Internationalization of SMEs and Their Income-Price Effects on Export Market: a Case of the Selected Asian Countries

Zahra Zamani*
Department of Economics, University of Isfahan, Iran
Seyed Komail Tayebi
Department of Economics, University of Isfahan, Iran
Nafiseh Yazdani
Department of Economics, University of Isfahan, Iran

Abstract
International trade causes that markets to become more competitive and small-medium sized enterprises (SMEs) learn to compete effectively within this increasingly competitive global market place. SMEs are able to take advantage of increased opportunities in domestic markets that follow from international trade. It is indeed a way for internationalization of SMEs. This paper analyzes income and price elasticities of the export model which has been specified for export market of SMEs in the selected Asian countries. The estimated elasticities revealed the responsiveness of exporting goods supplied by the SMEs in these countries with respect to changes in different incomes and relative export price. Accordingly, we estimate an export regression model (including demand and supply equations) based on the cross-sectional observations of the selected Asian countries including China, Singapore, Thailand, Malaysia, Indonesia, India, the Philippines, Vietnam and Pakistan over the period 1990-2008. We have found that price and income elasticities are statistically significant and have the expected signs. The implication of our findings is that price and income are appropriate determinants for international trade expanded by Asian SMEs.

Keywords: SMEs, Income elasticity, Price elasticity, Panel Data.

JEL Classification: C23, F14, O47, P42

* Corresponding Author, Email: z_zamani85@yahoo.com
1. Introduction
Small-medium sized enterprises (SMEs) have different definitions, for example; they are defined statistically as all private enterprises, outside farming and fisheries, engaging fewer than 100 persons. In Holland, this embraces 43% of total employment in private enterprises, or 58% of employment in private enterprises excluding farming and fisheries. In other countries, the boundary of SME is sometimes located not at 100 but at 200 or 500 persons engaged, which tends to increase the share of employment yet further (Nooteboom, 1998).

SMEs have some advantages and some disadvantages. Small firms find it difficult to obtain bank financing, especially long-term loans, for a number of reasons: Lack of collateral, Difficulties in proving creditworthiness, Small cash flows, inadequate credit history, high risk premiums, underdeveloped bank-borrower relationships and high transaction costs. But SMEs are often more innovative, more adaptable, and have quicker response times when it comes to implementing new technologies, interfacing with changing demand and meeting specific buyer needs (Knight, 2001).

SMEs can affect the business environment. Ayyagari et al. (2007) analyze the relationship between the relative size of the small and medium enterprise (SME) Sector and the business environment in 76 countries. They find that several dimensions of the business environment, such as lower costs of entry and better credit information sharing are associated with a larger size of the SME sector, while higher exit costs are associated with a larger informal economy.

These days all countries find the way to increase the size of their market in all over the world for their products. SMEs can help to countries to achieve this aim. SMEs are considered to be the engine of economic growth and employment. One of the primary means through which SMEs are expected to accomplish this task is by developing and commercializing innovations. Innovation may be even more important for SMEs than for large firms. Because of the importance of the SME sector in creating economic growth, both developed and developing countries are very interested in finding ways to stimulate SMEs in realizing innovations.

Many industrial companies have focused on SMEs because of their efficiency in the use of capital, labor intensity, and resilience to economic changes. SME’s should focus more on risk taking behavior and innovative activities. Although SME’s often lack of resources and manpower, flexibility and sensitivity to demand changes are the key for success.

In addition, SMEs can attend in export activities, specially, after recent crisis that large enterprises interface with many problems; the role of SMEs becomes highlighted. As the world economies are recovering from the financial crisis of 2008-9, many economies urgently need to create employment opportunities for their citizens. Large enterprises interface with many problems like bankruptcy and so on. Although SMEs affect by crisis since they can adapt changes faster than large one, they can improve faster after crisis. In this respect, creation and growth of SMEs is an important item on the policy agenda due to evidence that points to significant contributions by SMEs to employment. Given the importance of SMEs in supporting sustainable, diversified, long-term economic growth, they have, indeed, attracted renewed attention in the wake of the 2008-9 financial crisis (Ardic et al., 2011).

However, SMEs are playing an increasingly important role in the process of export-led industrialization in the developing world. SMEs are the largest group of industrial units in most developing countries and make a significant contribution to manufacturing output and employment.

SMEs also have the potential to become a powerful engine of manufactured export growth and upgrading in the developing world. Much needs to be done by SMEs, SME associations, governments and donors to translate the export potential of SMEs into a development reality. The new international environment provides unparalleled new opportunities and poses new risks for SMEs exports from developing countries. It has the potential to offer SMEs in developing countries with access to a global pool of new technologies, skills, capital, markets and hence faster export growth and profits than ever before. The constraints of domestic markets and poor resource endowments will pose fewer obstacles as SMEs become suppliers to foreign buyers of output.
and multinationals and draw on global resources and markets. At the same time, however, globalization brings about a sudden increase in competition from imports and the entry of new foreign investors for SMEs in domestic markets. Developing countries seem to have underestimated the effects of intense global competition on their SME sectors and in general SMEs, institutions, behavioral patterns and policy frameworks seem ill-adapted to deal with the challenge of global competition. Although SME exporting has been a significant area of research in small business for the past decade, studies often focus on the decision to export rather than analyzing the export strategy of the company (Cavusgil and Zou, 1994).

In addition, smaller firms traditionally focus on their domestic market, and a majority of SMEs will most likely continue to do so in the future. However, an increasing share of SMEs is internationally active. About 25% of manufacturing SMEs in OECD countries are active in international markets. These SMEs contribute between 25% and 35% of global manufacturing exports. In general, internationally active SMEs experience faster growth than purely domestic firms. Nevertheless, the internationalization of SMEs is often limited, both in geographical scope and in terms of the share of international versus domestic activities. This implies that SMEs still have a large untapped potential to grow through internationalization (Onkelinx and Sleuwaegen, 2008).

SMEs have indeed an important role in international activities and they try to develop international relationship while it is necessary to investigate the important factors that affect SMEs’ exports. This paper offers thus empirical evidence on these matters based on a panel data regression of 9 Asian countries during 1998-2008. These countries are China, Singapore, Thailand, Malaysia, Indonesia, India, the Philippines, Vietnam and Pakistan.

The rest of the paper is organized as follows. In the next section we provide a short discussion of the theoretical contributions that form the background to our research. Section 3 explains the method that we use to test for finding the relationship between SME’s and trade. It specifies a theoretical framework to analyze the relationship between SME’s and trade. Our empirical results are summarized and discussed in Section 4, and the last section provides the research conclusion.

2. SMEs and International Trade

SMEs have begun to play a critical role in international trade. Statistics from the Organization for Economic Cooperation and Development (OECD) and other sources indicate that SMEs now account for a very substantial proportion of exports from most industrialized nations. However, an increasing share of SMEs is internationally active. About 25% of manufacturing SMEs in OECD countries are active in international markets. These SMEs contribute between 25% and 35% of global manufacturing exports. In general, internationally active SMEs experience faster growth than purely domestic firms. Nevertheless, the internationalization of SMEs is often limited, both in geographical scope and in terms of the share of international versus domestic activities. This implies that SMEs still have a large untapped potential to grow through internationalization (Onkelinx and Sleuwaegen, 2008).

In recent years, numerous trends have emerged that make exporting and other international involvement a strongly viable alternative for the SMEs. Such systems are providing important competitive advantages to smaller firms, allowing them to efficiently transact business with upstream and downstream channel members throughout the world (Knight, 2001).

Internationalized SMEs report faster growth in employment, value added and labor productivity. Especially in the years directly following foreign market entry, both exporting and importing SMEs experience very high growth rates. Despite the risks involved in internationalization, both import and export have a positive impact on firm survival. In general, smaller firms are important. SMEs account for over 95% of businesses, create roughly 50% of total value added worldwide and, depending on the country, generate between 60% and 90% of all new jobs (OECD, 1997; United Nations, 1993).

While they historically have not been associated with international business, based on an empirical study of trends in 18 industrialized countries, the Organization for Economic Cooperation and Development (OECD) notes
that SMEs now account for about a quarter of exports in most industrialized nations (OECD, 1997).

Internationally-active SMEs are emerging in notably large numbers throughout the world, and they tend to be more dynamic and grow faster than strictly domestic firms (Knight, 2001).

We know that most important motives for internationalization are access to new and larger markets, access to know how and technology, high production costs in the domestic market, strict laws and regulations in the domestic market, additional production capacity, access to capital and lack of capital and internationalization can help them to solve this problem.

Ayyagari et al. (2007) estimate that, on average, SMEs account for close to 60 percent of employment in the manufacturing sector. Widespread usage of fax, e-mail, the Internet, and other such communications technologies is making internationalization a more viable and cost-effective option than just a few years ago. Such systems are providing important competitive advantages to smaller firms, allowing them to efficiently transact business with upstream and downstream channel members throughout the world. Smaller firms are also affected by the forces of globalization, including falling trade and investment barriers, and the far-reaching activities of large MNEs. Increasing cross national competition is pressuring SMEs to internationalize. This, combined with increasing opportunities to pursue foreign markets and the ability to profit from expanded scale and scope in their operations, has created many incentives for smaller companies to internationalize (Knight, 2001).

Economics of scale are limited to SMEs but they are more flexible in changing their product and meeting the customers’ changing demands. Even though the information technology has advanced and created a faster and cheaper way of accessing knowledge, LSEs can use more so-called advanced techniques such as external consultancy and databases, SMEs have to rely on gathering information from face to face communications and other informal ways (Morrison, 2006). But these days, widespread usage of fax, e-mail, the Internet, and other such communications technologies is making this process easier and faster.

Nowadays, internationalization affects all firms large and small. Increasingly, SMEs are confronted with international competition and are forced to play a role in international markets. This internationalization can take many forms, such as import, export, foreign direct investment (FDI) and international collaboration. For many firms, access to know-how or technology is an important motive for going abroad. Several international studies have indicated that internationalization is often accompanied by improved performance and competitiveness of SMEs (Onkelinx and Sleuwaegen, 2008). It is argued that these firms face several disadvantages for competing in international markets. Few studies, however, exploit the fact that successful exporters exist within this group. Alvarez (2004) by using data for Chilean firms study various explanations for differences between sporadic and permanent exporters. Their results suggest that greater effort in international business, process innovation, and the utilization of export promotion programs contribute positively to export performance in SMEs. In addition, they find that some forms of intervention are better than others: trade shows and trade missions do not affect the probability of exporting permanently, but exporter committees show a positive and significant impact.

It seems more interesting that if the size of enterprise affects export activity? Haathi et al. (2005) develop a model depicting the relationships among cooperative strategy, knowledge intensity and export performance and test a sample SMEs from Finland and Norway. The empirical results suggest that knowledge intensity mediates the relationship between cooperative strategy and export performance. Firm size did not show a direct impact on performance, but its indirect effect on export performance through cooperative strategy and knowledge intensity was significant. Overall, the results suggest that SMEs employing cooperative strategies to enrich their knowledge base about export markets can consequently improve their performance.

Majocchi et al. (2005) also work on relationships between firm size and export
internationalization of SMEs and their income-price effects on export market: a case of selected Asian countries

They test the effect of firm size and business experience on export performance. They develop a general model and test it using a sample of Italian manufacturing firms that spans the 1997–2001 periods. Combining a time-series with a cross-sectional analysis, they use an econometric model in order to test the relationships. Their findings provide a strong support for both relationships.

Internationalization affects small firms. We try to show the relationship between trade and SMEs and we collect data about number of employees and sale volumes are probably the most accurate parameters to define SME (Ardic et al., 2011). But we cannot have access to these data and data on exports of SMEs’ are not easily available or are difficult to verify for all Asian developing countries. To measure the role of SMEs in the economy, we get data from the World Bank at most for 9 countries as reported in Table 1 during 1998–2008 and use shares of SMEs exports in total exports (Tambunan, 2009). On the basis of these shares for each country, we calculate the shares of SMEs related to international trade, implying the SMEs export performance.

Table 1: Share of SMEs exports in total exports in the selected Asian countries, average for the period 1990s and 2008

<table>
<thead>
<tr>
<th>No.</th>
<th>Country</th>
<th>Share (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>China</td>
<td>60</td>
</tr>
<tr>
<td>2</td>
<td>India</td>
<td>38-40</td>
</tr>
<tr>
<td>3</td>
<td>Vietnam</td>
<td>20</td>
</tr>
<tr>
<td>4</td>
<td>Singapore</td>
<td>16</td>
</tr>
<tr>
<td>5</td>
<td>Malaysia</td>
<td>15</td>
</tr>
<tr>
<td>6</td>
<td>Indonesia</td>
<td>18</td>
</tr>
<tr>
<td>7</td>
<td>Thailand</td>
<td>46</td>
</tr>
<tr>
<td>8</td>
<td>Philippines</td>
<td>22</td>
</tr>
<tr>
<td>9</td>
<td>Pakistan</td>
<td>25</td>
</tr>
</tbody>
</table>

Source: Tambunan (2009)

Using data compiled by the paper, Figure 1 illustrates export trend of SMEs during 1998-2008 in the selected Asian countries while we find that during this period SMEs exports have been growing with a smooth trend (except for China), while the recent financial crisis has not affected SMEs. In China the share of SMEs in exports has become increased during this period. In fact, emerging markets like the new EU member states and China have provided new opportunities, as do sectors such as creative and knowledge intensive industries focused on their domestic market, and a majority of SMEs will most likely continue to do so in the future (Onkelinx and Sleuwaegen, 2008).

Figure 1: SMEs’ Exports trend during 1998-2008 in selected Asian countries

Note: numbers on the vertical axel are related to SMEs’ exports in terms of the million USD.

Source: Authors
3. The Model

This section specifies a structural model of SMEs' export markets for 9 selected Asian countries by including simultaneous demand and supply equations. Then it explains how relevant data are collected and how the equation regressions are estimated.

3.1. The Export Demand Equation

Helleiner (1990) indicates that export demand for a good is affected by its own export price, the world export price and the importing country's incomes. Hence, the functional form of the export demand is defined as

$$X_i^D = f (P_{X_i} / P_{XW_i}, Y_{W_i})$$  \( (1) \)

where \(X_i^D\) denotes the world demand for exports in time \(t\), \(P_{X_i} / P_{XW_i}\) stands for the relative world export price in time \(t\), and \(Y_{W_i}\) is a variable of the real importers' income. Equation (1) relies on the long-run export demand, while it is assumed that exports are adjusted partially with respect to demand for exports at time \(t\) and its past period, \(t-1\) (Pal, 1992):

$$\Delta L_{X_i} = \phi \{LX_i^D - LX_{t-1}\} + U_{2t} \quad \Phi > 0$$  \( (2) \)

where \(\Delta L_{X_i}\) refers to a change in the log of export demand, and \(\phi\) is the coefficient adjustment. The adjusted function postulates that exports would be modified by the excess demand available in the other countries. Thus, due to the adjustment conditions and following Seddighi et al. (1990), a final form of export demand is defined for SMEs in the relative export market, being applied to 9 selected Asian countries:

$$LXD_i = d_0 + d_1 L(PX/PXS)_i + d_2 LY_{Si} + U_{3t}$$  \( (3) \)

$$U = \phi U_{1t} + U_{2t}$$

where \(LXD_i\) denotes the log of the SMEs' exports demanded by the world from country \(i\) in time \(t\), \(d_1 L(PX/PXS)_i\) is the log of the relative export price for country \(i\) in time \(t\) (as \(PX\) and \(PXS\) are the export price index for country \(i\) and the US export price index in time \(t\), respectively). \(LY_{Si}\) is the log of the US real income in time \(t\) as a proxy for the world income. \(U_{1t}\) stands for an error term in the SMEs' export demand equation.

3.2. The Export Supply Equation

Export supply depends generally on export price, domestic price and domestic production (Pesaran, 1997). A functional form of export supply is defined as:

$$XS = f(PX, Pd, Y)$$  \( (4) \)

where \(XS\) is the volume of export supply, and \(PX\) and \(Pd\) denote indices of export price and domestic price, respectively. \(Y\) is domestic production.

It is assumed that for country \(i\) in time \(t\), the excess supply of exports is also adjusted in the world market (Pindyck, 1991):

$$\Delta L_{PX_i} = \lambda \{LX_{it} - LXS_{it}\} + V_{1t}$$  \( (5) \)

where \(\Delta L_{PX_i}\) denotes a change in log of export price for country \(i\) in time \(t\), and \(\lambda\) is the adjustment coefficient. \(V_{1t}\) denotes a disturbance term. Using Equation (5), the SMEs' export supply of country \(i\) in time \(t\) can be formulated in the following form:

$$LPX_{it} = a_0 + a_1 LXS_{it} + a_2 LPd_{it} + a_3 LY_{it} + a_4 LP_{Xt-1} + V_{2t}$$  \( (6) \)

where \(LPX_{it}\) is the log of export price index for in country \(i\) in time \(t\). \(LXS_{it}\) denotes the log of SMEs, exports for country \(i\) in time \(t\). \(LP_{it}\) is the log of domestic price index, and \(LY_{it}\) stands for the volume of product for country \(i\) in time \(t\). \(LPX_{it-1}\) refers to the one lagged period of \(LPX_{it}\). \(V_{2t}\) is a disturbance term.

Exporting SMEs are free to supply their goods and services either on domestic market or abroad. They allocate their output on both markets according to the price signals received. The relative profitability is therefore defined as the ratio between the average price received on export markets and the one received on the domestic market. A rise in the relative profitability of exporting leads to an increase in exports. Therefore, an attention can be focused on the interplay between the SMEs export supply in a country and the real exchange rate, i.e. of relative prices. The price elasticity of export supply is to be analyzed through modeling the export supply structures. Additionally, the relationship between export supply and production capacity variables are integrated into a defined trade model (Eljavec and Cota, 2004). A long-term model serves as a benchmark where lagged reactions do not exist.
Theoretically currency devaluation can improve export, i.e. trade flows, if the relative prices among the country and its trading partners, as well as other factors, remain unchanged. Whether devaluation improves the trade flow is still unclear as shown by many empirical studies (Straus, 2001). Changes in the real exchange rate do affect the trade flows in some economies but not in all because the changes in nominal exchange rate might lead to changes in the relative prices in the same or different directions. In other words, when country has the exchange rate changes the real exchange rate may capture two effects, price effect and volume effect.

Solving for Equations (4) to (60, a log-linear export supply function for SMEs in the selected Asian countries is finally specified by the following equation, in which the effect of exchange rate on export supply is explored:

\[ LXS_t = b_0 + b_1LPX_{it} + b_2LY_{it} + b_3LEX_{it} + a_4LPd_{it} + V_{it} \]  

(7)

where \( LEX_{it} \) is defined as the log of exchange rate for country \( i \) in time \( t \). It is assumed prices are homogenous of degree zero, to avoid collinearity with exchange rate. Price homogeneity can be justified on microeconomic grounds, but the extent to which it applies in an aggregate trade model such as the one described in (7) (Athanasoglou, 1990).

The related data for all variables are in form of cross-section and time series, and have been collected for 9 selected Asian countries (as shown in Table 1) over the period 1998-2008. They are obtained mostly from the WTO, World Development Indicators (WDI) and Penn World Tables.

4. Empirical Results
Table 2 and Table 3 report estimation results for the SMEs’ Export Demand and supply of the selected Asian countries. The empirical results have obtained through estimating cross-sectional time-series random effects Equations (3) and (7), based on the Hausman statistic. According to Table 2, both income and price coefficient elasticities are statistically significant, while the results for effects of income and price are expected. A positive and significant sign for the coefficient of the world income implies a direct effect on demand for SMEs exports, while the responsiveness is low as the variable is elastic. The result for the price effect has been obtained expectedly, and the demand responsiveness to the relative price changes is high as the variable is elastic. It implies an international competitiveness of SMEs in the world market.

Table 2: Panel estimation results for the SMEs’ Export Demand of the selected Asian countries, based on cross-sectional time-series Random effect regression

| Variable | Coefficient | z- Statistic | P>|Z| |
|----------|-------------|-------------|---------|
| LYS      | 0.78        | 15.07       | 0.000   |
| L(PX/PXS)| -2.67       | -17.45      | 0.000   |
| Cons.    | -60.94      | -11.91      | 0.000   |

Hausman Chi2(2) =0.62
Wald Chi2 (6) = 132.32
Prob. > Chi2 = 0.7382
Prob. > Chi2 = 0.0000

Source: Authors

Table 3 summarizes the empirical results for SMEs’ export supply model, as specified in (7). Overall, the results indicate that the export price, income and exchange rate are highly significant, and the responsiveness to changes in these variables is quite high as they are significantly elastic. The fact is that a change in export price would lead to an expected effect on the SMEs’ exports in the countries under consideration. It means an increase in relative price encourages SMEs to increase their exporting products, to earn more benefit of internationalization. In addition, income and exchange rate play the same role as the price does, that is, a rise in domestic income and/or in the exchange rate would cause a highly positive effect on SMEs’ exports. The results imply a competitive position to the SMEs due to their presence in the global export market, since both price and income indicators are quite elastic. There is, however, an exception in which domestic price has an inverse effect on SMEs export supply, which falls unexpectedly due to a rise in domestic price index. Such result reveals the fact that SMEs in our sampling countries are beneficial from the external market rather than the internal one.
Table 3: Panel estimation results for the SMEs’ Export Supply of the selected Asian countries, based on cross-sectional time-series Random effect regression

| Variable | Coefficient | z-Statistic | P>|Z| |
|----------|-------------|-------------|--------|
| LPX      | 2.12        | 12.86       | 0.000  |
| LY       | 2.19        | 12.84       | 0.000  |
| LEX      | 2.14        | 13.10       | 0.000  |
| LPe      | -.83        | -21.32      | 0.000  |
| Cons.    | -47.01      | -11.82      | 0.001  |

Hausman Chi2(3) =0.35
Wald Chi2 (6) = 2675.02

Source: Authors

5. Conclusion
In this study, to show the significance of price and income in the SMEs export market, we specified and estimated regression models using cross-sectional data of 9 selected Asian countries, based on the panel data approach. Our sample included countries such as China, Singapore, Thailand, Malaysia, Indonesia, India, the Philippines, Vietnam and Pakistan, where data were available over the period 1990-2008. We found that relative export price and income are the significant determinants of both SMEs demand and supply exports in such countries, as expected theoretically. This shows that internationalization of SMEs depends significantly on the market structures. The implication of our findings points out the possible enhancement of SMEs can be implemented for further competitiveness and trade expansion across the countries.

References


23. Wignaraja, G. (2003), Promoting SME Exports from Developing Countries. First Draft

