CHAPTER 3

AN OVERVIEW OF INNOVATION IN THE MALAYSIAN MANUFACTURING SECTOR

3.1 Introduction

The manufacturing sector is an important contributor to the economic growth and development of Malaysia. Today, the sector contributes to about a third of Malaysia's gross domestic product. The manufacturing sector is also an important source of trade for the country. The sector's share of total exports and total imports is around 80 percent and 86 percent, respectively.

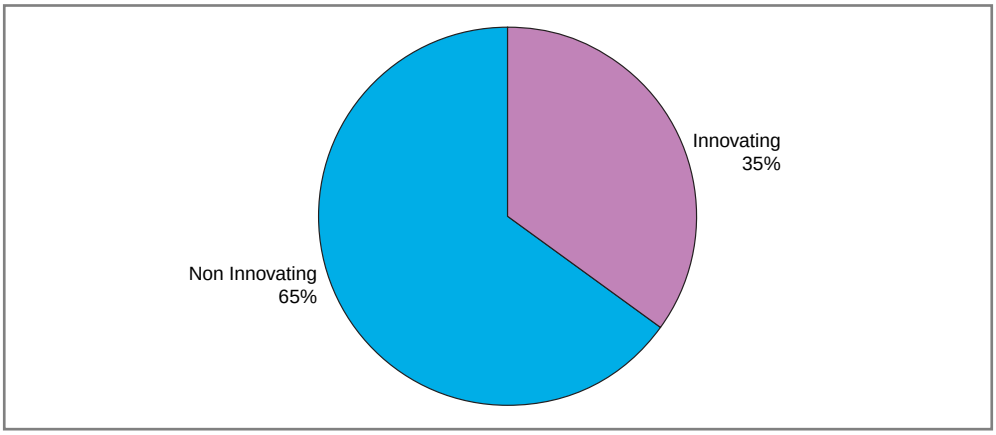
With a per capita income of around USD3,400, the structural transformation to an advanced economy with a dominant services sector is still far off for Malaysia. The challenge for the Malaysian manufacturing sector in the next few years will be how to maintain its competitiveness in a global trade environment that will continue to become increasingly competitive. The need for Malaysia to upgrade its manufacturing sector to meet this challenge via technological innovation has been recognized by the government for some time now. In this regard, the National Survey of Innovation provides an opportunity to assess the state of innovation in the manufacturing sector.

This chapter provides a broad review of innovation in the manufacturing sector. It compares the level of innovation across the different industries in the manufacturing sector as well as their characteristics.

3.2 Level of Innovation

In the survey, a total of 4,000 questionnaires were sent out to business establishments in the manufacturing sector. A total of 749 completed questionnaires were received. Of these, 263 firms (or 35%) indicated that they carried out innovation activities while the remaining 486 firms (or 65%) indicated they did not carry out any innovation activities during the reference period of 2000-2001 (see Figure 3.1). The incidence of innovation – defined as the percentage of innovating firms from the total number of respondents - in the present study (at 35%) is higher than that recorded in the previous national innovation survey (NIS-2, at 21%).

FIGURE 3.1: INNOVATING AND NON-INNOVATING FIRMS IN THE MANUFACTURING SECTOR, 2000-2001



3.3 Innovation Across Manufacturing Industries

There are significant variations in the incidences of innovation across the different manufacturing industries (see Figure 3.2). Results from the survey indicate that three industries had incidence of innovation of 25 percent or less, namely:

- Machinery and equipment n.e.c (10%);
- Wood products (16%); and
- Leather products (25%).

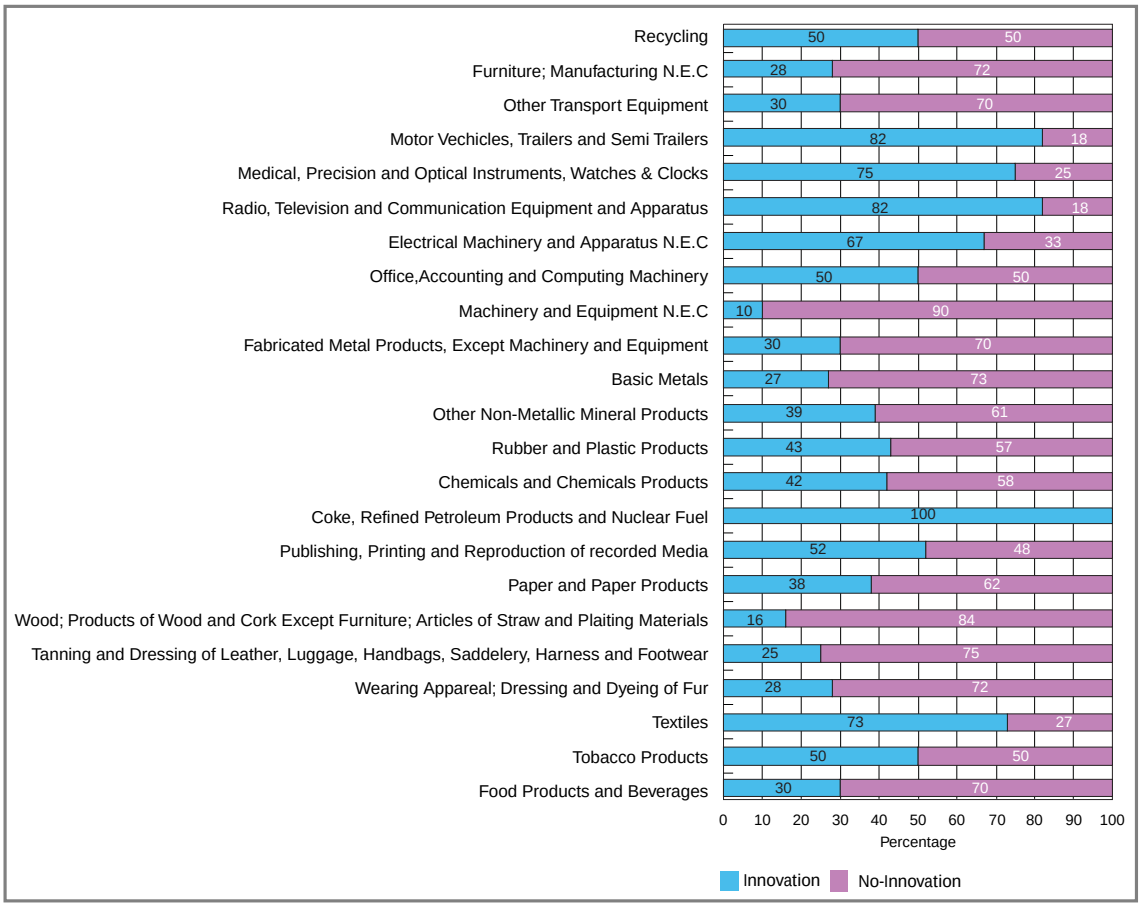
Majority of the manufacturing industries survey had incidence of innovation of above 25% but less or equal to 50%. Manufacturing industries that fall into this category includes:

- Basic metals (27%);
- Furniture (28%);
- Fabricated metal products (30%);
- Food products and beverages (30%);
- Other transport equipment (30%);
- Paper and paper products (38%);
- Other non-metallic mineral products (39%);
- Chemicals and chemical products (42%);
- Rubber and plastic products (43%);
- Tobacco products (50%);
- Office, accounting and computing machinery (50%); and
- Recycling (50%).

Industries with incidence of innovation exceeding 50% includes:

- Publishing and printing (52%);
- Electrical machinery (67%);
- Textiles (73%);
- Medical, precision and optical instruments (75%)
- Motor vehicles, trailers and semi-trailers (82%);
- Radio, television and communications equipment (82%);

FIGURE 3.2: INNOVATION PROFILE IN THE MANUFACTURING SECTOR, 2000-2001



Overall, the incidences of innovation across the various manufacturing industries reflect the technology characteristics of products in these industries. Compared to the previous innovation survey (NIS-2), this survey's results indicate an overall higher level of innovation incidence for almost all industries. However, the ranking of innovation incidence across the different industries is quite similar (with a few exceptions such as machinery and equipment n.e.c. and rubber and plastic products).

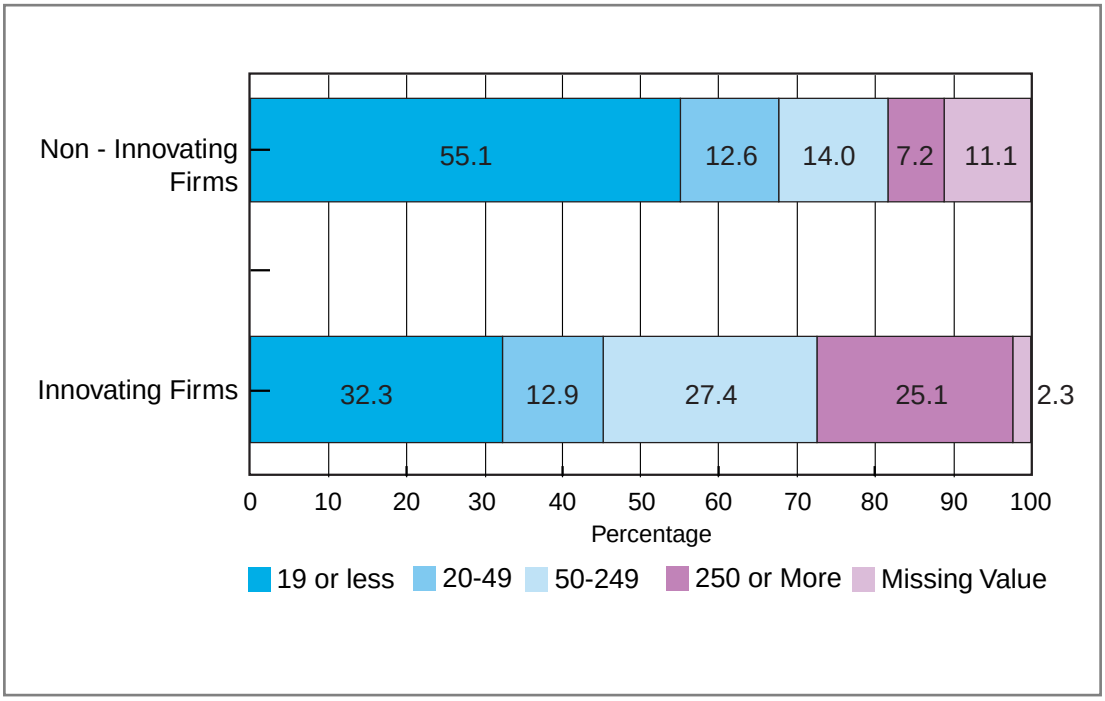
3.4 Characteristics of Innovating and Non-Innovating Firms

This section discusses the differences between innovating and non-innovating firms in the survey in terms of firm size and ownership.

(a) Firm Size

When firm size is measured in terms of the number of employees, the survey indicates that innovating firms tend to be larger than non innovating firms (see Figure 3.3). About 55% of non-innovating firms have less than 20 employees while the corresponding figure for innovating firms is 32%. Only 7% of non-innovating firms have 250 or more employees. In contrast, some 25 % of innovating firms have 250 or more employees. These findings are similar to that of the previous innovation survey (NIS-2).

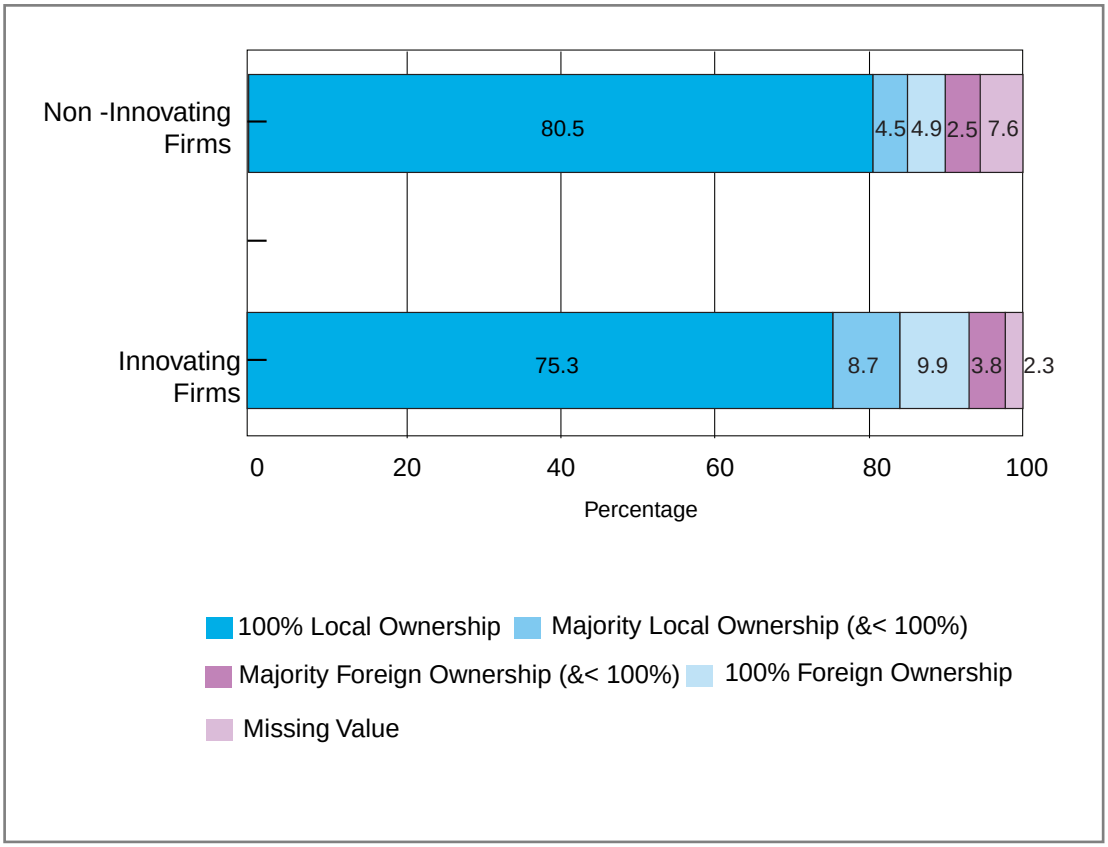
FIGURE 3.3: SIZE OF INNOVATING AND NON-INNOVATING FIRMS, 2000-2001



(b) Local Ownership vs. Foreign Ownership

About 85% of non-innovating firms are either wholly locally-owned or have majority local ownership (see Figure 3.4). The corresponding figure for innovating firms is 84%. The percentage of innovating firms that are either wholly foreign-owned or have majority foreign ownership (14%) is almost twice the innovating firms that are either wholly locally-owned or have majority local ownership (7%). This indicates that while majority of innovating firms have majority local ownership, foreign ownership is more significant amongst innovating than non-innovating firms.

FIGURE 3.4: LOCAL OWNERSIP VS. FOREIGN OWNERSHIP IN INNOVATING AND NON-INNOVATING FIRMS IN THE MANUFACTURING SECTOR, 2000-2001



(c) Type of Ownership

There are significant differences between innovating and non-innovation in terms of type of ownership. While 50% of non-innovating firms are sole-proprietorship and partnership firms, only 16% of innovating firms are of such ownership type. In contrast, 71% of innovating firms are limited companies (Sdn.Bhd.) while only 44% non-innovating firms are limited companies. These findings are consistent with those of the previous national innovation survey (NIS-3).

FIGURE 3.5: TYPE OF OWNERSHIP OF INNOVATING AND NON-INNOVATING FIRMS IN THE MANUFACTURING SECTOR, 2000-2001