C., D. Narjoko and S. Oum (2010). “Constraints to growth and firm characteristics [and] determinants of SME participation in production networks,” in V. T. Tranh, D. Narjoko and S. Oum (eds.), *Integrating Small and Medium Enterprises into the More Integrated East Asia*. Economic Research Institute for ASEAN and East Asia, Jakarta, Indonesia.

Hill, H. (2003). “Industry,” Balisacan, A. and H. Hill (2003). *The Philippine Economy: Developments, Policies and Challenges*. Ateneo de Manila University Press, Quezon City, the Philippines. Holzmuller, H. and H. Kasper (1991). “On a theory of export performance: Personal and organizational determinants of export trade activities observed in small and medium-sized firms”, *Management International Review*, vol. 31, pp. 45-70.

Japan Organization for Small & Medium Enterprises and Regional Innovation (2008). “Small and medium enterprise development policies in 6 ASEAN countries”. Tokyo. Available at www.smrj.go.jp/keiei/dbps_data/_material_/common/chushou/b_keiei/keieikokusai/pdf/SME_in_ASEAN_E1_0803.pdf (accessed 29 September 2012).

Jones, R. and H. Kierzkowski (1990). “The role of services in production and international trade: A theoretical framework”, in R. Jones and A. Kreuger (eds.), *The Political Economy of International Trade*. Basil Blackwell, Oxford, United Kingdom.

Jongwanich, J. and A. Kohpaiboon (2008). “Export performance, foreign ownership and trade policy regime: Evidence from Thai manufacturing,” ADB Economics Working Paper Series No. 140. Asian Development Bank, Manila.

Lanzona, L. and R. Evenson (1997). “The effects of transactions costs on labor market participation and earnings: Evidence from rural Philippine markets”, Economic Growth Center Discussion Paper 790. Yale University, Connecticut, United States.

Micro, Small and Medium-Scale Enterprise Development Council (2011). Micro, Small and Medium Enterprise Development Plan for 2011-2016. Department of Trade and Industry, Manila.

National Statistics Office (2012). 2011 Updating List of Establishments Survey. Manila.

——— (2011). 2010 Updating List of Establishments Survey. Manila.

——— (2008). 2006 Census of Philippine Business and Industry. Manila.

Radelet, S. and J. Sachs (1998). “Shipping costs, manufactured exports and economic growth,” paper presented at the annual of the American Economic Association, 3-5 January 1998, Chicago, United States.

Ramaswami, S. N. and Y. Yang (1990). “Perceived barriers to exporting and export assistance requirements,” in S. T. Cavusgil and M. R. Czinkota (eds.), *International Perspectives on Trade Promotion and Assistance*. Quorum Books, Westport, CT, United States.

Rasiah, R., M. Rosli and P. Sanjivee (2010). “The significance of production networks in productivity, exports and technological upgrading: Small and medium-scale enterprises in electric-electronics, textile-garments, automotives and wood products in Malaysia”, in V.T. Tranh, D. Narjoko and S. Oum (eds.), *Integrating Small and Medium Enterprises into the More Integrated East Asia*. Economic Research Institute for ASEAN and East Asia, Jakarta.

Roberts, M. and J. Tybout (1997). “The decision to export in Colombia: An empirical model of entry with sunk costs”, *American Economic Review*, vol. 87, No. 5; pp. 545-564.

Suarez-Ortega, S. (2003). “Export barriers: Insights from small and medium-sized firms”, *International Small Business Journal*, vol. 21, No. 4; pp. 403-419.

Tecson, G. (2004). “Review of existing policies affecting micro, small and medium enterprises in the Philippines”, Small and Medium Enterprise Development for Sustainable Employment Programme, German Technical Agency, Bonn, Germany.

Terlaak A. and A. King (2006). “The effect of certification with the ISO 9000 standard: A signalling approach,” *Journal of Economic Behavior and Organization*, vol. 60, No. 4; pp. 579-602.

Tranh, V. T., D. Narjoko and S Oum (2010). “Integrating small and medium enterprises into the More Integrated East Asia”, ERIA Project Report 2009, No. 8. Economic Research Institute for ASEAN and East Asia, Jakarta.

Trung, T. Q., N. T. Tung, T. D. Dong and P. H. Duong (2008). “Performance of export-oriented small and medium-sized manufacturing enterprises in Vietnam”, ARTNeT Working Paper Series No. 54. Asia-Pacific Research and Training Network on Trade, United Nations ESCAP, Bangkok.

World Bank (2010). “Philippine Country Profile: 2009 Enterprise Survey”. Washington, D.C.

Xeugong, S. and L. Xueyan (2010). “Integrating China’s small and medium enterprises into international production networks in East Asia,” in V.T. Tranh, D. Narjoko and S. Oum (eds.), *Integrating Small and Medium Enterprises into the More Integrated East Asia*. Economic Research Institute for ASEAN and East Asia, Jakarta.

Zhao, H. and S. Zou (2002). “The impact of industry concentration and firm location on export propensity and intensity: An empirical analysis of Chinese manufacturing firms,” *Journal of International Marketing*, vol. 10, No. 1; pp. 52-71.

Annexes

Annex 1. Descriptive statistics

Variable	Obs	Mean	Std. dev.	Min	Max	Unit of measurement
Dependent variables:						
Export propensity	728	0.1621	0.3688	0	1	Dummy
Export value	109	16.5568	2.0027	11.0021	20.6797	Natural logarithm
Independent variables:						
Small	728	0.4148	0.493	0	1	Dummy
Foreign ownership	726	14.6419	32.873	0	100	Percentage
Labour productivity	605	13.3092	1.5269	9.2103	19.4785	Natural logarithm
Managerial education	976	3.994877	0.7111	1	5	Qualitative
Quality certification	966	0.31677	0.4655	0	1	Dummy
Overdraft facilities	887	0.23788	0.426	0	1	Dummy
Age	970	18.6629	13.7198	0	82	Integer
Ports and airports administration	772	0.15933	0.3662	0	1	Dummy
Finance	956	0.2824	0.4504	0	1	Dummy
Competition	709	0.4485	0.4977	0	1	Dummy
Metro Manila (ex- Manila)	991	0.5651	0.496	0	1	Dummy
Manila	991	0.02624	0.1599	0	1	Dummy
Southern Tagalog	991	0.0777	0.2678	0	1	Dummy
Central Visayas	991	0.22099	0.4151	0	1	Dummy
Cebu	728	0.1016	0.3024	0	1	Dummy
Industry = other manufacturing	991	0.1473	0.3546	0	1	Dummy
Industry = food	728	0.1593	0.3662	0	1	Dummy
Industry = textiles/garments	728	0.1566	0.3637	0	1	Dummy
Industry = chemicals	728	0.1277	0.334	0	1	Dummy
Industry = plastic/rubber	728	0.1813	0.3855	0	1	Dummy
Industry = non-metallic minerals	728	0.1346	0.3415	0	1	Dummy
Industry = electronics	728	0.0948	0.2931	0	1	Dummy
Orientation = exportable	959	0.0219	0.1464	0	1	Dummy
Orientation =importable	959	0.1429	0.3501	0	1	Dummy
Orientation = mixed	959	0.8061	0.3956	0	1	Dummy
Orientation = non-traded	959	0.0291	0.1684	0	1	Dummy

Annex 2. Correlation matrix

	Export propensity	Export value	Small	Foreign ownership	Labour productivity	Manager education	Quality certification	Overdraft facilities	Age	Ports admin	Finance	Competition
Export propensity	1											
Export value	.	1										
	-1											
Small	-0.1736	-0.2585	1									
	0	-0.0067										
Foreign ownership	0.4473	0.4014	-0.1667	1								
	0	0	0									
Labour productivity	0.1053	0.6408	-0.2073	0.2047	1							
	-0.0023	0	0	0								
Manager education	0.16	0.1469	-0.1544	0.1599	0.2625	1						
	0	-0.0246	0	0	0							
Quality certification	0.3163	0.3627	-0.174	0.4017	0.275	0.1957	1					
	0	0	0	0	0	0						
Overdraft facilities	0.0713	0.0762	-0.1439	-0.0023	0.1091	0.14	0.1064	1				
	-0.0338	-0.2649	-0.0002	-0.9451	-0.0026	0	-0.0017					
Age	-0.0481	-0.1302	-0.1598	-0.194	0.0327	0.0709	-0.0038	0.0916	1			
	-0.1344	-0.0462	0	0	-0.3479	-0.0285	-0.9079	-0.0069				
Ports administration	0.0297	-0.1173	0.0106	0.0062	0.0309	0.07	0.0235	0.0507	-0.0184	1		
	-0.411	-0.00784	-0.8069	-0.8637	-0.4262	-0.0534	-0.5199	-0.1864	-0.612			
Finance	-0.0562	-0.1772	0.0051	-0.1269	-0.1185	-0.0243	-0.1586	-0.024	0.0345	0.1345	1	
	-0.0825	-0.0066	-0.893	-0.0001	-0.0007	-0.4556	0	-0.9447	-0.2904	-0.0002		
Competition	-0.1336	-0.0563	-0.0038	-0.1673	0.016	0.022	-0.0903	0.0719	0.1015	0.0982	0.1864	1
	0	-0.3958	-0.9199	0	-0.6484	-0.499	-0.0057	-0.0348	-0.0018	-0.0069	0	

Note: Significance level in parentheses.

Annex 3a. Probit regressions for individual regressors

Regressors	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Firm size (small)	-0.579***									
	(0.123)									
Foreign ownership		0.0143***								
		(0.00110)								
Quality certification			0.883***							
			(0.0927)							
Managerial education				0.357***						
				(0.0836)						
Labor productivity					0.0903**					
					(0.0294)					
Competition as an obstacle						-0.379***				
						(0.0914)				
Overdraft facilities							0.220*			
							(0.105)			
NCR (ex- Manila)								-0.364		
								(0.328)		
Central Luzon								0.107		
								(0.169)		
Southern Tagalog								0.514***		
								(0.105)		
Cebu								0.420**		
								(0.138)		
Food industry									-0.756***	
									(0.179)	
Textiles and garments									-0.177	
									(0.156)	

Chemicals									-0.617***	
									(0.177)	
Plastics and rubber									-0.215	
									(0.149)	
Non-metallic industries									-0.292	
									(0.166)	
Electronics									0.491**	
									(0.153)	
Importable										-0.520
										(0.319)
Mixed										-0.0291
										(0.294)
Non-traded										0.200
										(0.378)
Constant	-0.786***	-1.062***	-0.986***	-2.104***	-0.513***	-1.825***	-0.707***	-0.834***	-0.482***	-0.566
	(0.0681)	(0.0561)	(0.0585)	(0.347)	(0.0558)	(0.401)	(0.0529)	(0.0603)	(0.108)	(0.290)
N	728	987	965	975	959	837	887	990	990	958

*, p<0.05; **, p<0.01; ***, p<0.001. *Note:* Probit regression marginal effects reported; robust standard errors in parentheses.

Annex 3b. OLS regressions for individual regressors

Regressors	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Firm size (small)	-1.244**										
	(0.472)										
Labour productivity (ln)		1.007***									
		(0.0882)									
Age			0.0113								
			(0.0331)								
Age squared			-0.000622								
			(0.000514)								
Quality certification				1.826***							
				(0.303)							
Managerial education					0.591*						
					(0.286)						
Foreign ownership						0.0217***					
						(0.00323)					
Ports administration as obstacle							-0.743*				
							(0.372)				
Finance as obstacle								-1.037**			
								(0.371)			
NCR (ex- Manila)									-0.992		
									(1.532)		
Central Luzon									0.658		
									(0.627)		

Southern Tagalog									1.076**		
									(0.379)		
Cebu									0.776		
									(0.416)		
Food industry										-1.511	
										(0.967)	
Textiles and garments										-0.959*	
										(0.486)	
Chemicals										-1.104	
										(0.586)	
Plastics and rubber										-1.148*	
										(0.457)	
Non-metallic industries										-1.673**	
										(0.544)	
Electronics										0.936*	
										(0.467)	
Importable											-0.747
											(0.497)
Mixed											0.905**
											(0.311)
Non-traded											2.632*
											(1.051)
Constant	16.83***	4.051***	17.96***	16.85***	15.36***	16.65***	18.06***	18.09***	17.35***	18.26***	17.05***
	(0.206)	(1.214)	(0.411)	(0.212)	(1.232)	(0.223)	(0.184)	(0.188)	(0.255)	(0.329)	(0.256)
N	109	228	235	232	234	237	226	234	238	238	233

* p<0.05, ** p<0.01, *** p<0.001. *Note:* Robust standard errors are in parenthesis

.

Annex 4. Export propensity (logit/probit) results

	(1)		(2)		(3)		(4)		(5)		(6)		(7)	
Regressors	**Logit**	**Probit**	**Logit**	**Probit**	**Logit**	**Probit**	**Logit**	**Probit**	**Logit**	**Probit**	**Logit**	**Probit**	**Logit**	**Probit**
Firm size (small)	-0.773**	-0.428**	-0.611*	-0.347*	-0.482	-0.286	-0.481	-0.287	-0.568	-0.323*	-0.451	-0.270	-0.575	-0.330*
	(0.259)	(0.139)	(0.266)	(0.142)	(0.279)	(0.152)	(0.281)	(0.153)	(0.291)	(0.159)	(0.281)	(0.153)	(0.295)	(0.160)
Foreign ownership	0.0171***	0.0101***	0.0155***	0.00918***	0.0160***	0.00949***	0.0165***	0.00984***	0.0145***	0.00855***	0.0153***	0.00907***	0.0150***	0.00887***
	(0.00283)	(0.00167)	(0.00301)	(0.00176)	(0.00319)	(0.00185)	(0.00326)	(0.00190)	(0.00330)	(0.00193)	(0.00329)	(0.00191)	(0.00335)	(0.00197)
Labour productivity (ln)	0.0650	0.0381	0.000909	-0.0000603	-0.0304	-0.0165	-0.0334	-0.0214	0.0290	0.0181	-0.0214	-0.0130	0.0262	0.0132
	(0.0780)	(0.0431)	(0.0857)	(0.0468)	(0.0892)	(0.0488)	(0.0897)	(0.0491)	(0.0883)	(0.0489)	(0.0884)	(0.0485)	(0.0889)	(0.0493)
Managerial education			0.438	0.195	0.518	0.209	0.510	0.202	0.542	0.216	0.570	0.227	0.537	0.207
			(0.248)	(0.122)	(0.286)	(0.134)	(0.299)	(0.137)	(0.296)	(0.138)	(0.313)	(0.140)	(0.312)	(0.142)
Quality certification			0.648*	0.383**	0.760**	0.445**	0.787**	0.469**	0.762**	0.461**	0.749**	0.442**	0.796**	0.485**
			(0.263)	(0.149)	(0.277)	(0.157)	(0.283)	(0.159)	(0.292)	(0.161)	(0.281)	(0.160)	(0.297)	(0.164)
Overdraft facilities					0.0542	0.00343	0.0585	0.00486	0.0970	0.0330	0.0925	0.0342	0.111	0.0388
					(0.289)	(0.160)	(0.290)	(0.159)	(0.301)	(0.163)	(0.292)	(0.162)	(0.300)	(0.162)
Competition as an obstacle					-0.648*	-0.329*	-0.679*	-0.349*	-0.678*	-0.352*	-0.676*	-0.342*	-0.708*	-0.370*
					(0.277)	(0.146)	(0.279)	(0.145)	(0.284)	(0.149)	(0.283)	(0.148)	(0.287)	(0.149)
NCR (ex- Manila)							0.777	0.404					0.802	0.394
							(0.809)	(0.473)					(0.797)	(0.460)
Central Luzon							0.0181	-0.0721					0.00171	-0.0760
							(0.443)	(0.255)					(0.469)	(0.265)
Southern Tagalog							-0.0857	-0.0791					-0.132	-0.0949
							(0.325)	(0.176)					(0.330)	(0.178)
Cebu							0.388	0.200					0.556	0.285
							(0.381)	(0.214)					(0.397)	(0.223)
Food industry									-0.573	-0.321			-0.647	-0.344
									(0.544)	(0.284)			(0.540)	(0.286)
Textiles and garments									0.405	0.199			0.499	0.255
									(0.456)	(0.256)			(0.462)	(0.260)

Chemicals									-1.273*	-0.744**			-1.217*	-0.704*
									(0.539)	(0.280)			(0.536)	(0.280)
Plastics and rubber									-0.0328	-0.0411			0.0504	0.00846
									(0.404)	(0.227)			(0.400)	(0.227)
Non-metallic industries									-0.344	-0.169			-0.366	-0.170
									(0.478)	(0.262)			(0.482)	(0.263)
Electronics									0.0522	0.00754			0.139	0.0716
									(0.440)	(0.251)			(0.442)	(0.252)
Importable											-0.659	-0.395		
											(0.844)	(0.467)		
Mixed											-0.261	-0.196		
											(0.767)	(0.422)		
Non-traded											-0.403	-0.333		
											(1.031)	(0.580)		
Constant	-2.540*	-1.508*	-3.666**	-1.902**	-3.420*	-1.654*	-3.400*	-1.571*	-4.086**	-2.008**	-3.407	-1.536	-4.128**	-1.952*
	(1.060)	(0.586)	(1.372)	(0.702)	(1.444)	(0.729)	(1.521)	(0.751)	(1.493)	(0.757)	(1.840)	(0.882)	(1.571)	(0.781)
N	605	605	582	582	530	530	530	530	530	530	510	510	530	530
pseudo R-sq	0.103	0.105	0.123	0.123	0.151	0.150	0.155	0.153	0.174	0.173	0.153	0.150	0.180	0.178

* p<0.05, ** p<0.01, *** p<0.001. *Note:* Probit and logit regression marginal effects reported; robust standard errors in parentheses.

Annex 5. Export value (OLS)

Regressors	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Firm size (small)	-0.871**	-0.810*	-0.736*	-0.711*	-0.711*	-0.700*	-0.719*
	(0.315)	(0.341)	(0.324)	(0.309)	(0.349)	(0.336)	(0.338)
Labour productivity (ln)	0.971***	0.975***	0.906***	0.961***	0.878***	0.883***	0.941***
	(0.0855)	(0.104)	(0.105)	(0.105)	(0.0979)	(0.112)	(0.100)
Age	0.0351	0.0487	0.0715*	0.0657*	0.0685*	0.0701*	0.0640*
	(0.0341)	(0.0359)	(0.0319)	(0.0298)	(0.0316)	(0.0327)	(0.0301)
			-	-	-	-	-
Age squared	-0.00104	-0.00124	0.00186***	0.00183***	0.00186***	0.00182**	0.00182***
	(0.000737)	(0.000754)	(0.000544)	(0.000479)	(0.000519)	(0.000566)	(0.000488)
Quality certification		-0.234	-0.126	-0.132	-0.236	-0.0189	-0.191
		(0.320)	(0.332)	(0.331)	(0.322)	(0.352)	(0.319)
Managerial education		0.105	0.0785	0.0238	0.0344	0.145	-0.0169
		(0.239)	(0.244)	(0.225)	(0.271)	(0.265)	(0.265)
Foreign ownership		0.00238	0.00100	-0.000659	-0.000680	0.000495	-0.00178
		(0.00310)	(0.00319)	(0.00328)	(0.00295)	(0.00339)	(0.00319)
Ports administration as obstacle			0.104	0.0711	-0.00234	0.0868	-0.0164
			(0.340)	(0.277)	(0.319)	(0.347)	(0.280)
Finance as obstacle			-0.0422	0.0707	-0.0243	-0.0209	0.110
			(0.405)	(0.312)	(0.396)	(0.429)	(0.327)
NCR (ex- Manila)				-1.380			-1.833
				(1.682)			(1.572)
Central Luzon				0.401			0.238
				(0.483)			(0.532)
Southern Tagalog				0.467			0.501
				(0.281)			(0.287)
Cebu				1.347***			1.035**
				(0.272)			(0.302)
Food industry					0.105		-0.333
					(0.660)		(0.676)
Textiles and garments					-1.107*		-0.906
					(0.539)		(0.586)
Chemicals					-0.365		-0.476
					(0.646)		(0.536)
Plastics and rubber					-0.898**		-0.867*
					(0.322)		(0.375)
Non-metallic industries					-1.248*		-1.218*
					(0.513)		(0.484)
Electronics					-0.447		-0.425
					(0.364)		(0.423)
Importable						-0.558	
						(0.651)	
Mixed						-0.469	
						(0.533)	
Non-traded						0.217	
						(0.616)	

Constant	3.366**	2.709	3.665*	2.953	5.060**	4.117*	4.187*
	(1.202)	(1.627)	(1.708)	(1.753)	(1.685)	(1.738)	(1.793)
N	106	100	91	91	91	88	91
adj. R-sq	0.581	0.575	0.557	0.625	0.589	0.541	0.644

* p<0.05, ** p<0.01, *** p<0.001. *Note:* Robust standard errors are in parenthesis.

Annex 6. Alternative Heckman specifications

Regressors	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Export intensity/ Export value (log)							
Firm size (small)	-0.738*	-0.768**	-0.686*	-0.677*	-0.719*	-0.715*	-0.709*
	(0.315)	(0.291)	(0.317)	(0.321)	(0.282)	(0.281)	(0.285)
Labour productivity (ln)	0.963***	1.009***	0.955***	0.963***	1.023***	1.021***	1.020***
	(0.0964)	(0.0909)	(0.0994)	(0.0991)	(0.0917)	(0.0917)	(0.0926)
NCR (ex- Manila)		-1.333			-1.644*	-1.666*	-1.635*
		(0.855)			(0.816)	(0.813)	(0.817)
Central Luzon		0.496			0.641	0.658	0.638
		(0.490)			(0.499)	(0.493)	(0.498)
Southern Tagalog		0.460			0.560	0.558	0.555
		(0.302)			(0.292)	(0.291)	(0.291)
Cebu		1.377***			1.502***	1.480***	1.501***
		(0.378)			(0.383)	(0.392)	(0.382)
Food industry			-0.836		-1.401**	-1.399**	-1.357*
			(0.575)		(0.534)	(0.534)	(0.549)
Textiles and garments			-0.395		-0.214	-0.211	-0.214
			(0.453)		(0.420)	(0.420)	(0.419)
Chemicals			-0.942		-1.139	-1.139	-1.066
			(0.640)		(0.581)	(0.581)	(0.609)
Plastics and rubber			-0.974*		-0.875*	-0.876*	-0.870*
			(0.387)		(0.364)	(0.364)	(0.364)
Non-metallic industries			-1.160*		-1.098**	-1.097**	-1.071*
			(0.468)		(0.422)	(0.421)	(0.430)
Electronics			-0.719		-0.565	-0.570	-0.569
			(0.416)		(0.414)	(0.414)	(0.415)
Importable				-0.437			
				(0.859)			
Mixed				-0.573			
				(0.752)			
Non-traded				0.195			
				(1.155)			
Constant	4.084**	2.792	4.969**	4.661**	3.185*	3.231*	3.248*
	(1.524)	(1.472)	(1.577)	(1.677)	(1.471)	(1.468)	(1.478)
Export propensity							
Firm size (small)	-0.297*	-0.297*	-0.297*	-0.280	-0.297*	-0.301*	-0.332*
	(0.146)	(0.146)	(0.146)	(0.146)	(0.146)	(0.146)	(0.152)
Labour productivity (ln)	0.00970***	0.00970***	0.00970***	0.00920***	0.00970***	0.0101***	0.00871***
	(0.00176)	(0.00176)	(0.00176)	(0.00178)	(0.00176)	(0.00184)	(0.00186)

Quality certification	0.469**	0.469**	0.469**	0.487**	0.469**	0.486**	0.496**
	(0.152)	(0.152)	(0.152)	(0.153)	(0.152)	(0.154)	(0.156)
Managerial education	0.203*	0.203*	0.203*	0.200*	0.203*	0.187	0.212*
	(0.0977)	(0.0977)	(0.0977)	(0.0978)	(0.0977)	(0.0986)	(0.101)
Overdraft facilities	0.00721	0.00721	0.00721	0.0227	0.00721	0.0171	0.0492
	(0.167)	(0.167)	(0.167)	(0.168)	(0.167)	(0.168)	(0.170)
obs_competition	-0.318*	-0.318*	-0.318*	-0.327*	-0.318*	-0.339*	-0.349*
	(0.142)	(0.142)	(0.142)	(0.143)	(0.142)	(0.144)	(0.145)
NCR (ex- Manila)						0.296	
						(0.482)	
Central Luzon						-0.253	
						(0.271)	
Southern Tagalog						-0.0392	
						(0.176)	
Cebu						0.204	
						(0.219)	
Food industry							-0.418
							(0.278)
Textiles and garments							0.0339
							(0.239)
Chemicals							-0.732*
							(0.300)
Plastics and rubber							-0.0641
							(0.222)
Non-metallic industries							-0.270
							(0.247)
Electronics							-0.0158
							(0.253)
Constant	-1.943***	-1.943***	-1.943***	-1.942***	-1.943***	-1.884***	-1.788***
	(0.408)	(0.408)	(0.408)	(0.408)	(0.408)	(0.413)	(0.457)
Mills							
Lambda	-0.369	-0.0970	-0.470	-0.421	-0.112	-0.128	-0.140
	(0.321)	(0.320)	(0.336)	(0.337)	(0.313)	(0.308)	(0.327)
N	616	616	616	613	616	616	616

* p<0.05, ** p<0.01, *** p<0.001. *Note:* Heckman two-step maximum likelihood estimation method. Standard errors in parenthesis.

Annex 7. Export propensity with regional and industry indices for quality certification and managerial education

Regressors	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Firm size (small)	-0.773**	-0.428**	-0.611*	-0.347*	-0.482	-0.286	-0.699*	-0.391**	-0.769**	-0.429**
	(0.259)	(0.139)	(0.266)	(0.142)	(0.279)	(0.152)	(0.272)	(0.147)	(0.276)	(0.150)
Foreign ownership	0.0171***	0.0101***	0.0155***	0.00918***	0.0160***	0.00949***	0.0178***	0.0106***	0.0166***	0.00989***
	(0.00283)	(0.00167)	(0.00301)	(0.00176)	(0.00319)	(0.00185)	(0.00313)	(0.00184)	(0.00315)	(0.00186)
Labour productivity (ln)	0.0650	0.0381	0.000909	-0.0000603	-0.0304	-0.0165	0.0565	0.0305	0.0892	0.0520
	(0.0780)	(0.0431)	(0.0857)	(0.0468)	(0.0892)	(0.0488)	(0.0796)	(0.0444)	(0.0795)	(0.0447)
Quality certification			0.438	0.195	0.518	0.209				
			(0.248)	(0.122)	(0.286)	(0.134)				
Managerial education			0.648*	0.383**	0.760**	0.445**				
			(0.263)	(0.149)	(0.277)	(0.157)				
Overdraft facilities					0.0542	0.00343	0.144	0.0618	0.125	0.0559
					(0.289)	(0.160)	(0.289)	(0.160)	(0.290)	(0.161)
Competition as an obstacle					-0.648*	-0.329*	-0.603*	-0.330*	-0.577*	-0.314*
					(0.277)	(0.146)	(0.263)	(0.141)	(0.264)	(0.143)
Regional index - quality certification							-0.424	-0.313		
							(1.153)	(0.648)		
Regional index - managerial education							1.816	0.956		
							(1.574)	(0.897)		
Industry index - quality certification									5.442*	3.073*
									(2.634)	(1.462)
Industry index - managerial education									-5.401*	-3.077*
									(2.570)	(1.411)
Regional-industry index - quality certification										

Regional- industry index - managerial education										
Constant	-2.540*	-1.508*	-3.666**	-1.902**	-3.420*	-1.654*	-9.359	-5.017	17.22	9.758
	(1.060)	(0.586)	(1.372)	(0.702)	(1.444)	(0.729)	(6.290)	(3.562)	(9.417)	(5.160)
N	605	605	582	582	530	530	546	546	546	546
pseudo R-sq	0.103	0.105	0.123	0.123	0.151	0.150	0.126	0.127	0.132	0.134

* p<0.05; ** p<0.01; *** p<0.001. Note: Probit regression marginal effects reported. Robust standard errors in parentheses.

Annex 8. Export intensity with regional and industry indices for quality certification and managerial education

Regressors	(1)	(2)	(3)	(4)	(5)
Firm size (small)	-0.871**	-0.810*	-0.837**	-0.776*	-0.871**
	(0.315)	(0.341)	(0.314)	(0.319)	(0.315)
Labour productivity (ln)	0.971***	0.975***	0.951***	0.907***	0.929***
	(0.0855)	(0.104)	(0.0863)	(0.0937)	(0.0857)
Age	0.0351	0.0487	0.0471	0.0444	0.0500
	(0.0341)	(0.0359)	(0.0318)	(0.0311)	(0.0320)
Age squared	-0.00104	-0.00124	-0.00124	-0.00128	-0.00124
	(0.000737)	(0.000754)	(0.000643)	(0.000655)	(0.000673)
Quality certification		-0.234			
		(0.320)			
Managerial education		0.105			
		(0.239)			
Foreign ownership		0.00238	0.00163	0.00244	0.00238
		(0.00310)	(0.00321)	(0.00287)	(0.00307)
Regional index - quality certification			0.673		
			(1.300)		
Regional index - managerial education			3.903**		
			(1.267)		
Industry index - quality certification				-4.752	
				(2.830)	
Industry index - managerial education				5.633	
				(2.842)	
Regional-industry index - quality certification					-0.746
					(0.783)
Regional- industry index - managerial education					1.768**
					(0.667)
Constant	3.366**	2.709	-12.39*	-16.92	-3.195
	(1.202)	(1.627)	(5.114)	(10.13)	(2.646)
N	106	100	106	106	106
adj. R-sq	0.581	0.575	0.608	0.587	0.607

* p<0.05; ** p<0.01; *** p<0.001. Note: Robust standard errors reported in parenthesis.

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