



**Enabling Participation of  
SMEs in International Trade  
and Production Networks:  
Trade Facilitation, Trade  
Finance and Communication  
Technology**



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# Enabling Participation of SMEs in International Trade and Production Networks: Trade Facilitation, Trade Finance and Communication Technology

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**Abstract:** This study aimed at identifying key factors affecting SME participation in direct export and international production networks (IPNs), both globally and in Asia and the Pacific. A global dataset of firm-level data from developing countries was analyzed to identify the main obstacles to establishment and operation of direct and indirect small and medium size exporters. Logit models of SME export and IPN participation revealed the importance of several trade facilitation and related factors. The importance of modern information technology and international quality certification appear to be particularly crucial to participation in IPNs with SMEs using both at least 13% more likely to be involved in such networks. Exporting SMEs both globally as well as in the Asia-pacific region reported access to finance as the key obstacle to their business operations. Almost 60% of Asia-Pacific exporting SMEs rely exclusively on internal financing, while only 40% do so globally. Access to a variety of external trade finance sources was found to be important to boost SME export participation, with bank financing and supplier credit found to increase likelihood of SME participation in both direct export and IPNs most. The results particularly highlighted the importance of supply chain financing to facilitate direct export participation of Asia-Pacific SMEs. Comparing the marginal effects of various factors on SMEs and large enterprises, a reduction in customs and trade clearance times was also found to increase SMEs likelihood of participation in export or IPNs relatively more than that of larger enterprises.

**JEL Classification:** F1, O5, C1

**Keywords:** export participation, international production network, firm-level data, Asia and the Pacific, trade facilitation, trade finance, small and medium-sized enterprises (SMEs)

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## Introduction

Small and medium-sized enterprises (SMEs)<sup>1</sup> are key contributors to economic development, both in developed and developing countries. Kushnir et al. (2010) find that formal SMEs contribute up to 45 percent of the World's employment on average; and up to 33 percent of employment in developing countries. The fact that countries in higher income groups typically have higher SME employment or density, as shown in Figure 1, highlight the need to support development of such enterprises in lower income developing countries.

As shown in figure 2, a conducive domestic business environment, including easy access to business services (e.g., financial and information and communication technology services) and streamlined investment and business regulations and procedures (e.g., to start a business, pay taxes or hire employees), is essential for SME development. In particular, as international trade remains an important engine of growth and development in most developing economies, facilitating participation of SMEs in such trade, both through direct export or indirectly through participation in international production networks (IPNs), has become one of the keys to achieving more inclusive and sustainable development in these economies.

In that context, the objective of the analysis presented here is to identify trade facilitation related factors which affect the participation of SMEs in direct or indirect export, with particular attention to the efficiency of trade procedures, the firms use of different sources of financing, the use of modern information and communication technologies (ICTs), and the quality of the logistics infrastructure. We also assess how the importance of the various trade facilitation factors vary depending on whether firms engage in international trade through direct export or through a production network, and whether they are from the Asia-Pacific region.

The definition of SMEs usually varies across countries as well as international organizations. This paper follows the World Bank's Enterprise Survey definition: Small enterprises are firms with 5 to 19 employees; Medium enterprises are firms with 20-99 employees and; Large enterprises are firms with 100 employees or more<sup>2</sup>. For the purpose of this study, participation by SMEs in IPN follows Wignaraja (2012), i.e., firms are considered members of a production network if they export directly or indirectly.

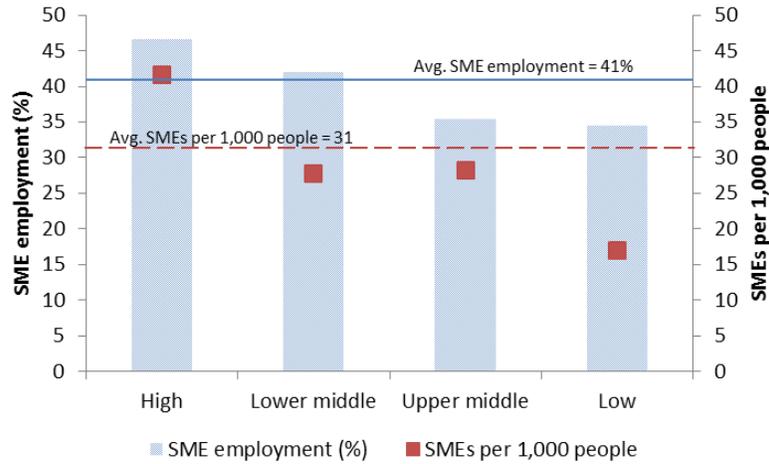
Following a brief review of the existing empirical economic literature on determinants of SMEs participation in export (section 2) and a brief review of obstacles to SME establishment and operations based on the most recent World Bank enterprise survey data (section 3), empirical models of SME export participation are estimated and discussed in Section 4. Conclusion and policy recommendations that stem from the results are in Section 5.

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<sup>1</sup> Micro, Small and Medium Enterprises (MSMEs) are also widely used in the literature. Definition of micro enterprises is also discussed in International Finance Corporation (IFC) as SMEs definition is generally different across countries. In this context, the term SMEs is used.

<sup>2</sup> Another widely-cited definition of SMEs (which is referred as micro, small and medium sized enterprises: MSMEs) is from European commission ([http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/sme-definition/index\\_en.htm](http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/sme-definition/index_en.htm)). However, this study follows the definition of SMEs from the World Bank's Enterprise Survey to reflect more on nature of size in developing countries. For country-specific SME definition, see IFC (online: [http://www.ifc.org/wps/wcm/connect/Industry\\_EXT\\_Content/IFC\\_External\\_Corporate\\_Site/Industries/Financial+Markets/msme+finance/sme+banking/msme-countryindicators](http://www.ifc.org/wps/wcm/connect/Industry_EXT_Content/IFC_External_Corporate_Site/Industries/Financial+Markets/msme+finance/sme+banking/msme-countryindicators))

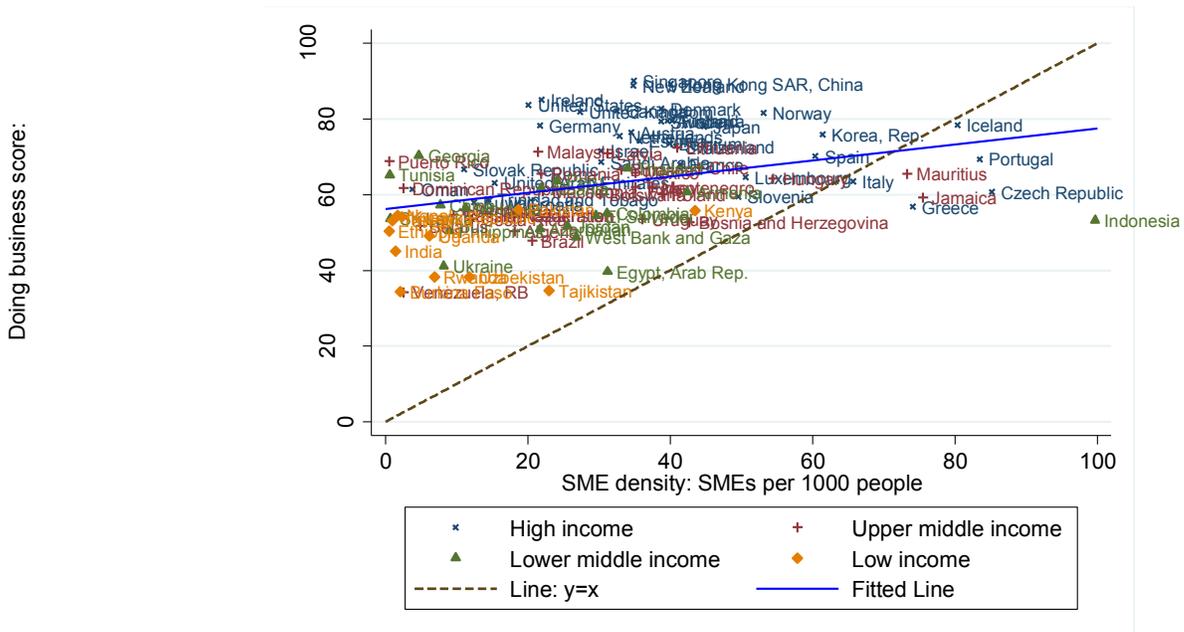
**Figure 1: SME employment and SMEs per 1,000 people, by income group**



Source: International Finance Corporation (online accessed in January 2014: [http://www.ifc.org/wps/wcm/connect/Industry\\_EXT\\_Content/IFC\\_External\\_Corporate\\_Site/Industries/Financial+Markets/msme+finance/sme+banking/msme-countryindicators](http://www.ifc.org/wps/wcm/connect/Industry_EXT_Content/IFC_External_Corporate_Site/Industries/Financial+Markets/msme+finance/sme+banking/msme-countryindicators))

Note: Average of latest data available for each country is used; Low income: USD 975 or less; lower middle income: USD 976 to USD 3,855; upper middle income: USD 3,856 to USD 11,905; high income: USD 11,906 or more.

**Figure 2: Ease of doing business and SME density, by income group**



Source: International Finance Corporation (online accessed in January 2014) and Doing Business: Distance to Frontier (online: <http://www.doingbusiness.org/data/distance-to-frontier>)

Note: Latest data of SME density and doing business score in a corresponding year are used for scatterplot.

## Review of literature

The past empirical literature has identified a relatively large number of factors affecting firms' decision to export. These factors may be broadly categorized as firm characteristics, including measures of firm efficiency, and factors related to the external environment. Firm characteristics often cited in the literature are firm size, foreign ownership, productivity, human capital, and firm's technological adoption. Other firm characteristics that have been studied for their impact on participation in export – and typically used to infer firm efficiency - include firm's sourcing of input/raw material for production, business sector, access to knowledge and technology, capital stock, productivity and firm age.

External factors of importance to the participation of SMEs in trade typically relate to the quality of the domestic business climate, which may be referred to as behind-the-border factors from a trade facilitation perspective. Other external factors often referred to include access to finance, quality of institutions, transport connectivity, quality of technology and rate of adoption in the home country, as well as complexity of customs procedures.

A summary of recent empirical studies of firms' participation in export follows below.

| Research/study   | Methodology  | Summary and findings related to SMEs, export participation, institutional arrangements, or inclusiveness  |
|--|--|---|
| Amornkitvikai, Y., Harvie, C., and Charoenrat, T. (2012), Factor affecting the export participation and performance of Thai manufacturing small and medium sized enterprises | probit, logit linear probability and tobit regression<br><br>Dependent variable: export participation dummy (1 if participating in export, 0 otherwise); export performance (measured by total exports to total sales) | The study uses cross-sectional data (year 2007) of Thai manufacturing SMEs to identify factors affecting export participation. Study finds that government assistance, foreign ownership, municipal location, R&D and skilled labor to have a positively significant effect on the participation of a firm in export market. However, firm size (small or medium), firm age, and labor productivity had mixed effect on export participation depending on models. |
| Amrouk, E. M., Poole, N., Mudungwe, N., and Muzvondiwa, F.   | Logit regression<br><br>Dependent variable:  | The study finds that extension services, provided credit and change in agricultural assets are crucial determinants for market  |

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