

# Fiji's furniture and joinery industry: a case study

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This article discusses the state of Fiji's furniture and joinery industry, its position in world markets, and the strategies its firms employ in entering global markets, including the technologies used. Data are based on a survey sample of 69 firms. The two predominant strategies are product differentiation through frequent design changes, advertising and, in one instance, green marketing; and cost minimisation through vertical integration and the use of modern technology, including computer and numeric controlled machinery. Policies for export promotion are also discussed.

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As the sugar industry declines, Fiji has need of export products to replace sugar. Thus far, replacements include tourism, garments, bottled water and cosmetics. Two firms, Natural Waters of Viti Ltd and Pure Fiji, producing bottled water and cosmetics, respectively, have successfully employed a strategy of product differentiation that capitalises on Fiji's niche in foreign markets (*Fiji Times*, 14 November 2002).

The success of these two firms has demonstrated that innovative firms in Fiji can tap into large markets like those in North America and Europe. With Fiji's abundant timber resources and its furniture and joinery

industry, wood products can also serve as replacements for sugar exports. Fiji can gain by producing value-added mahogany products as well as products made from endogenous species (*Daily Post*, 14 November 2002, Yaya 2002).

This study has two broad goals: to describe the furniture and joinery industry in Fiji, and to assess the local wood furniture and joinery firms' strategies in accessing export markets. The results from a survey of firms in Fiji's furniture and joinery industry are presented, together with data from the Fiji Bureau of Statistics and other sources.



## Firm strategies

A firm's strategy is the set of actions it will take in every conceivable contingency. Strategies are developed and implemented with specific goals in mind. For example, a firm may develop a strategy to produce and sell goods to one income group with unique tastes and preferences. Strategies can include such factors as pricing, technology, quality, skill levels of workers, advertising and product differentiation. A brief discussion follows of factors incorporated in the strategies of many of the firms in the study.

### Choice of technology

The advent of computer and numeric controlled (CNC) machinery and flexible manufacturing systems generated a great deal of interest in the 1990s. These innovations can be used to produce a great variety of parts and allow for rapid changes in production set-ups (Milgrom and Roberts 1990, Prabhaker, Goldhar and Lei 1995). The resulting economies of scope meant that large manufacturing firms could enter markets for customised products. Conversely, it was thought, small firms could acquire this technology, achieve economies of scope and compete effectively. That expectation was not borne out by experience, as shown by subsequent research. The large capital requirements for adoption of this technology often resulted in an increase in the minimum efficient scale of production (Perrone et al. 2002, Alcorta 2001). Moreover, both theoretical and empirical work has shown that under some conditions, dedicated technology is preferable to flexible manufacturing technology (Perrone et al. 2002, Alcorta 2001, Norman 2000).

The adoption of new technology implies a learning curve for the adopting firms. Setting up and operating CNC equipment requires significantly more knowledge and

skill than operating older woodworking machines. The response of manufacturing firms in some developing economies has been to focus on upgrading their human capital through training programs (Aw and Batra 1998). Some researchers were concerned that if the gap in skill levels is too great the efforts are likely to be unsuccessful (Abrenica 2002). Others have argued that firms in developing economies should take an intermediate step. To relax human capital constraints, it is argued that they should purchase either new machines that use old technology or used equipment. Since the gap in skill requirements would be smaller, more workers would learn to operate the machines efficiently more quickly than with new technology (Navaretti, Sologa and Takacs 2000).

### Product differentiation

In addition to the kind of technology employed, firms can choose product characteristics, level of quality, target customers, and other means of making their products attractive to their customers. If the nature of the product and the target consumers' tastes allow, the firm can raise the price of the product above what it would be in a perfectly competitive market. In these circumstances firms can create a niche market through product differentiation.

Product differentiation can be accomplished in a variety of ways, including design, green marketing, advertising and choice of quality. In the case of design, the firm positions its offering in 'product space', an abstract space where the dimensions are product characteristics. If the firm is successful, it can expect competitors to copy its designs, thereby creating a need for frequent design changes in order to maintain the premium it earns.

Green marketing can also be used to position the firm's offerings. Green marketing is defined here as the promotion of a firm's



products on the basis of a good's environmental characteristics or the firm's environmentally conscious production, distribution or packaging activities (Polonsky 1994). Firms promote their products as being produced and distributed in an environmentally sustainable way with inputs that are also produced or collected according to environmentally sustainable criteria. One firm in the sample, Pacific Green Industries Ltd, engages in green marketing. It advertises its inputs and production processes as environmentally sustainable. In addition, it has differentiated its products through unique, artistic designs and also makes frequent design changes in its product lines (B. Dowse, Managing Director, Pacific Green Industries, interview 2003).

In order to differentiate a product or product line successfully, a firm may use advertising as a means of changing consumers' perceptions. What matters is the consumers' perception rather than differences in product characteristics in terms of consumers' willingness to pay more for the product than they would for a close substitute. This paper does not attempt to resolve the debate over whether advertising is primarily informational or persuasive. It assumes that

the intention of firms purchasing advertisements is both to inform and to persuade their customers. (For more discussion on this point see, for example, Baker and Lutz 2000, Gotlieb and Sarel 1991, Benham 1972, Cady 1976, Galbraith 1967, Solow 1967, Nichols 1951).

Advertising and product quality are often linked. Choice of quality is intimately connected with choice of the firm's target consumers, their tastes and the characteristics of substitute goods. This paper assumes that firms target consumers by income and by their tastes and preferences. Firms are assumed to supply a level of quality that satisfies their customers' minimum quality requirements. As the number of close substitutes increases, each firm has an incentive to increase the level of quality it provides above its target group's quality threshold.

## Fiji's furniture industry

### Key statistics

Data taken from the sample indicates that the furniture and joinery industry in Fiji generated at least F\$28.5 million in gross sales and at least F\$11.25 million in exports

**Table 1 Fiji furniture and upholstery industry, key statistics, 1994 (F\$'000)**

|                                 |        |
|---------------------------------|--------|
| Total gross sales               | 18,092 |
| Domestic sales                  | 14,955 |
| Exports                         | 3,138  |
| Total value of raw materials    | 11,545 |
| Value of imported raw materials | 4,544  |
| Value of local raw materials    | 7,001  |
| Number of employees             | 942    |
| Total wages and salaries        | 4,587  |

**Source:** Fiji Bureau of Statistics, 1994. *Census of Industries*, Government of Fiji Islands, Suva.



in 2003. The industry employs at least 1,300 people full time, and has at least F\$40 million in productive assets. These numbers can be taken as lower bounds; the actual gross sales, exports, number of employees, and committed assets may be much higher.

The latest data available from the Census of Industries is for 1994 (Table 1). Comparing this data with the lower bounds estimated from the 2002 survey, gross sales have increased by at least F\$10 million, the number of employees has increased by at least 358, and exports have increased by at least F\$8 million.

### The sample

Of the 69 firms invited to participate in the study, 48 agreed to be interviewed, giving the survey a response rate of 69.5 per cent. The study took as its sample frame those firms that are officially recognised and participate in the formal sector. It was assumed that firms listed in the telephone directory yellow pages or that advertise locally fit this criterion.

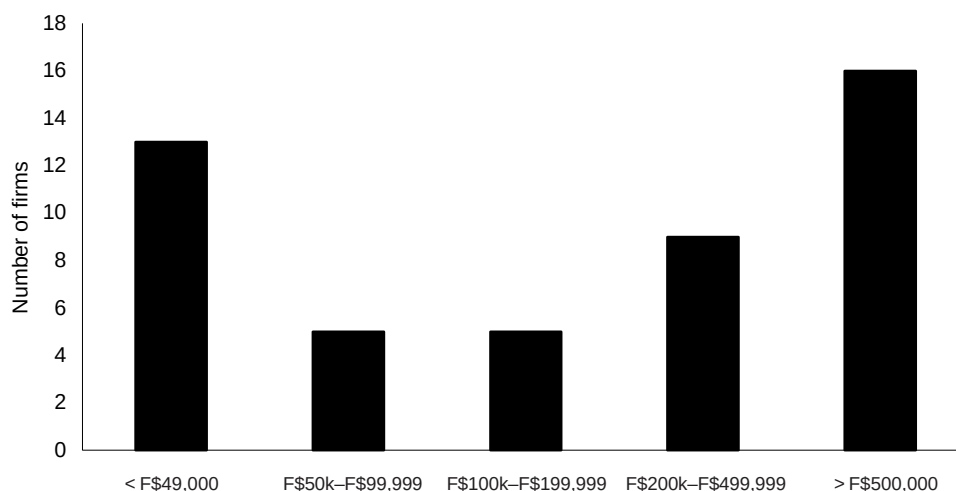
Figure 1 shows the size distribution of the firms in the sample. It is noteworthy that the largest numbers of firms are located at the ends of the distribution. According to several respondents from medium-sized firms, they have lost sales to new entrants operating from their own homes, presumably with annual gross sales less than F\$50,000. Consequently, the lower tail of the distribution is probably somewhat larger than shown.

### Technology in use

Data taken from the sample was used to categorise firms according to their choice of technology. Tier 1 requires the use of CNC machinery. For inclusion in Tier 2, firms needed to have both a conveyor-fed thicknessing sander and a sliding bed table saw. All other firms fall into Tier 3 (Table 2).

Tier 3 includes two subclasses: light duty, often portable, general purpose machinery; and stationary, industrial-duty machinery, sometimes as old as 50 years or more. The large number of firms in the third group can

Figure 1 Size distribution of firms in the sample



Source: Author survey.



Table 2 Firms arranged by choice of production technology

| Tier | Number of firms |
|------|-----------------|
| 1    | 2               |
| 2    | 10              |
| 3    | 36              |

Source: Author survey.

be explained by the availability and lower cost of used machinery.

Tier 2 contains stationary machines designated for specific tasks. These machines require skill in setting up but less skill to operate. Therefore, a foreman often performs the set-up duties and assigns less-skilled workers to operate the machines. The first tier firms use CNC machinery which requires skilled technicians to perform the set-up function. The technicians enter instructions into a computer via specially designed software, which in turn sends instructions to the machine to perform the designated tasks. Less-skilled workers can load and unload the work pieces into and from the machines. These machines are stationary, and are larger and more expensive than those used by Tier 2 firms.

Respondents 1, 22 and 26 currently use CNC machines. Respondent 39 is planning to obtain CNC machinery and export ready-to-assemble kitchen cabinets. Respondent 1 uses only a light-duty CNC router to produce hardwood furniture parts. This respondent indicated that CNC technology is not suited for his market niche, for which he produces handcrafted, custom products. The use of CNC machinery would undermine marketing efforts. Moreover Tier 2 technology is well suited to efficient production for this niche. Respondent 26 uses much larger CNC equipment including a router, beam saw, and edgebander. The firm's products include

office furniture, store fittings, kitchen and bath cabinets, and bookshelves. Despite having nearly the same gross sales, the difference in replacement value of these two firms' machines was noticeable. For respondent 1, it was approximately F\$500,000. For respondent 26, the replacement cost of machinery was approximately F\$1,000,000. One possible explanation is that respondent 26 has recently acquired the equipment, and has a considerable amount of excess capacity.

### Competitive environment

The competitive environment for firms in this industry varies according to market segment. There is a certain amount of churning of firms with gross sales under F\$50,000 as marginal businesses fail and new firms enter. The ease of entry is in part due to the low capital requirements for home-based businesses. The machines used are less costly, the enterprise can be set up in a shed or carport, and the firm can avoid many of the administrative overheads involved in maintaining employees and a regular payroll.

At the next level are small and medium-sized firms serving local customers. Firms in this class have annual gross sales between F\$50,000 and F\$100,000; produce in a building intended for industrial use; and often have integrated forward, setting up their own retail showroom. Several of the managers of these firms indicated that home-based



businesses had captured a noticeable amount of their sales.

Four firms in the sample were local household goods retailers that have integrated backward by setting up their own furniture factories. They compete with other producers and retailers selling local furniture and furniture imported from Asia. Also at this level are hardware and timber companies that have integrated forward and backward; setting up furniture factories and selling their wares in their own showrooms as well as to other retailers. Other medium-sized firms are exporting to the United States, the Middle East, and other Pacific island countries.

The firms with the highest gross sales are diverse. They include firms that service high-income local consumers directly; those that concentrate on exporting their products; locally-owned retailers that have integrated backward; one timber and hardware company; a few that have integrated forward into the construction industry; and four that provide architectural wood products to the construction industry and furniture to local resorts.

Hotel, restaurant and institutional sales amounted to 22 per cent of total gross sales of all the firms in the sample, and more than 50 per cent of annual gross sales of 13 firms. Several firms have depended on sales to new resorts built in Fiji. Sales to retail stores amounted to 14 per cent of the sample's total gross sales, while sales to wholesalers accounted for 6 per cent of total gross sales.

All firms appear to be competing for retail customers, although there is no discernable relationship between gross sales and the incomes of targeted customers. Direct retail sales account for 56 per cent of total gross sales of the sample. Twenty firms stated that they rely on direct retail sales for 100 per cent of their revenue and two-thirds of those firms have retail showrooms in Fiji.

Even firms that differentiate their products carefully monitor their costs. Six respondents

reported strong competition from low-wage Asian firms. Of these six, five have gross sales over F\$500,000 and stated that they actively seek to differentiate their products from those of their competitors. That is, although they may have had some success in capturing sales through provision of higher quality, unique designs, or frequent design changes, they still must price their products to remain competitive with Asian firms.

### Position in world markets

Fiji's exports amount to a small fraction of the furniture exports of the large players, however, there are currently millions of dollars of export activity generated by this Fijian industry (Tables 3 and 4). Fourteen of the respondents export some proportion of their output, giving a lower bound for exports from this industry of at least F\$11,270,000 (US\$6,440,805) for 2002. This figure is considerably higher than that reported by the Fiji Trade and Investment Bureau for 2001. Since 1995, Fiji's furniture exports have been consistently increasing, and Fiji has now moved from a net importer to a net exporter of furniture (Table 3).

Australia, New Zealand, North America and Pacific island countries account for 85 per cent of Fiji's furniture exports (Table 5).

### Wage rate comparisons

The prevailing view among respondents was that the lower wages paid by their Asian competitors places Fiji's producers at a distinct disadvantage. Fiji's wages in manufacturing are higher than in Vietnam, Thailand and China, lower than Malaysia's, and on a par with the Philippines (Tables 6 and 7). There is undoubtedly some variation in wages within the countries that is not captured by reporting summary statistics. One source has reported wages for furniture workers in China as low as US 40 cents per hour (Iritani 2003). Such significant differences from Fiji's hourly wages imply a



Table 3 Fiji's furniture exports and imports, 1995–2001 (F\$)

|      | Exports (F\$) | Imports (F\$) |
|------|---------------|---------------|
| 1995 | 123,192       | 704,048       |
| 1996 | 149,098       | 328,466       |
| 1997 | 894,260       | 969,519       |
| 1998 | 963,219       | 1,025,311     |
| 1999 | 5,392,385     | 7,731,355     |
| 2000 | 10,919,857    | 8,930,317     |
| 2001 | 5,857,340     | 4,187,019     |

Source: Fiji Islands Trade and Investment Bureau, 2002. *Investment Opportunities in the Furniture Industry*, Government of Fiji Islands, Suva.

Table 4 Cross country comparison: exports, furniture and furniture parts, 2001 (US\$ million)

|                | Furniture parts<br>(US\$ million) |
|----------------|-----------------------------------|
| Fiji           | 2.6                               |
| China          | 5,074.2                           |
| Malaysia       | 1,388.2                           |
| Indonesia      | 1,433.5                           |
| Thailand       | 865.7                             |
| Philippines    | 298.5                             |
| European Union | 26,460.1                          |
| United States  | 5,398.1                           |
| Japan          | 560.3                             |
| United Kingdom | 867.3                             |

Source: United Nations, 2002. *International Trade Statistics*, United Nations, New York:406; Source for Fiji: Fiji Islands Trade and Investment Bureau, 2002. *Investment Opportunities in the Furniture Industry*, Government of Fiji Islands, Suva; Fiji Bureau of Statistics, 2003. *Key Statistics*, Government of Fiji Islands, Suva.

Table 5 Distribution of Fiji's furniture exports, by destination (from sample)

|                             | Australia | New Zealand | North America | Europe | Pacific islands | Other |
|-----------------------------|-----------|-------------|---------------|--------|-----------------|-------|
| Total exports<br>(per cent) | 23.0      | 10.0        | 28.0          | 0.33   | 24.0            | 14.0  |

Source: Author survey.





Table 6 Wages rates for the furniture industry in Fiji, by skill level, 2001

| Skill level            | Wage rates (F\$/hour) | Wage rates (US\$/hour) |
|------------------------|-----------------------|------------------------|
| Apprentices            | 1.65                  | 0.72                   |
| Casual workers         | 2.02                  | 0.88                   |
| Semi-skilled workers   | 2.10                  | 0.92                   |
| Skilled workers        | 2.80                  | 1.23                   |
| Production supervisors | 2.00–4.00             | 0.88–1.75              |

**Source:** Fiji Islands Trade and Investment Bureau, 2002. *Investment Opportunities in the Furniture Industry*, Government of Fiji Islands, Suva; Fiji Bureau of Statistics, 2003. *Key Statistics*, Government of Fiji Islands, Suva.

Table 7 Cross country comparison, hourly wages for workers in manufacturing jobs, 2000 (US\$)

|                   | Hourly wages<br>(US\$) |
|-------------------|------------------------|
| Fiji <sup>a</sup> | 1.05                   |
| China             | 0.84                   |
| Malaysia          | 1.82                   |
| Philippines       | 1.05                   |
| Thailand          | 0.78                   |
| Viet Nam          | 0.64                   |

<sup>a</sup> Data for 1998

**Source:** International Labour Organization, United Nations, 2002. *International Labor Statistics*, International Labour Organization, Geneva; Source for Fiji: Fiji Bureau of Statistics, 2003. *Key Statistics*, Government of Fiji Islands, Suva.

Table 8 Cross country comparison, imports of furniture and furniture parts, 2001 (US\$ million)

|                          | Imports<br>(US\$ million) |
|--------------------------|---------------------------|
| European Union           | 24,775.1                  |
| United States            | 20,613.7                  |
| Canada                   | 3,065.7                   |
| Japan                    | 929.6                     |
| Australia                | 625.8                     |
| New Zealand <sup>a</sup> | 57.0                      |

<sup>a</sup> Figure for 2002

**Source:** (Excluding New Zealand) United Nations, 2002. *International Trade Statistics*, United Nations, New York:406; Data for New Zealand <http://www.maf.govt.nz/statistics/primaryindustries/forestry/june-import-highlights>





need for the strategic responses discussed later in this paper.

### Global furniture markets

While Fiji is faced with significant competition for export markets, the size of the global market for furniture is important to consider (Table 8). The United States alone is a large net importer of furniture and furniture parts, taking in US\$20.6 billion in 2001. Australia and New Zealand, two of Fiji's traditional trading partners, together imported US\$680 million worth of furniture in 2001. Marginal players such as Fiji need only capture a slight percentage of these markets to experience significant gains.

### Data results

Firms for this study were defined as those operating in the formal sector, that is, firms engaged in the manufacture of wooden furniture and joinery products and that report their income and pay taxes. Firms that advertise or have a storefront are assumed to belong to this group.<sup>1</sup>

The statistical method employed is a permutation-based version of cluster analysis called the Multi-Response Permutation Procedure (MRPP) (Mielke 1986). MRPP calculates the average Euclidean distance between points within a group or cluster (according to the researcher's partitioning of the data). The MRPP statistic,  $\delta_o$ , is the weighted mean of the average distance of the subgroup means. The average Euclidean distance within clusters tends to be smaller than other groupings of points of the same size. The aim of the analysis is to determine how probable a particular arrangement of data is. Smaller values of  $\delta$  indicate clustering and larger values a lack of clustering. Thus the computer program written for MRPP reports the probability, the p-value, that an observed distance or  $\delta_i$  within the selected

groups would be of a smaller or equal distance than  $\delta_o$ . The null hypothesis in MRPP is then  $\delta_i \leq \delta_o$ ; and the reported p-value is  $p(\delta_i \leq \delta_o)$  (Mielke 1986).

### Technology and flexibility

In the early 1990s some authors hypothesised that CNC machinery would create economies of scope and lower economies of scale in manufacturing. The results of this survey seem to be consistent with Alcorta's (2001) findings that, while creating economies of scope the new technology also raised the minimum efficient scale of production.

The frequency of production batch changes was taken as an indicator of flexibility and economies of scope. The alternative hypothesis was that firms that do not use CNC machines change their production batches less frequently than firms that use CNC machines. The data was partitioned into two groups: firms that employed CNC machinery (Tier 1 firms) and firms that did not (firms in Tiers 2 and 3). The reported p-value was  $p=0.008$ ; thus the null hypothesis that there is no difference in flexibility between these two groups is rejected at a level of significance of  $p=0.01$ .

Another hypothesis tested was whether CNC machinery is more flexible than other up-to-date technology, as embodied in modern non-CNC woodworking machinery. Thus, for this test, Tier 3 firms were excluded. The null hypothesis was that there is no difference between the two groups in terms of flexibility, defined in terms of the frequency of batch changes. The p-value for the test was  $p=0.197$ . The null hypothesis is not rejected, implying that any gains from employing CNC machinery in terms of economies of scope have not been realised in Fiji. This finding is consistent with Respondent 1's statement that modern, production woodworking machinery is perhaps better suited than CNC machinery for customised, small-



scale furniture production. Further investigation would be necessary to substantiate that finding unequivocally.

### **Technology and product differentiation**

The relationship between choice of technology and product differentiation was tested using the frequency of design changes as a proxy for product differentiation. Two tests were conducted: first, a test of the association between the use of CNC machinery and the frequency of design changes and, second, a test of the association between the use of other modern technology and the frequency of batch changes.

For the first test, the alternative hypothesis was that firms that employ CNC machinery change product designs frequently. The null hypothesis was that there is no difference between firms that employ CNC machinery and other firms in this regard. The reported  $p$  value was  $p=0.61$ . Thus, the null hypothesis cannot be rejected. However, when the hypothesis that firms using modern (or second tier) technology was tested, the reported  $p$ -value was  $p=0.019$ . This is a marginal result, but is significant at the 0.05 significance level. This result lends support to the intuition of some managers that, at their level of scale and for their market niche, other modern technology is more appropriate than CNC machinery.

### **Product differentiation and advertising**

Advertising may be used as part of a product differentiation strategy. It is assumed that, at least in part, advertising is meant to create the perception that a product is somehow of better quality or more desirable than other firms' products. The alternative hypothesis is that firms selling to domestic low and middle-income customers devote a larger percentage of their revenues to advertising than firms targeting higher-income customers. The treatments were target income groups,

annual gross sales, and percentage of annual gross sales allocated to advertising. The two groups were: firms targeting customers with incomes below F\$40,000 per year and firms targeting customers with incomes above F\$40,000 per year. The null hypothesis was that there is no difference between these two groups in terms of the percentage of annual gross sales spent on advertising. The  $p$ -value from the test was  $p=0.4E-10$ . Thus the two groups are significantly different. However, caution needs to be exercised in interpreting this result. It does not mean that product differentiation through advertising is mutually exclusive from product differentiation through frequent design changes.

### **Flexibility and exports**

Another goal of the study was to determine what strategies exporting firms were using to market their products. The alternative hypothesis was that firms that use flexible technology are more likely to export a higher percentage of their products. Frequency of batch changes was assumed to be evidence of flexibility. For the test, the treatments were the percentage of annual gross sales exported; and the frequency of batch changes. Firms were partitioned into those that change production batches more than five times a week and those that change production batches less than five times a week. The null hypothesis was that there is no difference between the two groups. The reported  $p$ -value was  $p=0.29$ . Therefore, the null hypothesis was not rejected. Flexibility appears to have no association with the percentage of annual gross sales exported.

### **Product differentiation and exports**

There does appear to be an association between product differentiation and exports. In this case the frequency of design changes was assumed to be evidence of product differentiation. Firms were divided according



to whether they exported or not. The null hypothesis was that there was no difference between firms that export and firms that do not in terms of the frequency of design changes. The reported p-value was 0.008, significant at the 0.01 level of significance.

### **Technology and exports**

Does the level of technology affect whether firms export? The responses were partitioned according to the level of technology firms employ. Tier 1 and 2 firms were placed in one group and Tier 3 in the other. The alternative hypothesis was that firms that use more sophisticated technology are more likely to export their products. The null hypothesis was that there is no difference in average distances between the two groups. The reported p-value was  $p=0.22E-11$ , indicating that the two groups are significantly different.

### **Firm earnings and advertising**

Finally, the relationship between firm size as measured in terms of annual gross sales and advertising was tested. The alternative hypothesis was that firms that allocate over 5 per cent of their gross sales to advertising have higher gross sales than firms that allocate less than 5 per cent of their gross sales to advertising. The MRPP reported p-value was  $0.4E-3$ , indicating that the percentage of gross sales allocated to advertising and annual gross sales are associated.

### **Summary of results**

The results of the hypothesis tests are generally consistent with the results of other work investigating the use of technology in developing countries. Specifically, the use of CNC machinery was not shown to be significantly more flexible than other modern technology. Size of firms does seem to be an advantage. Larger firms seem to have been more successful in entering export markets in Australia, New Zealand, Europe, the United States, other Pacific island countries

and countries in the Middle East. They are also more likely to employ product differentiation; and employ more sophisticated technologies. They are more likely to advertise, and seem to be coordinating advertising with product differentiation. Firms servicing the local market seem to be employing a strategy of cost minimisation rather than product differentiation; employing means such as vertical integration to gain economies of scale and scope.

### **Problems and policy recommendations**

Most of the comments on existing policies and recommendations for changes in policy focus on altering the incentives for firms to invest in Fiji, and are therefore microeconomic in nature. This is not to imply, however, that the macroeconomic environment in which firms operate is not important. Most of the respondents indicated that they experienced a dramatic decline in gross sales and profits in 2001, the year of the last coup. Political instability increases the uncertainty that businesses face and therefore serves as a deterrent to investors, both domestic and foreign. Further, one would expect that government policymakers would craft their policies to maintain stability of exchange rates, low inflation, and so on.

Government can address incentives for firms to invest and enter export markets through various means. The following discussion addresses areas of concern for businesses that participated in the study.

### **Labour and human capital**

Firms in Fiji's furniture industry have been experiencing problems in regards to their labour force. Although local vocational programs train a small number of joiners and cabinetmakers each year, 75 per cent of respondents answered 'yes' when asked if



they had difficulty in hiring qualified employees. In addition, they have lost skilled employees through emigration to New Zealand and Australia.

Employers complain that the graduates of local trade schools require extensive on-the-job training in order to work independently. A few firm owners sit on the Fiji Institute of Technology's advisory board and have had some influence there on training programs. However, they complained that the problem persists. Nearly all of the firms in the survey provide on-the-job training to bring skills up to acceptable levels. One firm has started a program where a European-trained craftsman is training a small group of local apprentices to work at a high standard and promoting them with a work ethic that includes pride in producing high quality products.

There are two measures government and local training institutions could take to soften the negative impacts of emigration, improve training, and increase the number of skilled workers in this industry. First, firm owners and managers could be given a stronger role in devising curriculum and graduation criteria. Second, training could be two-tiered. After a preliminary course that teaches basic skills and knowledge of woodworking, students could work as apprentices in selected firms, preferably innovative firms involved in export markets. To overcome the reluctance of managers to take on inexperienced apprentices, the government could allow firms to deduct up to 50 per cent of apprentices' wages from their corporate taxes.

It would also seem desirable to provide further training for furniture making and joinery instructors in the most prominent institutions. The demands of modern furniture manufacturing differ significantly from those of the past, when a high degree of skill with hand tools was more important. Nowadays, workers must be able to set up, operate and maintain much more sophisticated machines

and, in some cases, have strong mathematical and computer skills. Therefore, the instructors in training institutions need to acquire knowledge and skills in these areas in order to impart them to their students.

### **Import duties on inputs**

Some managers reported that machinery and inputs purchased from overseas suppliers were subject to high import duties. Some firms imported at least 40 per cent of their inputs by dollar volume of input purchases including manufactured materials such as plywood, medium density fiberboard, plastic laminate, wood finishes and hardware. The tariffs on these items often amounted to a significant portion of the firms' input costs. One manager complained of paying a 27 per cent import tariff on his firm's wood finishes. By reducing such tariffs it may appear that government revenue from import duties would be lost, however, one could argue that improving the competitive position of these firms would result in increased output and employment. Any revenues lost on import duties would be offset by increased income tax and VAT revenues.

### **Consistency in supply**

Fiji has extensive timber resources. However, converting that stumpage into usable inputs for furniture making is not a smooth and unimpeded process. The local newspapers often publish articles describing disputes between landowners and harvesters, which result in interruptions to cutting and processing. One large sawmill in Vanua Levu has recently closed and there are accounts of interruptions in operations at other sawmills.

A few of the interviewees expressed frustrations over delays in deliveries of mahogany and shortages in their orders when they receive them. They point out that the mills export the best materials overseas before supplying local businesses. Also, they



stated that there are only two kilns that can dry hardwood to their specifications in the country, inadequate to meet local demand.<sup>2</sup> Their response has been to set up their own sawmills and kilns and some firms have succeeded in establishing relationships with timber harvesters to ensure that they have an uninterrupted flow of material.

Further government involvement in the timber supply chain could result in further politicisation of the industry and further impediments to input flows. An alternative to direct government intervention in supply chain difficulties would be to offer tax incentives to firms that invest in their own sawmilling operations and kilns. Firms that have already integrated backward in this manner report fewer problems in supply than those that have not. Government could then focus on issues regarding ownership of timber resources, access for harvesters and fair remuneration for landowners.

### Concluding remarks

Competition from Asian competitors may seem daunting to producers in Fiji. In an effort to address such concerns, this research has sought to discern elements of the strategies of successful exporting firms. The labour and other cost advantages enjoyed by Asian firms imply the need for a well-planned, strategic response from potential exporters. The empirical part of the study provides results consistent with the notion that the more successful exporters are innovators. These firms differentiate their products through advertising, artistic product design, and frequent design changes. They are sophisticated in their use of technology, choosing modern, flexible machinery and systems that are best suited to the firm's differentiation strategies.

Fiji's government could enact policies to improve the industry's position in world

furniture markets. The respondents cited problems with finding and retaining skilled workers. They complained that most of the graduates from Fiji's trades schools do not possess the skills necessary to work effectively. Consequently, a public-private initiative to revamp technical training in Fiji seems in order. Another area for policy improvement is reduction of import duties on inputs used in the production process. Respondents raised concerns about the high tariffs on wood finishes, complaining that there seems to be no protectionist argument to justify them, since this class of products is not made in Fiji. Finally, government could help to alleviate inconsistencies in the supply of kiln-dried, furniture-grade timber by offering tax incentives to those firms choosing to invest in their own sawmills and kilns.

Fiji's furniture and joinery industry is in a position similar to that of Fiji's garment industry before there was a conscious decision on the part of government and local businesses to foster it. The furniture and joinery industry has some marked advantages over the garment industry. Fiji has large timber reserves and an existing pool of experienced workers and entrepreneurs. If this industry can market its products skillfully, it also could become a major export earner.

Fiji's furniture and joinery industry has experienced growth over the last decade, in spite of various setbacks both regionally and nationally. That growth has been privately generated. It is entirely possible that the remarkable increases in output and employment in the garment industry can be replicated if the right climate is created for growth. Since the domestic market is limited to less than one million consumers, the most likely area for significant growth is in exports. The study has found examples of innovative uses of technology and marketing in several firms. Those examples can serve as encouragement for other firms considering expansion.





## Notes

- <sup>1</sup> The total number of firms in the industry is unknown because of the existence of home-based businesses operating in the informal sector.
- <sup>2</sup> Air drying of timber is a common practice of firms servicing the domestic furniture market. However, the moisture content of this wood is too high for export furniture.

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