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An Analysis of Export Performance of Enterprises in Sri Lanka

Drafted report

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Abstract

Exporting is a strategy adopted by certain firms to achieve long-term competitiveness. The objectives of this study are to (i) characterize exporting and non-exporting firms, and (ii) investigate into the determinants of export performance using Heckman two-stage model. The analysis is based on the firm-level micro-data gathered by the Enterprise Survey of the World Bank conducted among 836 enterprises in the manufacturing and services sectors in Sri Lanka in 2011. The results clearly indicate that approximately 10% of the firms are either direct or indirect exporters or exporting as a strategy is predominantly concentrated among medium and large firms. There exist significant heterogeneities between exporting and non-exporting firms and among exporting firms themselves with respect to size, labor productivity and wages. The results of the estimation of the Heckman model indicate that the likelihood to become an exporter is higher in the case of the larger firms, firms in the food, manufacturing and ITC industries (compared to other service sectors), firms located in the Southern province, firms with legal ownership and also among younger firms. The results further indicate that value of exports is determined by the above factors as well as by the perceptions of managers towards the business environment within which they operate. Those who perceive tax barriers, political instability & business licensing and permits as major obstacles found to be performing worse than that of the rest. These results indicate the necessity for focusing on reducing “behind-border barriers by way of introducing proper tax administration, political stability and regulated licensing system aimed at enhancing the value of sales in the export markets.

Key words: Export Propensity, Export Intensity, Business Environment, Sri Lanka

Introduction

Expanding sales to international markets is proved to be beneficial for long-term competitiveness of enterprises as it will allow firms accessing larger markets, achieving economies of scale and enables diversifying risk. However, only a limited number of firms usually enter into exporting business and perform well.

There is widespread empirical evidence to support the argument that exporting producers are larger, have higher productivity, survive longer and pay higher wages than non-exporters. It has been argued that exporting firms have access to technical expertise from their buyers (which is not the case with non-exporters) in terms of new product design and production methods (Grossman and Helpman, 1991; World Bank, 1993). Poschl et al. (2009) found that size and performance premia (labor productivity and wage) of exporting firms are significantly higher than those of non-exporters in Austria. Aw et al. (1999) found that plants with higher productivity, ex-ante, tend to enter the export market and exporters with low productivity tend to exit in Taiwan where as in South Korea, there is no significant productivity changes following entry or exit from the export market. Salomon and Shaver (2005), who argue that export sales and domestic sales are simultaneously determined, found that domestic and export sales are substitutes for foreign owned firms operating in Spain and they are complements for Spanish owned firms.

The performance of the exporter is found to be determined by managerial influences (firm characteristics, competencies and strategy) and the external environment (see Cavusgil and Zou, 1994). Yoshino (2008) provides a good assessment on how domestic supply constraints and other firm characteristics explain the geographical orientation of firms' exports and the overall market diversification of African manufacturing exports. Thorough reviews on the determinants of export performance can be found in Aaby and Slater (1989), Bilkey (1978), Cheety and Hamilton (1993), Madsen (1987) and Zou and Stan (1998).

Despite the policy relevance (in articulating trade policies and evaluating of trade policy effects) of similar findings, according to authors' knowledge, there is a dearth of such studies on enterprises in Sri Lanka. The objectives of this study are to (i) characterize exporting and non-exporting firms, and (ii) assess the extent to which different firm characteristics and the external environment within which the firms operate, i.e., various domestic supply constraints, explain export performance of the firms (whether the firm sells products directly or indirectly in the export market) using Heckman two-stage model.

The rest of the paper is organized as follows. The next section presents the model used in the study to assess the determinants of export performance. The data used for the estimation are presented in the following section. The subsequent section characterizes exporting versus non-exporting firms. The results of the estimation are presented next and the paper ends with conclusions and policy implications.

A Model to Assess Determinants of Export Performance

Theoretical Model

Theoretical background of export performance of firms is due to "new" new trade theories, which explains behavior of heterogeneous firms. A number of indicators has been used in evaluating export performance of firms.

Shoham (1996) defined export performance as the result of a firm's actions in export market. Export performance of a firm is measured by the export propensity, export sales and export intensity. Export propensity is generally defined as the likelihood of a firm to become an exporter (Estrin et al. 2008). According to Zou and Stan (1998) export sales is identified as most frequently used measure of export performance. Exporting firms essentially have two channel options i.e. direct and indirect export, in which indirect exports are often chosen by exporting firms to minimize the transaction costs (Peng and York, 2001). Hence, values of direct and indirect sales in the export market are counted as total export sales. Export intensity is share of sale that are exported in their total sales (Estrin et al. 2008; Salomon and Shaver, 2005; Pöschl et al., 2009).

As stated earlier, export performance can be explained using internal and external determinants.

Internal determinants of export performance are justified by the resource-based theory which conceives a firm as a unique bundle of tangible and intangible resources (assets, capabilities,

processes, managerial attributes, information and knowledge) that are controlled by a firm and that enable it to conceive and implement strategies aimed at improving its efficiency and effectiveness (Barney, 1991; Daft, 1983; Wernerfelt, 1984).

External determinants of export performance are justified by the industrial organization theory which argues that the external factors determine the firm's strategy, which in turn determines economic performance (Scherer and Ross, 1990). The logic is that the external environment imposes pressures to which a firm must adapt in order to survive and prosper (Collis, 1991).

Empirical Model

The two-stage Heckman estimation involves the first stage of a probit (selection stage) and OLS (regression stage) in the second stage. The presence of the selection bias of variables is recognized by probit model and correction is done in the second stage by inserting the calculated correction factor i.e. inverse Mills ratio in the OLS as an instrument.

The Heckman two-step method used in the study presented below, where equation 1 is the selection equation and 2 is the outcome equation.

Equation 1: The decision to export (i.e. export propensity) is modeled as a dichotomous choice.

$$P(X_{ijk} > 0) = \begin{cases} 1 & \text{if } \xi_{ijk} > 0; \\ 0 & \text{otherwise} \end{cases}$$

$$\xi_{ijk} = \alpha + \beta_1 * BP_{ijk} + \beta_2 * FC_{ijk} + \beta_3 * MC + \beta_4 * X_i + \beta_5 * Y_j + \beta_6 * Z_k + \varepsilon_{ijk}$$

Equation 2: The decision of value of export sales as a OLS

$$X_{ijk} = \alpha + \beta_1 * BP_{ijk} + \beta_2 * FC_{ijk} + \beta_3 * MC + \beta_4 * X_i + \beta_5 * Y_j + \beta_6 * Z_k + \beta_7 * BC_{ijk} + \varepsilon_{ijk}$$

Where the first stage explains the probability that firm i, industry j of region k exports, where the dependent variable is a dummy that is equal to one if exports are zero otherwise. The dependent variable of second stage is X_{ijk} is logarithmic form of export value of firm i, industry j of region k.

Independent variable BP_{ijk} are vector variables of business performance such as sale, labor productivity etc. Rest of the independent variables includes variables of FC_{ijk} -firm characteristics, MC -management characteristics, X_i -firm dummies, Y_j -industry dummies, Z_k - regional dummies and BC_{ijk} - behind the border constraint dummies. ε_{ijk} is an error term assumed to be independently and identically distributed.

Firm specific characteristics included in the estimations in this paper are age of the firm, size, legal status, type of ownership and possessing internationally recognized quality certification. Years of experience is taken into consideration as a management characteristic. Behind the border barriers considered here are customs and regulations, business licensing and permits, access to finance, corruption, courts, crime, electricity, inadequately educated workforce, labor

regulations, informal sector competition, political instability and tax administration and tax rate. In addition industry and regional dummies are included to see the sectoral and geographical variation of the export.

Data

The analysis is based on the firm-level micro-data gathered by the Enterprise Survey of the World Bank conducted among 836 enterprises in the manufacturing and services sectors in Sri Lanka in 2011. The firm survey conducted to collect data follows two different questionnaires for manufacturing and service sector with common set of questions. The sample was selected using stratified random sampling, with three levels of stratification namely industry, size, and region based on the contact data available in the Department of Census and Statistics of Sri Lanka (DCS). The dataset comprises of details on firm characteristics (size, legal status, industry), sales and supplies, capacity, business environment (administrative, corruption like informal transaction, custom, tax, infrastructure barriers) and performance (cost and value of assets) etc. See Appendix 1 for the details on method of sampling.

Characterization of Exporting Firms vis-à-vis Non Exporting Firms

Export propensity of firms

Figure 1a shows that there is a higher percentage of non-exporters among small and medium firms where almost equal shares of both categories among large firms. Exporters are concentrated in Southern, Central and Western provinces with around 20-25% of exporters compared to total producers (Figure 1b). Industry-wise categorization depicted in figure 3 indicates that food industry has comparatively higher number of exporters than others.

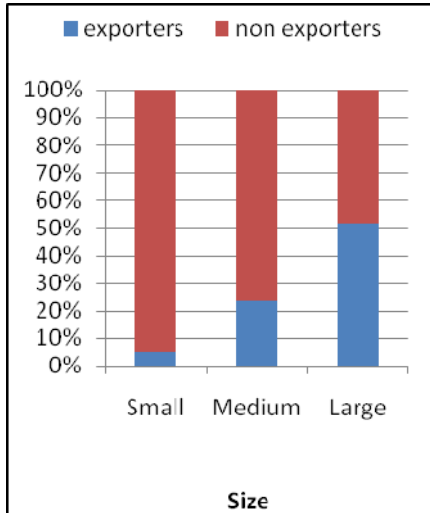


Figure 1a: Exporters Vs non-exporters by size

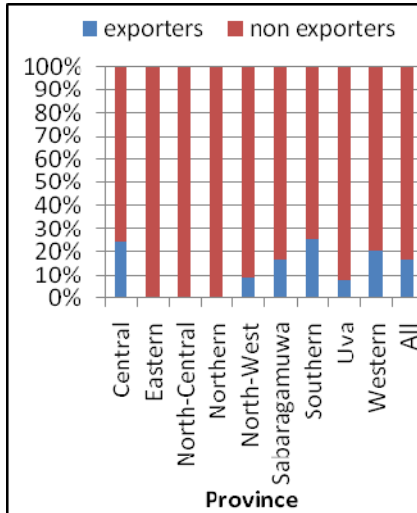


Figure 1b: Exporters Vs non-exporters by region

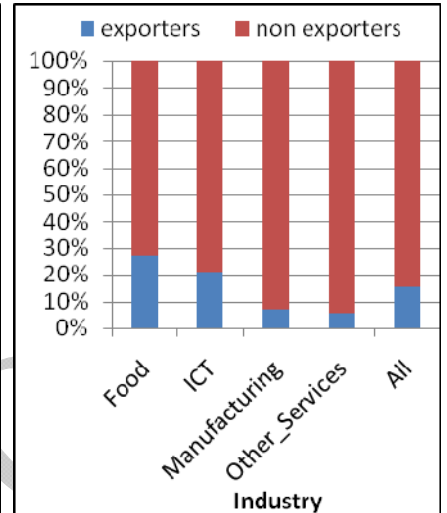


Figure 1c: Exporters Vs non-exporters by industry

The labor productivity of exporters is 33% higher than that of non-exporters (Figure 2a). Firms that participate in the export market pay 45% higher wages than firms that do not (Figure 2b). Figures 3a-3c show that kernel density estimates of log total sales, log labor productivity and log wage for exporters and non-exporters, respectively. The level of log total sales, log labor productivity and log wage with the highest density are right shifted for exporters compared to non-exporters, and they are more uniformly variable. Total sale, labor productivity and wage of non-exporters are concentrated around the mean indicating that they are more homogenous.

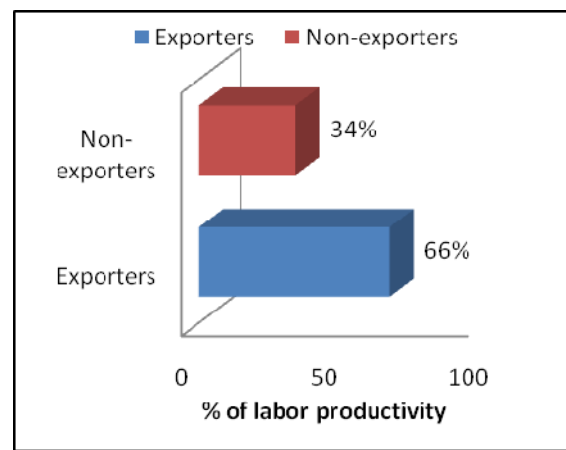
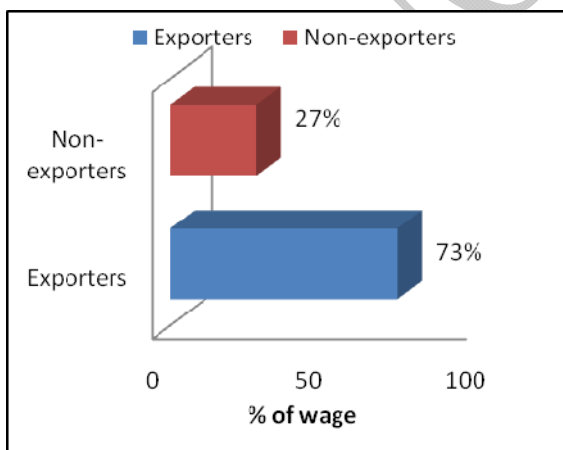


Figure 2a: Exporters Vs non-exporters -share of wage

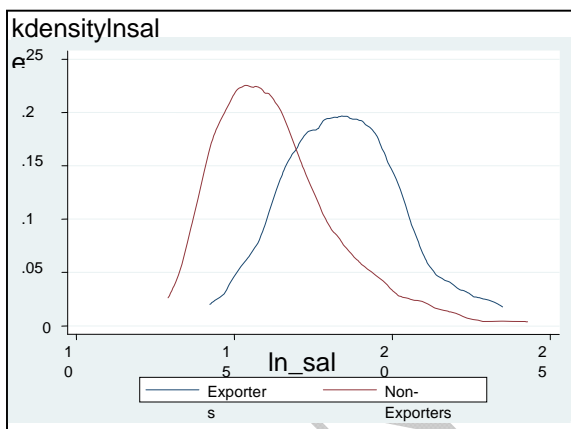


Figure 3a: Kernal density of log sale

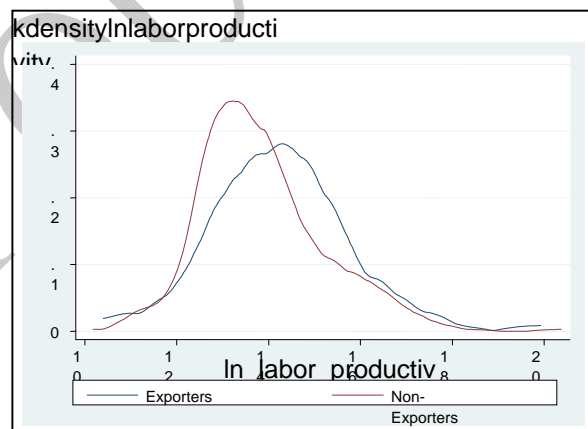


Figure 2b: Kernal density of log labor productivity

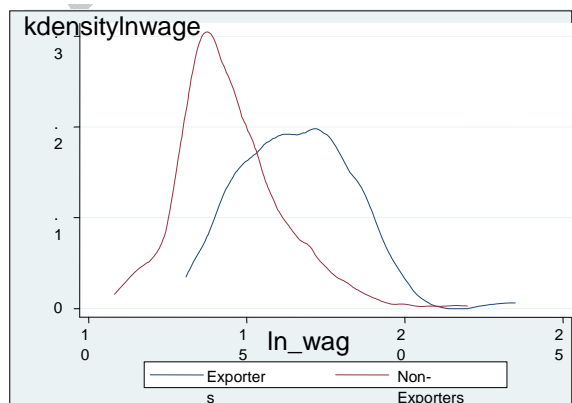


Figure 3c: Kernal density of log wage

Characteristics of exporting firms

The results of the analysis shows that exporting firms constitute only 10.65% of the sample indicating that only few firms in Sri Lanka engage in exports. Among them 40% are large firms, 44% are medium and 16% are small firms (Table 1). Same table reveals that extensive margins of large, medium and small firms export are 30%, 14% and 3% of their sales respectively. Table 2 provides details of heterogeneity of firms by industry, in which 36% of industries are manufacturing, 34% are food, 24% are information communication technology related and 7% are other service industries.

Table 1: Heterogeneity of firms by size

Figure 3b: Exporters Vs non-exporters -share of labor productivity

Size	Frequency of Firms	Percent of Firms	Frequency of Export Firms	Percent of Export Firms out of Total Firms	Percent of Export Firms out of Total Export Firms
Large	119	14.23	36	30.25	40.45
Medium	278	33.25	39	14.03	43.82
Small	439	52.51	14	3.19	15.73
Total	836	100.00	89	10.65	100.00

Small ≥ 5 and ≤ 19 workers; Medium ≥ 20 and ≤ 99 ; Large ≥ 100 workers

Table 2: Heterogeneity of firms by industry

Industry	Frequency of Firms	Percent of Firms	Frequency of Export Firms	Percent of Export Firms out of Total Firms	Percent of Export Firms out of Total Export Firms
Food	121	14.47	30	24.79	33.71

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