Capitalizing on innovation for exports by the SME sector

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A key question before Vietnamese policy makers is how to improve the competitiveness of SMEs. Innovation is among the many initiatives proposed to address this. The initiative is based on the assumption that innovation can impact a firm’s competitiveness and its status in exports by increasing productivity, reducing costs, and by developing new goods for the international market. Based on quantitative data analysis and qualitative case-studies, the paper stresses the importance of innovation for raising export competitiveness of Vietnamese firms in their exports, and provides several policy recommendations.

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Introduction

It is generally believed that the developing countries can enhance their growth prospects through export promotion strategies. Underpinning this belief is the export-led growth model that postulates a positive relationship between export growth and economic growth. According to economics literature, a large and growing export sector will allow economies with small domestic markets to overcome their limitations of size and reap the benefits of economies of scale. The exports earnings will provide the much-needed foreign exchange to import capital and intermediate goods, which in turn will improve the production capacity of the economy. The exposure to increased competition in the export markets leads to an improvement in economic efficiency and finally, exports contribute to productivity gains through diffusion of technical knowledge and learning by doing.

The successful experiences of the East Asian economies are good examples of the importance of the export sector to economic growth and development, and following in their footsteps, Viet Nam has adopted an exports-oriented strategy. During the last two decades of economic reforms, the exports sector has been a major driving force of Vietnamese economic growth. In 2007 and 2008, exports formed 70 per cent of the country’s Gross Domestic Product (GDP).

However, the main problem faced by Viet Nam is that its private sector – the small and medium enterprises
New concept in Vietnam, having been introduced only in 1997, with support from the International Development Research Centre (IDRC). Therefore, the role and importance of innovation for competitiveness at the enterprise and national levels are neither fully realized nor well understood. Hence, the purpose of this paper is threefold. First, it provides an overview of the linkage between innovation and exports. This is of vital importance in the Vietnamese context because, although there is considerable discussion about innovation in general, linkages to the exports sector have not been explored previously. Second, the paper highlights the importance of the SME sector and the influence of innovation on exports, drawing on the Viet Nam Small and Medium Enterprise Survey conducted in 2005 (SME 2005). The link between innovation and exports, and attempts to answer the question whether more innovative firms are more likely to export are investigated. This paper also captures innovation activities in three different ways: a new product innovation, a new production process and a modification of existing products. The case studies of nexus between innovation and export also highlight the conclusion drawn from quantitative analysis. Finally the paper discusses policy implications for the SME sector, and identifies a number of concrete steps that the key policy makers could undertake to strengthen the innovation environment.

Innovation and export

Trade and innovation – theoretical background

Innovation and exports are related to national competitiveness at macro and micro levels (Cassiman and Martínez-Ros, 2004). At the macro level, innovation is an important measure for industrial and country-level growth, and exports represent an indication of national competitiveness. Innovation is also important for the competitive advantage of firms and determines their growth potential.

Besides the comparative advantages that stem from a country’s natural resources, economic theories suggest that innovation is important for success in the international market. International trade models developed by Vernon (1966), Krugman (1979) and a few others suggest that innovation is the driving force behind exports. These models suggest that the causation runs from innovation to export. As developing countries imitate the innovative products imported from developed countries, they will later be able to export back matured products to the developed markets. Developed countries have to innovate to keep up their exports and income. At the firm level, it has been argued that innovating firms have incentives to expand to other markets for earning higher returns from their investment (Teece, 1986). Through innovation, innovating firms will obtain and sustain their competitive advantage both domestically and internationally. Therefore, a positive linkage from innovation to exports can be expected.

SME sector’s contribution to Vietnamese economy

Viet Nam’s SME sector plays a key role in its economy. Table 1 presents a clear picture of position of SMEs among the Vietnamese firms in terms of population and performance during

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**Table 1: Number and performance of Vietnamese SMEs (2000-2005)**

<table>
<thead>
<tr>
<th>Year</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Total number of firms</td>
<td>42,288</td>
<td>51,680</td>
<td>62,908</td>
<td>72,012</td>
<td>91,755</td>
<td>112,952</td>
</tr>
<tr>
<td>2. Number SMEs</td>
<td>39,897</td>
<td>49,062</td>
<td>59,831</td>
<td>68,687</td>
<td>88,222</td>
<td>109,338</td>
</tr>
<tr>
<td>3. Share of SMEs in total firms (%)</td>
<td>94</td>
<td>95</td>
<td>95</td>
<td>95</td>
<td>96</td>
<td>97</td>
</tr>
<tr>
<td>4. SMEs’ share of total labour force (%)</td>
<td>36</td>
<td>34</td>
<td>35</td>
<td>35</td>
<td>36</td>
<td>38</td>
</tr>
<tr>
<td>5. SMEs’ share of total capital stock (%)</td>
<td>38</td>
<td>29</td>
<td>29</td>
<td>31</td>
<td>34</td>
<td>33</td>
</tr>
<tr>
<td>6. SMEs’ share of total gross output (%)</td>
<td>48</td>
<td>45</td>
<td>49</td>
<td>48</td>
<td>45</td>
<td>46</td>
</tr>
</tbody>
</table>

Note: Previous year = 100 per cent

Source: Enterprise Census 2000-2005 of General Statistic Office, Viet Nam
**Box 1: Distinguishing between product and process innovations**

A general distinction can be made between product innovation (including both new product innovation and modification of an existing product) and process innovation. Process innovations are a way to improve productivity and reduce production costs, while product innovations give the innovating firms a competitive advantage in the market. The hypothesis is that product innovations and process innovations have different effects on export performance (Utterback and Abernathy, 1975, and Cassiman and Martínez-Ros, 2004). However, often, product innovations and process innovations are linked, as newly developed products or modified products often require new production technology (Kirbach and Schmiedeberg, 2006).

Innovations are produced by a few “performance-maximizing” firms, who have strong technological capability and connection with the market, implying that product innovations are first produced in the advanced technology countries (Utterback and Abernathy, 1975). As far as product innovators in smaller developing countries like Viet Nam are concerned, exports are likely to be positively affected, as demand in the domestic market is not yet well developed and firms discriminate between domestic and international markets for these novel products for which they do have some market power (Cassiman and Martínez-Ros, 2004).

The effect is different in the case of process innovations, as this type of innovation reaches typically more mature markets where product innovations introduced by “sale-maximizing” firms are often a variation of existing products rather than for creating entirely new products. Process innovations are beginning to build up and, along with product innovations, they are stimulated by advanced technology (Utterback and Abernathy 1975). The effect of process innovations on exports is less than product innovations (Cassiman and Martínez-Ros, 2004). Process innovations help securing a firm’s market position given the characteristics of its product supply. Both modes of innovation are expected to raise the firm’s propensity to export.

With respect to product modification, firms competing in foreign markets may choose to adapt the physical characteristics or attributes of a product and its packaging to meet the needs and desires of consumers in different countries in a better manner and thereby bear additional costs. To be successful, a modified product must add sufficient incremental revenue such that the additional manufacturing and marketing costs that result from adapting the product are recovered. The hypothesis is that given Viet Nam’s current technological position, product modification is expected to be the most frequent type of innovation. 

*Source: Nguyen and others, 2008*

2000-05. SMEs consistently account for a large majority of the total Vietnamese firms – from 94 per cent of 42,000 firms in 2000 to 97 per cent of more than 110,000 firms in 2005. According to observed performance indicators, SMEs comprised a stable portion of the total labour force at 34-38 per cent each year, and displayed a fluctuating share of capital stock that peaked at 38 per cent in 2000 and struck rock bottom at 29 per cent in 2001. The gross output produced by SMEs has maintained a constant share between 45 per cent and 49 per cent of the total gross output. In short, SMEs are the backbone of Viet Nam’s economy, and appropriate policies should be directed at this sector to improve their performance and contribution to economic development.

**Innovation and export by Viet Nam’s SME sector**

The link between innovation and exports is an important one, but till date in Viet Nam, it has received little attention as far as policy making or analysis is concerned. The current research however, indicates that firms that innovate are more likely to export. Table 2 presents the innovation and export activities of firms as per the SME survey (2005). Among the 2,739 surveyed manufacturers, 1,113 firms are product innovators, 809 firms are process innovators and 1,654 firms are engaged in product modification. The table suggests that innovations positively correlate with the export decision of firms. As shown in Table 2, 11 per cent of firms with active product innovation are exporters, whereas for non-product innovators, the rate of exporters is just 4 per cent. Similarly, 12 per cent of process innovators, compared with just 4 per cent of non-process innovators, are involved in exports, and 9 per cent of product adapters compared with 3 per cent of non-product adapters are exporters. Across the board, firms engaged in innovation – be it product innovation, process innovation or product modification – are more likely to export.

To establish a causal relationship between innovation and export among SMEs in Viet Nam, a model linking exports and three measures of innovation – product innovation, process innovation and product modification – was created using the survey data of SMEs in 2005 (Nguyen and others, 2008). The paper estimates an exporting model specified as follows:

\[
\text{Export} = \beta_0 + \beta_1 \text{Innovation} + \epsilon
\]

where Export is an indicator taking value of 1 if firm is an exporter in the survey year and 0 otherwise, X is a vector which includes firm’s characteristics such as firm size, turnover, capital intensity, regional dummies, sector dummies, and $\epsilon$ is an error term. As the dependent variable Export is a binary response variable, the equation (1) is estimated as a probit or logit model. Innovation in (1) is a generic measure of innovation. Three measures of innovations are considered, in particular, in the empirical investigation:

- **Product Innovation**: A dichotomous variable that takes the value 1 when the firm introduces new products in the survey year; and 0 otherwise.
- **Process Innovation**: A dichotomous variable that takes the value...
In an economy dominated by SMEs, which form the backbone of the economy, innovation will lead to new businesses as well as to the increased competitiveness of existing enterprises. The analysis provides empirical evidence to prove that innovation enhances the likelihood of exports for Vietnamese SMEs, which form the backbone of the economy.

To engage more successfully in international trade, Vietnamese SMEs have to improve their efficiency, productivity and innovation. Like other developing countries, the innovation system in Viet Nam is disconnected and fragmented. Therefore, some policy recommendations to develop an effective national innovation system can be suggested as follows:

- General: It is important to build an integrated national innovation system in which the link between enterprises and research institutes is strong, coherent and intimate.
- Stimulating and supporting enterprise innovation: The government should have policies and programmes/schemes that (a) are adapted to different types of enterprises, (b) tackle the various needs of enterprises, such as technical, commercial and legal, and (c) are embedded in broader actions aimed at upgrading the overall enterprise management.
- Building appropriate research and technology infrastructure: Research activities from basic to applied level must be adapted to local needs and capabilities.
- Legal and regulatory environment: The legal and regulatory environ-

### Conclusions and policy implications

The results of this study have important implications for Viet Nam’s strategy on economic development. They suggest that to maximize Viet Nam’s comparative advantage in the exports sector, a policy to encourage innovation by SMEs should be developed. This is particularly important in a SME-dominant economy, which is integrating into the global market via international trade. Furthermore, such a strategy should pay particular attention to the break-up of national innovation strategy – the development of new products, the adoption of new production process/technology and on innovations that modify existing products.

Table 2: Innovation and export status among SMEs

<table>
<thead>
<tr>
<th>Export status</th>
<th>Type of innovation</th>
<th>Product innovation</th>
<th>Process innovation</th>
<th>Product modification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Active</td>
<td>Non-active</td>
<td>Active</td>
</tr>
<tr>
<td>Export</td>
<td></td>
<td>117</td>
<td>(11%)</td>
<td>59</td>
</tr>
<tr>
<td>Not for export</td>
<td></td>
<td>996</td>
<td>(89%)</td>
<td>1,567</td>
</tr>
<tr>
<td>Sub-total</td>
<td></td>
<td>1,113</td>
<td>(100%)</td>
<td>1,626</td>
</tr>
<tr>
<td>Total samples surveyed</td>
<td>(Manufacturing only)</td>
<td>2,739</td>
<td>2,739</td>
<td>2,739</td>
</tr>
</tbody>
</table>

Source: SME Survey, 2005

1 if the firm introduces new production processes/new technology; and 0 otherwise.

- **Product modification**: This is a dichotomous variable that takes the value 1 if the firm introduces any major improvement of existing products or changed specification in the survey year; and 0 otherwise.

Following previous research, control is also for a range of variables in the vector X that possibly affect the decision to export. The issue of endogeneity between innovation and export is also dealt with, by estimating an equation specified as:

\[ \text{Innovation} = Z \beta + \delta \text{Z} + \mu \]

where Z is the vector of instruments. The strategy is to use the fitted value of innovation obtained after estimating equation (2) as the instrument in equation (1). The regression results show that innovations are important determinants of exporting. All three measures of innovation employed were statistically significant. The model also indicates that among the three innovation measures, product innovation has the strongest effect on exporting. The results have important implications in the Vietnamese context. That is, on top of the comparative advantages that push Viet Nam’s exports, a policy must be in place to encourage innovation activities to be practiced by SMEs. This makes more sense in an economy dominated by SMEs and integrating into the global market via international trade. Furthermore, it should focus on national innovation strategy – the development of new products, the adoption of new production process/technology and the modification of existing products.

To complement the quantitative analysis, several qualitative case studies on the link between different types of innovation and export were conducted. The cases are presented in Box 2. The case studies also highlight the importance of all three types of innovation – product innovation, process innovation and product modification – for the success of export to foreign markets.

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In a modern economy, innovation is crucial for value creation, productivity, export, growth and employment.
Box 2: Case studies on innovation and exports

Product innovation
There is a growing number of examples of new product innovations that have helped Vietnamese enterprises to enter the exports market. One good example is that of bamboo-based floor tiles produced by Tien Dong Ltd. Company. In 2007, the company introduced bamboo-based products in place of their traditional wood-based floor tiles due to the falling supply of wood-based input materials. The advantage of the bamboo-based product over the wood-based product is its durability and strength. The company has now entered into an agreement with a foreign partner to produce bamboo-based floor tiles for export markets.

Another good example is that of Dien Quang JSC’s investment in the development of new high-end products such as energy-saving bulbs. As a result of this investment in innovation, the company has been able to export its products to European countries.

Process innovation
The Viet Nam Milk Product Company (Vinamilk) is an interesting example of process innovation. By importing new technology and equipment from Denmark, the company has been able to export its products to new markets. In 2007, the company was able to export milk powder to Dubai, Cappuccino coffee to Australia, and many other coffee products to Cambodia and the Philippines. By entering into a joint venture with the United States beer manufacturer, SABMiler, Vinamilk has been able to increase its beverage exports by 30 per cent in 2006.

Another case of process innovation comes from the Daso Group, which decided to invest in a lemon farm of 250 ha area. The company has set up a long-term purchase arrangement with farmers. The purpose is to maintain a good supply of input materials to meet its production capacity. By doing this, the company has been able to meet large export orders from the United States.

Product modification
Thanh Cong Textile and Garment company provides a good example of successful product modification. By modifying the design, colour and styles of garment products to ensure that they meet the taste of consumers, the company has been able to secure large contracts with the Wal-Mart company of the United States. In 2006, Wal-Mart placed a very high-value order for the company’s pullover T-shirt (over 1 million pieces). In 2007, Thanh Cong’s exports to the United States reached USD 24 million.

References

SMEnetwork
SMEnetwork is a unique network of small and medium enterprises (SME) associations and their members in India. It is coordinated by Federation of Indian Micro and Small and Medium Enterprises (FISME), a national body of SMEs. SMEnetwork aims at creating a unique Internet-based infrastructure which encompasses:
- Marketing platform composed of SMEs with data verified by associations;
- One stop source of information;
- Communication tools for information exchange between associations and their members; and
- SME e-communities, both Sectoral and Geographic.

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